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biolines@mweb.co.za
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Editors: Dr Dave Keetch & Remi Akanbi

Biotechnology Stakeholders Association
Tel: 012 667 1844
Fax: 012 667 5726
www.africabio.com

BioLines is AfricaBio's 'Biotechnology Headlines' – a quick guide to what is topical. By design, the articles are not exhaustive, but references are given to follow up points of interest. Let us know what you like and dislike about **BioLines** and what you want to see as part of this service. Articles are edited and some shortened to meet space requirements. It is not the intention of this service to infringe on copyright. **BioLines** is issued free of charge and every effort is made to acknowledge the source of information.

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AFRICA

AFRICAN AGRICULTURE CHALLENGED BY RAPID FOOD PRICE INCREASE

http://www.fao.org/newsroom/en/news/2008/1000868/index.html

Unprecedented hike in food prices, which rose 52% between 2007 and 2008, has resulted in severe economic, social and political consequences to African agriculture. Urgent measures are needed to offset the negative impacts and to rapidly boost food production in the most affected countries. This was forwarded by FAO Director-General Jacques Diouf at the 25th Food and Agriculture Organization Regional Conference for Africa.

Diouf added that African agriculture still faces many constraints, being undercapitalized, inefficient and uncompetitive. However, he said that with political will and good governance, Africa can change its agriculture and meet the food requirements of its people.

AFRICA RICE CENTER EXPANDS TO INCLUDE EGYPT

http://www.warda.cgiar.org/warda/newsrel-egypt-jun08.asp

Egypt is now a member of the Africa Rice Center (WARDA), as approved by the member countries of WARDA. It is the first country from North Africa to join the international institute. WARDA Director General Dr. Papa Abdoulaye Seck remarked, "Africa Rice Center has now a much wider coverage of the continent and our membership has doubled from 11 countries in 1970 when it was established, to 22 at present. It now includes countries from West, East, Central and North Africa."

EMERGENCY INITIATIVE TO COUNTER SOARING RICE PRICES

http://www.warda.cgiar.org/warda/newsrel-initiative-jun08.asp

An Emergency Rice Initiative for Africa has been launched by the Africa Rice Center (WARDA), Food and Agriculture Organization of the United Nations (FAO), and International Fund for Agricultural Development (IFAD) in response to the current soaring rice prices. The initiative will provide urgent assistance to rice-growing countries in the continent in four major areas: seed; fertilizer; best-bet technologies; and post-harvest and marketing.

Eleven countries have been initially selected for the emergency initiative, including Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Liberia, Mali, Mauritania, Nigeria, Senegal, Sierra Leone and Togo. The immediate priority for the Initiative is to kick-start rice seed production during the current rainy season so that sufficient quantities of seed of improved rice varieties for major ecologies are available for sowing in 2009.

BURKINA FASO OFFICIALLY JOINS BIOTECH COUNTRIES

d.otunge@cgiar.org

After many years of confined and open field trials, Burkina Faso has finally commercialized Bt cotton making it the third African country after South Africa and Egypt to join the ranks of biotech crop countries. Egypt recently commercialized Bt. maize (MON 810) and South Africa has been growing biotech crops (Bt. maize, Bt. Cotton and GM Soybean) for about 10 years.

Burkina National Agricultural Research Institute (INERA) and Monsanto recently signed a commercial agreement paving way for the importation of Bt cotton seeds to be grown for seed multiplication. Mr. Kinyua Mbijjewe of Monsanto Africa confirmed that seeds enough for 15,000 hectares had been imported and are already being planted by Burkinabe farmers. INERA hopes to produce 400,000 hectares worth of seeds for the next planting season.

There is widespread optimism in the country that Burkinabe farmers will finally enjoy the economic and agronomic benefits of Bt Cotton that South African, Chinese and Indian small scale farmers have been enjoying for many years. With Burkina Faso (West Africa) and Egypt (North Africa) joining the ranks of biotech countries, the challenge is now on eastern and central African regions to stop dragging their feet on the technology.

KENYA TO SEEK DONOR SUPPORT FOR NEW AGRICULTURE DEVELOPMENT FUND

d.otunge@cgiar.org

In response to the World Bank's recent calling for increased funding to the agriculture sector to boost food production, the Kenyan government plans to launch a multimillion dollar special fund for farmers. Agriculture minister William Ruto said the proposed Agriculture Development Fund (ADF) targets to raise half a billion dollars from the government, private sector, foundations and donor agencies. Currently, agriculture sector and related ministries including Livestock, Fisheries, Cooperatives and water are jointly seeking views from stakeholders on how to start the fund and sustain it. Economists, however, say that agriculture sector related ministries require about US $1.3 billion while the estimated credit need by Kenyan farmers is about One Billion USD. This will be used to fully revive following the massive losses they incurred due to chaos that rocked the country early this year as a result of disputed presidential elections.

Kenya's economy is largely dependent on agriculture which contributes 25% of the GDP and 65% of foreign exchange earnings. Ruto said the facility would also be used to finance research and development of new seed varieties that are resistant to diseases, pests and drought. The African Union obligates its member states to allocate at least 2% of the national budget to research, science, technology and innovation activities as one way of ensuring the continent's rapid industrialization.

SOUTH AFRICA'S FIRST PUBLICLY-FUNDED GM CROP AWAITS APPROVAL

http://www.arc.agric.za/uploads/images/0_Media_Release_BT_Potato.pdf

South Africa's Agricultural Research Council (ARC) has developed a new potato variety resistant to the potato tuber moth, a major pests causing millions worth of harvest loss in major solanaceous crops. The transgenic potato SpuntaG2, developed through the support of the United States Agency for International development (USAID), now awaits safety assessment and general release approval from the national authorities. The approval will enable the ARC to initiate farmer participatory trials under unconfined conditions and develop a certification and labeling system to prepare for commercial release of improved potato varieties. SpuntaG2 is the first publicly-funded genetically modified crop to enter the safety approval process in South Africa.

The new variety performed well in field trials. Environmental studies further showed that the GM crop controls the potato tuber moth without affecting other organisms. Once approved by regulators, ARC will include SpuntaG2 to its breeding program and transfer the potato tuber moth resistance to other preferred varieties. The council does not plan to release SpuntaG2 for commercial farming unless farmers specifically request the material.

CONCERNS ON RELEASE OF GM POTATO CULTIVAR IN SOUTH AFRICA

bpieterse@agric.co.za

The impending release of the genetically-modified (GM) potato that has resistance to potato tuber moth has triggered series of concerns among the consumers of South Africa. Potatoes South Africa supports biotechnology and the advantages of the GM potato for the potato industry. However, the group requests that the following concerns be finalized before the GM cultivar is approved for commercialization:

- Mandatory labelling of any GM potatoes to afford the consumer the choice to purchase GM or non GM potatoes.
- The development of a testing system for the reliable tracing of GM potatoes in order to make traceability and identification thereof possible.
- Obtaining the opinion of the consumers, taking into account the opinion of the retail, processing and the fast food industries.
- The impact of the general release of a GM cultivar on the potato export market should be determined before proceeding with the process.
- A communication plan must be launched to enable the consumers to make an informed choice on the consumption of GM potatoes.

GMOS FOR SMALL FARMERS IN AFRICA

http://www.harvardir.org/articles/1723/.

In the face of rising commodity prices and pervasive hunger, Africa needs more than financial assistance and food aid. Africa itself should invest in transgenic crops, according to Robert

Paarlberg, Associate at the Weatherhead Center for International Affairs at Harvard University. In his interview, Paarlberg stated that the continent is lagging behind in terms of agricultural biotechnology use. Aside from agri-biotech, there are other aspects of agriculture that Africa should consider: the use of fertilizer, access to electricity and powered machinery, and proper irrigation systems.

GM crops are not widely accepted in Africa, with the exception of the Republic of South Africa. African governments practice the precautionary principle with regard to GMOs, after what Europe has been doing due in part to the fact that the major market for African agricultural commodities exists in Europe, and a big part of financial assistance comes from the European Union. To change the anti-GMO mindset, African scientists working in African research institutes should develop genetically engineered crops in Africa, specifically tailored to the needs of small farmers in Africa, and funded by philanthropic foundations.

The current increase in world prices will trigger the influx of financial aid for agricultural development in Africa. If these responses will continue, there is nothing to stop Africa from seeing its productivity climb.

AFRICAN AGRICULTURE MINISTERS MEET ON WORSENING FOOD SITUATION

d.otunge@cgiar.org

African agriculture ministers are meeting in Nairobi to discuss the worsening food security problem. The 25th Food and Agriculture Organization (FAO) regional conference hopes to find solutions to the food situation that has already sparked off food riots in Kenya, Cameroon, Senegal, Egypt and Burkina Faso. Kenya's Agriculture Minister William Ruto, who also chairs the meeting, admitted that the continent was not giving priority to the agricultural sector in their annual budgets. Kenya for instance, allocated about $186 million to the agriculture ministry, a far much lower allocation compared to about $667million for the security or education ministries. "Many Africa governments admit that agriculture is the engine for growth but our economies have neither allocated sufficient funds nor developed appropriate well researched policies and programs to make agriculture the focal point that it really is", Ruto said.

Lack of policy implementation has increased food imports, costing Africa about $20 billion annually since 2000. The five-day conference sought remedial measures to combat rising food shortages, costs and high fuel prices that have heightened food production and distribution costs posing a starvation threat to the region.

GLOBAL

SCIENTISTS TO BEGIN TO UNLOCK THE COCOA GENETIC CODE

http://www-03.ibm.com/press/us/en/pressrelease/24523.wss
http://www.ars.usda.gov/is/pr/2008/080626.htm

The US Agricultural Research Service, International Business Machine (IBM) and the US confectionery company Mars have launched a five-year project to sequence the cocoa genome. According to the companies, the research could benefit over 6.5 million farmers around the world. Insights from the cocoa genome could enable scientists to develop cocoa crops with higher yields, pest and disease resistance, and increased water and nutrient use efficiency.

Mars will be funding the research and IBM will be using its supercomputers to analyze the cocoa genome. The research results will be freely available through the Public Intellectual Property Resource for Agriculture (PIPRA), which supports agricultural innovation for both humanitarian and small-scale commercial purposes.

Compared to other major crops such as corn, wheat and rice, cocoa has been the subject of little agricultural research. Hardier cocoa varieties may help protect an important social, economic and environmental driver in Africa, where around 70% of the world's cocoa is produced.

REMOVE BARRIERS TO USE OF BIOTECH

http://www.state.gov/s/d/2008/105902.htm

Sustainable food security will come from advances in science and technology and the creation of an efficient global market for both agricultural products and food production technologies. "We therefore are strongly encouraging countries to remove barriers for the use of innovative plant and animal production technologies, including biotechnology." This was stressed by John Negroponte, U.S. Deputy Secretary of State, during the 2008 World Food Prize Laureate Announcement.

Negroponte said that "biotechnology tools can help speed the development of crops with higher yields, higher nutritional value, better resistance to pests and diseases, and stronger food system resilience in the face of climate change."

In related events, former U.S. Senators Robert Dole and George McGovern have been selected to receive the 2008 World Food Prize in October 2008 for their "collaborative leadership that has encouraged a global commitment to school feeding and enhanced school attendance and nutrition for millions of the world's poorest children, especially girls."

DROUGHT-TOLERANT CROPS WILL BE AVAILABLE IN THE NEXT DECADE

http://www.whybiotech.com/newsandevents/062408_feature.asp

Drought-tolerant crops are expected to reach farmers as early as 2013, agri-biotech experts said at the Biotechnology Industry Organization (BIO) International Convention in San Diego, USA. Speaking at the conference, Dr. Chris Zinselmeier, Program Leader for Water Optimization Technologies for Syngenta, stated, "We are seeing very positive results in experimental lines of plants under drought conditions and can be optimistic about bringing these plants to market in the next decade."

Scientists have developed drought-tolerant maize, cotton, and canola among other crops. These varieties have performed well in field trials. But scientists pointed out that turning these drought resistant varieties into commercial crops will take several more years.

The use of drought-tolerant crops could result in improved yields in variable or dry years, less need for irrigation in normal years and better yields on land previously considered marginal for cost-effective production.

IMPACT OF BT MAIZE CULTIVATION IN SPAIN

http://ftp.jrc.es/EURdoc/JRC37046.pdf

Cultivation of GM crops in the European Union (EU) remains very limited. Only Bt maize has been approved for cultivation, with Spain growing over 53,000 hectares of the crop in 2006. Bt maize, cultivated in 15% of Spain's maize-growing areas, has been adopted by the country since its introduction in 1998. A study conducted by the European Commission Joint Research Center found that Bt maize produced variable impacts on maize yields in Spain, ranging from neutral to 12% yield increase (US $194 per ha per year).

The report used data from a survey carried out among 402 commercial maize farms in the Spanish provinces of Zaragoza, Lleida and Albacete. On average, growers of conventional maize applied 0.86 insecticide treatments per year to control borers versus 0.32 treatments per year applied by Bt maize growers. Reasons quoted by farmers for adopting Bt maize include lowering the risk of maize borer damage, obtaining higher yields and better quality of harvest. The report concludes that the differences in yields are attributable to the adoption of Bt maize varieties and not to differences in the socio-economic profiles or technical capability of the farmers surveyed.

OTHER

STUDIES IN SWITZERLAND SHOW GMOS ARE SAFE

http://www.bafu.admin.ch/dokumentation/medieninformation/00962/index.html?lang=en&msg-id=19349

The Federal Office of the Environment of Switzerland carried out a program of research on biosafety in non-human gene technology between 2004 and 2007. The aim was to acquire a scientific basis for implementing the safety requirement laid down in the Gene Technology Act. The FOEN also

supported a program of studies into the impact of gene technology on living organisms, which had previously been under- or not at all researched. Some of the findings were:

- Current discussion of the ethics of risk showed that neither a strong precautionary principle nor a pure cost/benefit analysis is adequate for assessing the release of GMOs.
- Genetically modified crops currently being cultivated has very low probability of adversely affecting bees and other insects. Transgenic plants resistant to harmful fungi were also found to retain their symbiosis with useful soil fungi.
- Genetically modified insect-resistant Bt-maize plants and conventional varieties of maize have no differences in terms of impact on soil ecosystem.

ATTITUDE ON GM CROPS CHANGING

http://www.gmo-compass.org/eng/news/367.docu.html.

In the light of food shortages and rising prices around the world, the United Kingdom Environment minister Phil Woolas suggested that the British rethink its stand on GM crops. The minister stated that "the debate is already under way" and that "many people concerned about poverty in the developing world and the environment are wrestling with this issue." The British Government made clear in 2004 that commercial planting of GM crops would be allowed only on a case-by-case basis if individual crops are nationally regarded to be safe for humans and the environment. No commercial cultivation of GM is currently underway in the UK.

CALLS FOR INCREASED GLOBAL ACCESS TO AGRICULTURAL BIOTECHNOLOGY

http://www.mofa.go.jp/u_news/2/20080708_182602.html

Leaders of the G8 countries (Canada, France, Germany, Italy, Japan, Russia, United States and the United Kingdom), who met in Hokkaido, Japan for their annual summit, agreed that biotechnology could help farmers increase crop productivity and provide more healthful food around the globe. Addressing the issue of global food security, the leaders said that they will “accelerate research and development and increase access to new agricultural technologies to boost agricultural production” and “promote science-based risk analysis including the contribution of seed varieties developed through biotechnology”.

The leaders also agreed to promote agricultural research and development and training of scientists and experts from developing countries focusing on the dissemination of improved, locally adapted and sustainable farming technologies, via the Consultative Group on International Agricultural Research (CGIAR). In addition, a global partnership on agriculture and food will be formed. The partnership, which would be coordinated by the United Nations, will involve developing country governments, the private sector, civil society, donors, and international institutions. "As part of this partnership, a global network of high-level experts on food and agriculture would provide science-based analysis, and highlight needs and future risks."

SOME PLANTS CAN ADAPT TO CLIMATE CHANGE

http://sunews.syr.edu/story_details.cfm?id=5149.

A new study conducted by scientists from Syracuse University and the University of Sheffield found that some plant species are adaptable to long-term changes in temperature and rainfall. The new findings resulted from the analysis of 13 years of data collected at the Buxton Climate Change Impacts Laboratory (BCCIL) in the United Kingdom by Emeritus Professor J. Philip Grime and colleagues at the University of Sheffield. BCCIL is a field laboratory of grasslands consisting largely of slow-growing herbs and sub-shrubs. Thirty small grassland plots were subjected to microclimate manipulation. A similar experiment was concurrently conducted on grasslands in Southern England. In a 2000 study by Grime and colleagues, the vegetation in the southern plots was substantially altered by the climate changes, while the Buxton vegetation in the north was virtually unaffected.

"Contemporary wisdom suggests that climate changes cause plants to move or die," says Jason Fridley, study co-author and assistant professor of biology in The College of Arts and Sciences at SU. "However, our study suggests that if the changes in climate occur slowly enough, some plants have the ability to respond, adapt and thrive in their existing location."

CODEX ADOPTS GUIDELINES TO ASSESS SAFETY OF LOW-LEVEL GM MATERIALS

ftp://ftp.fao.org/codex/Alinorm08/al3103Ae.pdf

The Codex Alimentarius Commission has approved key guidelines to further promote the safety of products from plant and animal biotechnology. The commission, during its 31st session in Geneva, Switzerland, approved:

- the Annex on Food Safety Assessment in Situations of Low-Level Presence of Recombinant-DNA Plant Material in Food (LLP Annex),
- the Annex on Food Safety Assessment of Foods Derived from Recombinant DNA-Plants Modified for Nutritional or Health Benefits, and
- the Guideline for the Conduct of Food Safety Assessment of Foods Derived from Recombinant-DNA Animals

In 2006, the Codex Task Force on Foods Derived from Biotechnology agreed to draft an international guidance for food safety assessment of low-level presence of biotech products authorized as safe for use in food, feed, etc. The draft was approved late last year and was officially adopted by the commission last week.

The Codex Alimentarius Commission was created in 1963 by the Food and Agriculture Organization (FAO) and World Health Organization (WHO) to develop food standards, guidelines and related texts to protect consumers' health, ensure fair trade practices in the food trade, and promote coordination of all food standards work undertaken by international governmental and non-governmental organizations.

FORTIFIED CASSAVA: A DAY'S NUTRITION IN A SINGLE MEAL

http://researchnews.osu.edu/archive/tropicalag.htm

Cassava is a staple food for millions of poverty stricken people in Sub-Saharan Africa, South America and parts of Asia. Cassava roots, similar to potatoes, are often eaten boiled or deep-fried. The root is rich in carbohydrates and starch, but low in protein and vitamins. An international team of scientists has determined a way to fortify cassava with enough proteins, vitamins and minerals to provide the poor and malnourished with a day's worth of nutrition in a single meal. The researchers have also developed virus-resistant lines and varieties that produce less cyanogens, compounds that can trigger the production of cyanide.

The scientists introduced genes that encode metal transport proteins to produce cassava that accumulates more iron and zinc. Genes that are involved in carotenoid and terpenoids production were also inserted to fortify the plant with vitamins A and E. The next step, according to researchers, will be to combine the bio-engineered traits into a single, farmer-preferred cultivar.

NOTICE BOARD

22nd – 24th June 2008 - The ASEAN Centre for Biodiversity, in collaboration with Cambodia's Ministry of the Environment, will conduct a "Workshop on Risk Assessment of Genetically Modified Organisms (GMOs) / Living Modified Organisms (LMOs) and Enforcement of Biosafety Regulations" in Siem Reap, Cambodia. The workshop aims to help enhance regional capacity, promote better understanding, and strengthen cooperation in the ASEAN region by providing a venue for information sharing of up-to-date scientific information on emerging areas of biosafety and risk assessment. For more information visit http://www.aseanbiodiversity.org/risk_assessment/index.htm

11th – 15th August 2008 - Environmental Biosafety Short Course. The Department of Biological Sciences, Moi University in Kenya, in partnership with the Program for Biosafety Systems (PBS), invites applications for participation in a short course on Environmental Biosafety to be managed by the International Food and Policy Research Institute (IFPRI). The course is scheduled to take place at Moi University's Chepkoilel Campus, Eldoret, Kenya. For course details contact Dr. Donald F. Otieno at dfotieno@yahoo.co.uk or Dr. Beatrice Were at wbeatrice@hotmail.com of the Department of Biological Sciences, Moi University.

19 – 22 August 2008 - The International Conference on Sorghum for Biofuel is to be held in Houston, Texas. The conference aims to further evaluate the potential of sorghum as

a biofuel feedstock. Discussion topics will include current applications and research in crop genetics, genomics, breeding and transgenics in addition to conversion technology and economics. Additional details at http://www.ars.usda.gov/meetings/sorghum/Intl%20Bioenergy%20Flyer.pdf

11th – 15th September 2008 - The 5th International Hybrid Rice Symposium will be held in Changsha, China. The event is expected to bring together leading researchers from various disciplines to review current knowledge on hybrid rice development, seed production, molecular application, and economics, and to discuss future research strategies. The program will include a combination of paper presentation sessions and field visits. More information at http://www.5thishr.cn/.

9th – 12th December 2008 - Global Potato Conference 2008. Potato is the fourth most important food crop after rice, wheat and maize. Realizing the potential of potato as the future food crop to feed the burgeoning global population, the Food and Agriculture Organization (FAO) designated 2008 as "International Year of Potato (IYP)". To celebrate the event, "Global Potato Conference 2008" will be held at NASC Complex, New Delhi, India. The theme of the Conference is "Opportunities and Challenges in the New Millennium". This Conference is jointly organized by the Indian Potato Association (IPA), Central Potato Research Institute (CPRI), Shimla and Indian Council of Agricultural Research (ICAR), New Delhi. Obtain more information about the GPC 2008 at http://www.gpc2008.in. For registration inquiries, contact Dr JS Minhas at minhasjs@excite.com

16 – 18 April 2009 - The Indian Society of Cotton Improvement (ISCI), the Indian Fiber Society (IFS) and the Indian Council of Agricultural Research (ICAR) is organizing an international seminar on emerging trends in production, processing and utilization of natural fibers from 16-18 April 2009 at CIRCOT, Mumbai India, The seminar intends to bring together experts in the field of fiber production, processing, diversified product manufacture, marketing and by-product utilization on the one hand and all those concerned with policy planning and implementation on the other on one platform for an effective dialog. The deliberations are expected to culminate in the preparation of a performance oriented action plan that will focus on economically viable technologies for the effective use of textile grade natural fibers. Details available on ICAR website at: http://www.icar.org.in/Cotton_International_Seminar_Application_Form.PDF . For registration contact, Dr. R.H. Balasubramanya at circot@vsnl.com