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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.

CONTENTS:

AFRICA

DROUGHT-RESISTANT MAIZE TRIALS TO START SOON

http://www.iol.co.za/index.php?set_id=1&click_id=143&art_id=vn20071022035128441C598013

Trials for a new drought-resistant gene to be used in genetically modified crops will start next month in various locations in South Africa, according to seed producers Monsanto.The news comes as Environmental Affairs and Tourism Minister Marthinus van Schalkwyk warned in parliament that climate change would lead to a 20 percent reduction in the maize crop over the next 25 years.

Kobus Steenkamp, biotechnology manager of Monsanto in South Africa, said during a visit arranged for the media to Monsanto's experimental farm near Malelane in Mpumalangaa that the company had been granted permission to locally start testing the "drought-gene" developed in United States laboratories.

According to Monsanto's calculations, 30 percent of maize in SA is at risk of failing because of drought - by far the most important factor in crop failures. The "drought tolerance product" causes maize plants to make more efficient use of the water they get, as well as to "tolerate" the absence of water. At first, the gene will be bred into maize lines, but drought-tolerant soybeans and cotton are expected to be on the market "early in the next decade".

PROTECT AFRICA FROM TECHNOLOGICAL VANDALISM

http://www.bdafrica.com/index.php?option=com_content&task=view&id=3716&Itemid=5821

African countries should adopt laws that protect the region's research efforts against technological vandalism, argues Calestous Juma

The Kenyan parliament is debating a bill to enable the country to regulate agricultural biotechnology. Critics, however, argue that passing the law would pose threats to the environment, threaten the welfare of farmers and expose the people to unknown health risks.

To the contrary, failing to adopt the law will condemn Kenya to the backwaters of technological innovation. Adopting biotechnology will do for African agriculture what the mobile phone has done for telecommunications. It will revolutionize agriculture, offer new tools for managing the environment and expand economic opportunities for farmers.

Predicting technological doom is not new. Early critics of the microelectronics revolution claimed that labour-saving technologies would create unemployment and lead to economic decline. African countries caved in to the scaremongering and imposed restriction on key fields such as industrial automation. Such decisions contributed to the so-called "digital divide" that separate Africa from the rest the world.

Similar scare tactics are being used today to oppose a technology that has been adopted in much of the world. Biotechnology critics invoke arguments about the risks of biotechnology to the environment and human health. But they fail to consider the risks that Africa would face if it did not adopt biotechnology. If they succeed, their acts will result in a "genomics divide" that will isolate Africa from the most significant scientific advance of our times.

AFRICAN MAIZE BREEDERS URGE SPEED UP OF NEW CROP VARIETIES

http://www.agra-alliance.org/news/pr100507.html

Maize breeders in eastern and southern Africa are getting impatient on the release of new maize varieties that are improved to resist drought, pests and diseases. Maize breeding itself takes a long time to complete, and the added time for it to pass the regulatory approval takes a few more years. Sometimes a variety is approved for release to the farmers 5 years after it is developed. The Maize Breeders Network (MBNet) composed of plant breeders from national research institutes and leading universities in eastern and southern Africa, in their recent meeting, discussed strategies to develop and distribute seeds suitable for local environments across Africa, and to encourage the development of government policies that support these efforts.

The Maize Breeders Network calls upon African governments to:

- Facilitate the approval of new seed varieties without sacrificing the legitimate interests of farmers and consumers;
- Streamline and strengthen the process of data collection and analysis by regulators, that have a tendency to slow varietal release; and
- Hasten cross-border sharing and testing of maize germplasm among national regulatory agencies within the region

Maize is the most important cereal crop in sub-Saharan Africa, and the speedy release of improved corn varieties can contribute to the quick turn around of Africa's food crisis situation. Breeders and farmers are ready to develop crops that will deal with the looming climate change and drought crisis.

PHD PROGRAM FOR AFRICAN STUDENTS LAUNCHED

http://www.agra-alliance.org/news/pr091707.html

A research and education partnership was created to promote the manpower capability in science and technology for the people of Africa. The Alliance for a Green Revolution in Africa (AGRA) is partnering with the University of Ghana, Legon, for the West Africa Centre for Crop Improvement (WACCI); and with the University of KwaZulu-Natal in South Africa for the African Centre for Crop Improvement (ACCI). Both programs will train 120 PhD plant breeders who will serve as the critical mass of scientists to help end Africa's food crisis. "These programs will bridge a wide gap in African scientific capacity, by training African plant breeders in African universities to improve and adapt the indigenous and orphan crops needed to meet Africa's food needs," said Joseph DeVries, Director of AGRA's Programme for Africa's Seed Systems.

The students will be tasked to develop strategies for conquering malnutrition and hunger in Africa. These future crop breeders should develop high-yielding, hardy, and nutritious varieties of African crops adapted to the wide range of conditions and constraints faced by Africa's small scale farmers. African staple crops cassava, sorghum, millet, plantain, and cowpea will be the priority crops for improvement.

Cornell University in New York joins the partnership and is tasked to provide services and resources for curriculum design, assessing research capacity and reviewing dissertation proposals.

AFRICA TOO SLOW ON BIOSAFETY LEGISLATION

http://www.aatf-africa.org

Only four sub-Saharan African countries, South Africa, Zimbabwe, Sudan and Burkina Faso, have fully functional biosafety legal frameworks despite the fact that other parts of the world have been growing biotech crops for over ten years. Fifteen other Sub-Saharan countries, including Kenya, Malawi and Tanzania, have interim biosafety frameworks. Francis Nang'ayo, biosafety expert at the African Agricultural Technology Foundation (AATF), speaking during the tenth session of the Open Forum for Agricultural Biotechnology (OFAB 10) held recently in Nairobi, wondered why African states were so reluctant to enact biosafety laws, yet had signed and ratified the Cartagena Protocol on Biosafety, which mandates them to enact national biosafety legislations.

'There is encouraging progress towards enactment of biosafety laws in Africa', he noted. Even so, participants at the OFAB 10 were concerned that most states were held hostage by anti-biotech lobby groups who could easily influence them to enact stringent laws that would impede rather than facilitate biotechnology research, development and deployment" OFAB is a monthly networking and biotechnology discussion forum for scientists, regulators, policy makers, media, politicians and the public.

PROTEIN-RICH YAM BEAN IN AFRICA?

Sara Uttech at suttech@agronomy.org

The yam bean, a root vegetable grown in South and Central America, South Asia, East Asia and the Pacific is a source of protein and seed oil used in the food industry in these regions. Séraphin Zanklan, a scientist at Centre Songhai in Porto-Novo, Benin, investigated the yam bean for its potential to grow and produce food under West African conditions. In an article to be published in the journal Crop Science, Zanklan reports that 34 yam genotypes were grown with and without flower removal at one droughty location and one irrigated location. Of the 33 traits that were measured, nearly all showed large genetic variation. In addition, the easy spreading of its seeds makes this crop very desirable to breeders.

RISK AND BENEFITS OF ADOPTING BT COTTON IN WEST AFRICA

http://www.ifpri.org/pubs/dp/IFPRIDP00718.pdf

Cotton is the largest source of export receipts of most West African countries. Because of significant reduction in cotton yields and increasing tendency in pesticide use, as recorded in the past few years, there appear to be potential payoffs from the use of biotechnology products in the farming systems of the region. A new study published by the International Food Policy Research Institute estimated different scenarios for the potential deployment of insect resistant biotech cotton is countries in West Africa like Burkina Faso, Benin, Mali and Chad.

Results show that the total net benefits of adopting Bt cotton seem to be small. Nevertheless, the analysis also showed that the countries included in the evaluation are worse off if they decide not to adopt Bt cotton. The study may provide tools and information that can be used to build greater confidence in the process of setting agricultural research investment priorities.

EASTERN AND CENTRAL AFRICAN COUNTRIES JOIN WARDA

http://www.warda.org/warda/newsrel-COM-oct07.asp

Africa Rice Center's (WARDA) Council of Ministers approved the geographic expansion of the center's mandate by admitting four Eastern and Central African countries as new members. The approval, made at the recently concluded 26th Council of Ministers session, marked a historic change in rice research in sub-Saharan Africa. The new members include the Central African Republic, the Democratic Republic of Congo, the Republic of Congo and Uganda. WARDA, primarily based in West Africa, has now a total of 21 member states.

"This is the first time since 1987 that new members have joined WARDA," stated WARDA Director General Dr Papa Abdoulaye Seck. "But what is more important is that the new member States are from Eastern and Central Africa – regions that, unlike West Africa, were not traditionally known for rice cultivation." He also added that countries like Uganda and the Republic of Congo are keen to join WARDA for they are seeing the success of the center's technologies, particularly the New Rice for Africa (NERICA), a high yielding and stress tolerant hybrid rice now cultivated by most African upland farmers.

GLOBAL

WORLD FOOD DAY 2008

http://www.fao.org/newsroom/en/news/2007/1000677/index.html

The global celebration of the Food and Agriculture Organization's (FAO) World Food Day is held annually on the 16th of October, the day the Organization was founded. This year's theme "The Right to Food" highlights the basic human right for every person to have regular access to sufficient, nutritionally adequate and culturally acceptable food for an active, healthy life.

OECD ROUNDTABLE DISCUSSION FOR BIOFUEL

http://www.oecd.org/dataoecd/33/41/39276978.pdf

A roundtable discussion by the Organization for Economic Cooperation and Development (OECD) led by Richard Doornsbosch and Ronald Steenblik, was conducted to determine:

- whether the technical means exist to produce biofuels in ways that enable the world to meet demand for transportation energy in more secure and less harmful ways, on a meaningful scale and without compromising the ability to feed a growing population; and
- if the current national and international policies that promote the production of biofuels represent the most cost-effective means of using biomass, and the best way forward for the transport sector.

Participants to the discussion recommended the development of a new alternative policy agenda that highlights the necessity to find renewable energy sources that are cheap, clean, flexible and easily scalable. The policy should address concerns on: tapping other energy sources besides ethanol; removal of present government mandates on blends that leads to a domino effect of complex problems; need for a thorough study of the subsidy policies which currently blind consumers on the realities of the biofuel industry; and the establishment of regulatory interventions and fiscal resources that enable the widest array of biofuel technology to compete.

NEW PATENTS FOR CROP DROUGHT PROTECTION TECHNOLOGY

http://www.performanceplants.com/

Performance Plants Inc., a Canadian agricultural biotechnology company, has announced that it has secured Canadian and US patent protection for its proprietary crop drought protection -- Yield Protection Technology™ (YPT™). The announcement marked the opening of a new company facility in Kingston, Ontario.

YPT™ protects crops by allowing them to close earlier their stomata- the plants' microscopic pores that mediate gas exchange- thereby reducing water loss through transpiration. As a result, YPT™ enables plants to increase yield by 15% - 25%, depending on the plant species. The technology is expected to be available to farmers in 2011.

"Biotechnology is the best solution to some very large human problems such as water shortages, climate change and increased population," said Dr. David Dennis, President and Chief Executive Officer. "What we are doing at our new laboratory facilities in Kingston and at our lab in Saskatoon will put Canada and Performance Plants in the forefront of developing a secure food supply for the world."

STRATEGIES FOR CLIMATE CHANGE AND DESERTIFICATION

http://www.icrisat.org/Media/2007/media14.htm

The billions of poor and malnourished people of Asia, Africa and South America are the most vulnerable to climate change. But, with advances in science, knowledge-based interventions, and significant donor support from the developed and developing countries to support research, these people can be made less vulnerable, according to Dr. William Dar, Director General of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and the Chair of the Committee for Science and Technology of the United Nations Convention to Combat Desertification (UNCCD).

ICRISAT, which focus on research and development of semi-arid crops, is finding ways to address the current climate uncertainty, land degradation and water scarcity. These initiatives include improved climate variability analysis; projects to overcome land degradation and water scarcity; use of improved crop management options; improved crop breeding; and a pro-poor BioPower strategy.

BIOFUELS MAY CONTRIBUTE TO GLOBAL WARMING

http://www.rsc.org/chemistryworld/News/2007/September/21090701.asp

Rather than lowering greenhouse gas emissions, growing and burning biofuels may contribute to its accumulation, as shown by a new study led by Nobel laureate Paul Crutzen. Crutzen and his colleagues have computed that growing a number of commonly used biofuel crops releases about twice the amount of the greenhouse gas, nitrogen oxide, than previously thought. The research paper appears in *Atmospheric Chemistry and Physics* and is currently subject to open review.

Crutzen, known for his works on nitrogen oxides and the ozone layer, declined to comment before the paper is officially published. The paper suggests that microorganisms convert the nitrogen from fertilizers to nitrogen oxide twice as much as the figure used by the International Panel on Climate Change (IPCC). For rapeseed and corn biodiesel dominant in Europe and US, respectively, the relative warming due to nitrogen oxide emission is 1.5 to 1.7 times larger than the quasi-cooling effect due to reduced fossil CO_2 emission.

In the study, only sugarcane biodiesel, with 0.5 -0.9 relative warming, presents a viable alternative to fossil fuel use. Other experts are critical of Crutzen's approach. Simon Donner, a nitrogen researcher based at Princeton University, says the method is elegant but Crutzen's basic assumption may prove to be wrong. Stefan Rauh, an agricultural scientist at the Institute of Agricultural Economics and Farm Management in Munich, questions the values chosen by Crutzen to calculate his budget, and says that the rates for converting crops into biofuel should be higher.

CODEX ANNEX TO ASSESS SAFETY OF LOW-LEVEL GM PLANT MATERIALS

http://www.fsis.usda.gov/regulations_&_policies/Delegate_Report_6FBT/index.asp

The Codex Alimentarius *Ad Hoc* Intergovernmental Task Force on Foods Derived from Biotechnology approved a proposed annex to the Codex Plant Guideline that addresses safety assessments in case of low-level presence of recombinant-DNA plant material. Because of the increasing number of approved genetically modified (GM) crops around the world, biotech plant materials may be present at low levels in shipments between producing and importing countries. Different sets of rules are

implemented in different countries when it comes to the allowable levels of GM plant materials in conventional shipments. T he Annex will seek to address the need for a standard rule that will apply to all countries.

The Annex will be submitted to the Codex Alimentarius Commission for consideration at its next meeting in 2008 and, if approved, an international standard will be established. 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 such as codes of practice under the Joint FAO/WHO Food Standards Program. The Program aims 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.

OTHER

EIGHT-GENE STACKED COMBINATION IN MAIZE

http://monsanto.mediaroom.com/index.php?s=43&item=527

Monsanto and DowAgrosciences have reached a cross-licensing agreement aimed at launching SmartStax™, the first-ever eight-gene stacked combination in corn. SmartStax will include the companies' above- and below-ground insect protection systems including Dow's Herculex® I and Herculex RW technologies; Monsanto's YieldGard VT Rootworm/RR2™ and YieldGard VT PRO(TM); and their weed control systems, Roundup Ready® and Liberty Link®. Every trait included in SmartStax is either available commercially or in advanced stages of regulatory review. The agreement is expected to create a new competitive standard for stacked-trait offerings as well as expand both the companies' seed brands and trait businesses.

"By bringing together the two companies that have developed and commercialized the trait technologies widely used in agriculture today, we can provide farmers an 'all-in-one' answer to demands for comprehensive yield protection from weed and insect threats," said Carl Casale, Monsanto's executive vice president of strategy and operations. The companies have collaborated on initial proof of concept testing on SmartStax aimed at feasibility of trait integration and viability of enhanced performance. SmartStax is expected to be commercially available by the end of 2010.

GM CROPS TO RAISE FARM INCOME IN INDIA

http://www.ficci.com/press/release.asp or http://www.agribio2007.com

Mr. Fernando Nebbia, Argentina's Undersecretary of Food and Agriculture Policies, stressed the importance of agricultural biotechnology in transforming Indian agriculture and raising the income levels of small farmers in the same way that it did to farmers in Argentina. As the second largest grower of GM crops in the world, Argentina planted 18 million hectares of GM soybean, maize and cotton in 2006. The country increased its farm income by $5.4 billion in the last ten years and created thousands of job opportunities for Argentineans, said Nebbia during an international conference on agricultural biotechnology (AgriBio2007) in New Delhi.

In line with the Argentinean experience, India should accept that genetically modified seeds can be a part of the solution to feed the growing population and reduce the pressure on land. "If we like it or not, transgenics are the order of the day," said Mangala Rai, Director General of the Indian Council of Agricultural Research. The Federation of Indian Chambers of Commerce and Industry, in collaboration with the Department of Biotechnology and the Indian Council of Agricultural Research, organized the two-day conference. The International Service for the Acquisition of Agri-biotech Applications (ISAAA) and the US Department of Agriculture were also partners in this endeavor.

AREA UNDER GM MAIZE IN SPAIN INCREASES BY 40% IN 2007

http://www.fundacion-antama.org/node/206

Spain has currently over 75000 hectares of land under cultivation of biotech maize, an increase of 40% over last year's area, according to the Ministry of Agriculture, Fisheries and Food. Over half the maize planted in the province of Cataluña is genetically modified, and the area occupied by biotech varieties has doubled and tripled in Extremadura and Navarra, respectively. Bt maize accounts now for over 20% of the maize production in Spain.

A very significant increase in the adoption of biotech varieties is also observable in France, where the area under biotech maize increased by a factor of 4 in 2007. Other countries commercially growing biotech crops in Europe are Portugal, Germany, Check Republic, Romania, Slovakia and Poland.

AUSTRIAN GMO BAN ILLEGAL

http://www.europabio.org/articles/PR-Austrian_ECJ_070914.pdf

The European Court of Justice has confirmed that the statutory GMO free regions are illegal after dismissing the appeals of Upper Austria and the Austrian Government against their ban on the use of genetically modified crops in the region of Upper Austria. The Judgement says that practices such as organic or small scale farming cannot be used as an argument to prohibit the cultivation of biotech crops approved by the European Union. It also confirms that it is illegal for national governments to impose bans and deprive individual farmers of the choice to grow GM crops which have been approved for commercial cultivation in the EU.

"Attempts to create so called "GMO-free regions" should be seen for what they are: a denial of the freedom of choice for farmers and consumers" said Johan Vanhemelrijck, Secretary General EuropaBio – the EU association for bioindustries. He also added that the court's dismissal is great news for farmers, for the European Food Safety Authority's (EFSA) scientific assessment, and for the EU biotech regulatory framework established by Member States. Farmers are free to take official actions should their region or government tries to stop them from cultivating approved transgenic crops.

NOTICE BOARD

26 October 2007 - The Barwale Foundation, in association with the Indian Agricultural Research Institute, is organizing a half-day seminar on the development of GM rice in India and China on Oct 26 2007 at the IARI auditorium, Pusa campus, New Delhi, India. The speakers include renowned scientists from China, US and India. For more information about the seminar visit: http://www.barwalefoundation.org/html/announcement-gm-rice.htm. For registration contact: Mr Dinesh Joshi at dineshjoshi@barwalefoundation.org.

13 – 14 November 2007 - The Asia Biodiesel Industry 2007: Opportunities, Challenges & Growth Conference will be held in Suntec Convention Centre, Singapore. Leading biofuel experts, technology developers and entrepreneurs will be discussing diverse topics including: the Asia biodiesel market -potentials, opportunities and challenges; feedstock strategies; environmental challenges; production and refining biodiesel and the environment; technology updates and developments; and country analysis. For registration and more information on this conference, please contact +65-6220 2577 or email asiabiodiesel@inc-global.com. The invitation can be viewed at: http://www.inc-global.com/events/Asia_Biodiesel_main.html

2 – 6 December 2007 - Malaysia is the host of the Asian Mycology Congress (AMC 2007) and the Xth International Marine and Freshwater Mycology Symposium (IMFMS). It will be held at the Grand Plaza Parkroyal, Penan. The conference will be organized by University Malaya, Malaysian Society for Microbiology, Asian Mycological Committee, International Marine and Freshwater Mycology Society, Japanese Society for Mycology, and the Malaysian Biotechnology Information Centre. The conference aims at being a platform for mycologists to meet, discuss and share their knowledge and research findings on all aspects of mycology. The conference will cover various topics on fungal diversity and ecology, systematics, phylogenetics and biogeography, plant and forest pathology, biotechnology, fungal physiology and biochemistry, mangrove fungal diversity, and marine biotechnology among others. For more information visit http://www.ippp.um.edu.my/amc2007/

17 – 18 December 2007 - A two-day seminar on Food Processing for Developing Industry based on Local Resources will be held at the Department of Chemical Engineering, Bandung Institute of Technology (ITB), Indonesia. Topics of the seminar will cover handling technology and providing raw materials, processing, pickling and packaging; developing a traditional food industry process; developing an alternative

of save preservative and coloring materials; plant and food biotechnology; environmental impact and handling food industry waste; management and food and nutrition policy; and modeling and food production process simulation. For details of the seminar and how to register visit http://www.che.itb.ac.id/ , and dewisuryani@biotrop.org for more information.

1-3 July 2008 - Symposium on Biotechnology for Locust Control to be held in Rabat, Morocco. An important part of this meeting will be to use the "Daegu Protocol" to help foster approval of biotech products specifically for locust control. For more information see http://biopesticide.ucr.edu. Also please contact Dr. A. Hilali at ahilali@menara.ma; or Dr. Thomas A Miller at thomas.miller@ucr.edu