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BIOTECHNOLOGY IN AFRICA

http://agecon.lib.umn.edu/cgi-bin/pdf_view.pl?paperid=16821&ftype=.pdf

Carl K. Eicher and colleagues of the Department of Agricultural Economics, Michigan State University write on "Biotechnology And The African Farmer," a paper that seeks to answer why most African governments under-invest in modern and productive agriculture, and why many countries in Africa are fearful of supporting and investing in the gene revolution.

The paper is divided into five parts. The first discusses the problem; the second and third present the case studies on the use of genetically modified (GM) crops in Africa; the fourth draws lessons from the case studies; and the fifth discusses what financial resources, infrastructure, and expertise (scientific, technical, political, institutional, and financial) are needed to help Africa overcome these barriers and join the global biotech revolution.

The researchers conclude that agricultural biotechnology has the potential to help African smallholders, and also confer benefits to consumers, the environment, and health of farmers and farm worker. In particular, it concludes that investment in major agricultural biotechnology institutions should be given immediate and sustained priority; African capacity in biosafety, regulatory procedures, and research, among others, should be strengthened; and African governments should invest in long term training programs for African scientists to allow them to become efficient borrowers of GM research while building their own capacity to carry out the same research in Africa.

NEW AGRICULTURE INITIATIVES TO AID AFRICA

<http://usinfo.state.gov/usinfo/Archive/2005/Jul/19-966715.html>

The U.S. Department of Agriculture (USDA), in cooperation with the U.S. Agency for International Development, will develop and implement a trade enhancement program to help Africa's raw agricultural products enter the global market. This will be done by improving the capacity of African producers to meet international plant and health requirements. USDA Secretary Mike Johanns made this announcement during the Africa Growth and Opportunity Act (AGOA) Forum in Dakar, Senegal. The AGOA serves as a framework to strengthen trade ties in agricultural goods.

Later this year, a trade and investment mission will be sent to southern Africa to see possibilities for joint venture, bilateral trade, and investments in the agricultural sector. The USDA is also working on a new program to encourage investment in agricultural processing and in encouraging African countries to take a more active role in global trade negotiations.

In the same AGOA Forum, Kenya Deputy Minister of Trade and Industry Zaddock Syon'goh stressed that agriculture is critical to African economies and that there is a need to add value to its exports. He called on African farmers to "embrace biotechnology" to improve agricultural productivity and make farming a viable occupation.

CROP BIOTECH – OPPORTUNITY TO DEVELOP SUSTAINABLE FUTURE

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The implementation of a system to enable a sustainable platform for the future should be given high priority in society. This means developing biotechnology and genomic tools to enable the development of crops with specific traits that are optimized for biofuels and bioenergy. So says James McLaren of the StrathKirk Inc. in an article in the journal TRENDS in Biotechnology.

McLaren said that a combination of specifically designed biomass with new approaches to bioprocessing might provide the best opportunity to create this sustainable future. Such biomass may include grains, tubers, oilseeds and lignocellulosic products.

The author added that biotechnology has a new toolset that can be used to design and optimize the capture of solar energy through crops. The better understanding of genome sequences, gene function, gene expression, protein interactions and metabolic control mechanisms will enable a sound scientific basis for further applications of biotechnology tools in renewable primary production and in bioprocessing.

AMMANET DISCUSSES USE OF MAS TO IMPROVE CROPS

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The African Molecular Marker Applications Network (AMMANET) members recently met in Nairobi to strategize on how to use DNA Molecular Marker technology to improve crops in Africa.

Issues of crop pests, diseases and yields were discussed, with the participants agreeing that MAS [Marker Assisted Selection] could be applied efficiently and cost-effectively to solve some of the problems. They identified bananas, beans, cassava, cowpeas, maize, millet, rice and sorghum as some of the priority crops to concentrate their activities on. Smaller groups were formed to work on each crop.

Dr Richard Edema, the newly elected coordinator of the group and a Molecular Plant Virologist in the Department of Crop Science, Makerere University, Uganda, said that AMMANET's main goal is to share resources, synergies, and exchange information on crop improvement initiatives on the continent. "This is the only way to eliminate duplication of efforts that has led to huge waste of resources on the continent," he emphasized.

AMMANET, which is currently funded by the Rockefeller Foundation, has over 100 members from seventeen countries in Africa, including Kenya, Uganda, Tanzania, Malawi, Egypt, Zambia, Zimbabwe, Nigeria, South Africa, Sudan, Mozambique, and Rwanda among others.

Dr. Jedidah W. Danson, a member of AMMANET secretariat and a Molecular Biologist with CIMMYT's African Livelihoods Program, said the organization will work closely with National Agricultural Research Systems (NARS), Regional organizations like Biosciences Eastern and Central Africa (BECA), Association for Strengthening Agricultural Research in Africa (ASARECA), African Agricultural Technology Foundation (AATF), Forum for Agricultural Research in Africa (FARA), the CGIAR centers, and other relevant international bodies to fulfil their objectives.

CGIAR NOTES RESEARCH IMPACTS ON AFRICA

http://www.cgiar.org/newsroom/releases/news_20050311.html

The Consultative Group on International Agricultural Research (CGIAR) said that for over three decades, it has assisted Africa with the help of partner agencies to provide new crop and farming technologies that benefit poor farmers, create wealth, and protect the environment. Some of these technologies include:

- New Rices for Africa (NERICAs) developed by The Africa Rice Center that provide higher yields, are drought tolerant and thrive in salty soils
- New, improved, drought-resistant maize varieties adapted for harsh ecologies of southern Africa
- Quality protein maize, containing twice the amount of beneficial nutrients such as lysine and tryptophan
- Vitamin A for Africa (VITAA) Partnership to help tackle Vitamin A deficiency (VAD) through new, orange-fleshed sweet potato varieties with enhanced beta-carotene
- Improved sorghum, millet, groundnut, chickpea and pigeon pea varieties

NO DETECTABLE TRANSGENES IN MEXICAN MAIZE LANDRACES

www.pnas.org/cgi/doi/10.1073/pnas.0503356102

In 2000, transgenes were detected in local maize varieties in the mountains of Oaxaca, Mexico. This region is part of the Mesoamerican center of origin for maize, *Zea mays* and the genetic diversity that is maintained in open-pollinated landraces is recognized as an important genetic resource of great cultural value. The presence of transgenes in landraces was significant because transgenic maize has never been approved for cultivation in Mexico.

In a survey of the frequency of transgenes in currently grown landraces, samples of maize seed from 870 plants in 125 fields and 18 localities in the state of Oaxaca were collected during 2003 and 2004. The 153 746 sampled seeds were screened for the presence of two transgene elements from the 355 promoter of the cauliflower mosaic virus and the nopaline synthase gene (nopaline synthase terminator) from *Agrobacterium tumefaciens*. One or both of these transgene elements are present in all transgenic commercial varieties of maize. No transgenic sequences were detected with highly sensitive PCR-based markers, appropriate positive and negative controls, and duplicate samples for DNA extraction. It was concluded that transgenic maize seeds were absent or extremely rare in the sampled fields. This study provides a much needed preliminary baseline for understanding the biological, socio-economic and ethical implications of the inadvertent dispersal of transgenes from the United States and elsewhere to local landraces of maize in Mexico.

WORLD FOOD DAY 2005 THEME: INTERCULTURAL DIALOGUE

<http://www.fao.org/newsroom/en/news/2005/105677/index.html>

The Food and Agriculture Organization announced that this year's World Food Day theme is 'Agriculture and intercultural dialogue'. The theme stresses "the contribution of different cultures to world agriculture and argues that sincere intercultural dialogue is a precondition for progress against hunger and environmental degradation."

"Intercultural dialogue between developing countries facing similar food and agriculture problems is an important way of sharing expertise and technologies," FAO said. Hence, South-South cooperation through sharing of expertise and technologies has resulted in "the transfer of many solutions suited to local conditions." World Food Day provides an opportunity at various institutional levels to further dialogue and enhances solidarity on many issues that affect developing countries.

World Food Day is celebrated annually to coincide with the founding of FAO. This year's celebration will be on October 16 at the FAO Headquarters in Rome, Italy.

NOTICEBOARD

- 15 – 16 September 2005** - The European Commission will hold a conference in Brussels, Belgium to chart a course towards a modern, knowledge-based bio-economy. The following issues will be discussed: the Lisbon Strategy and the knowledge based bio-economy; plants for the future; industrial biotechnology; knowledge-based agriculture; micro-organisms as untapped genetic resources; food research and competitiveness in the bio-economy; advanced genomics and biotechnology for eco-efficient innovations; converging technologies and disciplines, and new opportunities. For further information, visit http://europa.eu.int/comm/research//conferences/2005/kbb/index_en.html
- 9 – 11 October 2005** - EuropaBio is supporting two biotechnology-related events to be held this October in London, England. BioPartnering Europe takes place on the 9th-11th, while CORDIA is scheduled for the 11th-13th. Featured in both events are meetings and discussions between industry and scientists. For more information visit <http://www.cordiaconvention.com>
- 2 – 5 November 2005** - A regional workshop on "Policies and Strategies for Promoting Rice Production and Food Security in Sub-Saharan Africa" will be held at the Africa Rice Center in Cotonou, Benin, Africa. Additional information on the workshop may be obtained from <http://www.warda.org>.
- 1 – 5 December 2005** - An International Congress on Fungal Biotechnology will be held this year at Amity University in India. Sponsored by the Amity Institute of Herbal and Microbial Studies, the congress will discuss such themes as industrial enzymes; antibiotics and toxins; food, feed, and beverages; and viticulture and arboriculture, among others. For more information visit <http://www.amity.edu/aihms>.
- 6 – 9 August 2006** - The Agricultural Biotechnology International Conference (ABIC) 2006 will be held in Melbourne, Australia. Organized in association with AusBiotech, ABIC 2006 aims to bring together leading international researchers in the AgBio sector with industry partners and investors. With the theme "Unlocking the potential of agricultural biotechnology," ABIC will organize speaker sessions that allow leading international experts to exchange ideas and nurture innovation; provide informative and educational speaker sessions that highlight the benefits of agricultural biotechnology to the non-scientist; hold forums that address key policy and risk management issues, such as commercial trials and regulatory approval for GM products; provide an opportunity for agricultural biotechnology companies and research organizations to meet with industry partners; and bring major investors in the agricultural biotechnology sector together with companies and research organizations seeking funding to develop their innovations.
For more information, visit <http://www.abic2006.org/>

NEW WEBSITE FOR TEACHING BIOTECHNOLOGY AVAILABLE - The Biotechnology Online Secondary School Resource, now available online. It has been launched to fit in with Australian State and Territory Science curriculums. The site provides information on biotechnology for teachers and students of the subject, and aims to supplement current educational resources through informational text, case studies, worksheets, activities for students, and advice for teachers. It is produced and maintained by Biotechnology Australia, a government agency. For more information, visit <http://www.biotechnologyonline.gov.au/>