

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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WORLD FOOD PRIZE 2004 AWARDED TO RICE BREEDERS

In a fitting tribute to the International Year of Rice, this year's World Food Prize will be awarded to rice breeders Yuan Longping of China and Monty Jones of Sierra Leone.

Kenneth Quinn, president of the World Food Prize, announced the winners during a U.S. State Department ceremony with Secretary of State Colin Powell, Secretary of Agriculture Ann Veneman, and the U.N. Food and Agriculture Organization Director-General Jacques Diouf. He lauded Yuan and Jones for "breakthrough scientific achievements, which have significantly increased food security for millions of people from Asia to Africa."

Professor Yuan, Director-General of the China National Hybrid Rice Research and Development Center in Changsha, Hunan, China, developed the genetic tools for hybrid rice breeding in the early 1970's. Using the "three-line system" now being adapted to many other countries around the world, Dr. Yuan was able to produce the world's first successful and widely grown high-yielding hybrid rice varieties, with yields 20% above conventional varieties. His efforts have since led to increased rice yields and grain output in China, providing food to feed an additional 60 million people each year.

Dr. Jones, former senior rice breeder at the West Africa Rice Development Center (WARDA), and presently Executive Secretary of the Forum for Agricultural Research in Africa (FARA), in Accra, Ghana, successfully crossed the Asian *O. sativa* with the African *O. glaberrima* strains to produce drought and pest resistant, high yielding rice varieties, a feat which had not been achieved before in the history of rice breeding. His work has produced enhanced harvests for thousands and thousands of poor farmers, most of them women, with potential benefit for 20 million farmers in West Africa alone.

The awarding will take place formally on October 14, 2004 in the Iowa State Capitol Building in Des Moines, as part of The World Food Prize International Symposium, "From Asia to Africa: Rice, Biofortification and Enhanced Nutrition."

View the list of laureates at
<http://www.worldfoodprize.org/04laureates/prelease.htm>

ICRISAT 'HARNESSES BIOTECH FOR THE POOR'

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) based in Hyderabad, India, is using biotechnological tools to improve the performance of orphan and poor man's crops like groundnut, pearl millet, chickpea, and pigeonpea. Dr. Farid Waliyar, head of the biotechnology program at ICRISAT, told South Asia journalists attending a media workshop that transgenic work is being done only for major and widely distributed stresses, and when no sources of resistance are available in cultivated germplasm.

Waliyar enumerated ICRISAT's biotech research projects, among them being enhanced drought tolerance of mandated crops; improved crop resistance to pests (shoot fly, stem borer, *Striga* in cereals; pod borers in legumes); increased crop resistance to viral, bacterial, and fungal plant pathogens; better food, feed, and fodder quality plus efficient hybrid seed production systems; and more efficient conservation and utilization of germplasm resources.

Dr. Kiran Sharma, head of the transformation laboratory, reported that the first ICRISAT transgenics are now in contained field trials. These are groundnut transgenics with resistance to the Indian peanut clump virus, and pigeonpea transgenics for legume pod borer.

For more information on ICRISAT's work on transgenic crops, email Kiran Sharma at k.Sharma@cgiar.org.

PADOLINA: THE PHILIPPINES NEEDS A TECHNOLOGY-EXPLICIT GOVERNMENT AGENDA

“Technological backwardness is not accidental, it is a result of a conscious choice. What we need to have is a technology explicit government agenda, which recognizes the role of science and technology in promoting economic development and facilitating trade,” said former Department of Science and Technology secretary, and current Deputy Director General for Partnerships of the International Rice Research Institute (IRRI), William Padolina, at the 45th National Convention of the Philippine Agricultural Economics and Development Association held in Manila.

“Rigorous reading of the market will lead to new wealth, which will also give the country a new sense of national purpose,” Padolina added, as he advocated increased investments in research and development for agriculture, as well as a development agenda that was market driven. This could be achieved, he noted, by a collaborative scheme bridging the academe and science and technology community with industry, and having both well tuned to market demands.

Aside from his proposals, Padolina also emphasized the role of government in formulating technology policies and plans, as well as funding of research and development projects; the role of the academe in identifying what problems need solving; and the role of the private sector in investing in research that could meet the country's immediate needs.

BT CORN PERFORMANCE ASSESSED AFTER A YEAR IN PHILIPPINE FIELDS

Dr. Jose Yorobe of the College of Economics and Management, University of the Philippines Los Baños (CEM-UPLB) assessed the performance of Bt corn in Philippine fields a year after its commercial approval.

As a presenter at the 45th Convention of the Philippine Agricultural Economics and Development Association's (PAEDA) plenary session "Achieving a New Wave of Technical Change," Dr. Yorobe disclosed that the use of Bt corn led to yields 37% greater than crops from conventional corn harvests. There was a high cost of production associated with adopting Bt technology, he added, but net income was still higher when Bt corn was used.

For corn harvests in the last year, Dr. Yorobe found, farmers earned an additional PhP 10,132 (about \$US 170) per hectare of Bt corn planted (/ha) and saved PhP 168/ha (about \$US 3) on pesticide use.

In a related paper, Dr. Liborio Cabanilla, of the College of Economics and Management of the University of the Philippines in Los Baños (CEM-UPLB), remarked, "The agricultural scene is in disarray, but biotech has promise," and compared Bt corn to the local hybrid variety. The greatest profits were to be gained, he found, if Bt corn was used during the wet season, when corn borer infestation rates were highest.

PAEDA PLENARY SESSION LOOKS AT PHILIPPINE FARMERS' OPTIONS

(This one can be deleted)

One looked at Bt corn economics, some looked at farmers' reactions to biotechnology, and another talked about integrated pest management for cabbages. It was all in a plenary session's time at the 45th Convention of the Philippine Agricultural Economics and Development Association (PAEDA), as members gathered to discuss "Achieving A New Wave of Technical Change."

Dr. Liborio Cabanilla, of the College of Economics and Management of the University of the Philippines in Los Banos (CEM-UPLB), remarked, "The agricultural scene is in disarray, but biotech has promise," and compared Bt corn to the local hybrid variety. The greatest profits were to be gained, he found, if Bt corn was used during the wet season, when corn borer infestation rates were highest.

Assessing the socio-economic impact of Bt corn on small farmers in the Philippines was Dr. Leonardo Gonzales, whose study covered five provinces in the Philippines and three consecutive plantings of the crop. Dr. Yorobe, also of the CEM-UPLB, presented the economic impacts of Bt corn in the Philippines, a year after its commercialization.

Dr. Jonyl Batiquin of the University of Southeastern Philippines (USEP) presented his findings on Measuring Acceptability of Genetically Modified Corn,

which showed that Davao farmers were influenced greatly by their Farmers' Association when faced with a choice of whether they would adapt Bt technology, and how much they would pay to purchase Bt seeds.

Flordelez Lofranco (USEP) showed that unmarried female farmers were the most willing to use integrated pest management on their cabbage crops, as she presented her Assessment of Integrated Pest Management in Cabbage.

WORLD FOOD DAY TACKLES BIODIVERSITY FOR FOOD SECURITY

"The world's biodiversity is under threat and this could severely compromise global food security," Food and Agriculture (FAO) Director General Jacques Diouf said in a message for World Food Day. This year's theme, "Biodiversity for Food Security," highlights the vital role of biodiversity in ensuring that all people have sustainable access to enough diversified food to lead active and healthy lives.

Diouf added that "As a consequence, the food supply becomes more vulnerable, there are less opportunities for growth and innovation in agriculture, and less capacity for agriculture to adapt to environmental changes or to the appearance of new pests and diseases." Various sectors, therefore, need to implement measures to preserve the environment, and encourage better education and increased research and government support.

The United Nations agency celebrates World Food Day every October 16 in commemoration of its founding in Quebec City in 1945.

For more details of FAO's program of activities, visit <http://www.fao.org/newsroom/en/news/2004/51057/index.html>.

SOUTH ASIA JOURNALISTS MEET ON BIOTECH REPORTING

Print and television media practitioners from India, Bangladesh, Sri Lanka, and Nepal converged in Hyderabad, India to interact with scientists and representatives from government, the regulatory system, civil society, seed industry, and communication fields on "Covering Biotechnology: Issues and Opportunities for the News Media."

The three-day workshop also enabled the participants to see greenhouse and field trials on transgenic groundnut and chickpea, which researchers at the

International Crops Research Institute for the Semi-arid Tropics (ICRISAT) hope will be ready for farmers' fields in three years. The journalists wrote science stories for their respective news agency or publication, which were reviewed by co-participants for style and presentation, and by the scientists for content accuracy.

"I've noticed a change in scientists in dealing with the media. They are more willing to open up and are ready to talk with us about their research activities," said TV Jayan, special correspondent of Down to Earth, a science and environment fortnightly magazine of the Society for Environmental Communications in Delhi. In turn, Dr. Farid Waliyar, ICRISAT plant pathologist and head of the biotechnology program, averred that scientists like him now understand how the media thinks, and now know how to deal with them.

Plans are underway to form a virtual network that will link media practitioners with key institutions like ICRISAT and the International Service for the Acquisition of Agri-biotech Applications (ISAAA) to allow sharing of experiences and access to science-based information on crop biotechnology.

Organizers of the workshop were ICRISAT, ISAAA, Asian Media, and Information Center of India, and the United Nations Educational, Scientific and Cultural Organization.

For more information about the workshop, contact ICRISAT media officer Gopi Warriar at g.warrier@cgiar.org.

RESEARCH EXPLORES PUBLIC'S PERCEIVED RISKS REGARDING GM TECHNOLOGY

A paper by Lennart Sjöberg in the latest copy of the EMBO journal correlates principles of risk perception with the public's view of gene technology. In "Principles of Risk Perception Applied to Gene Technology," Sjöberg acknowledges that the experts in scientific issues differ from the general public in their definition of risk, a fact that has often hampered communication between these groups.

A better understanding of peoples' reactions to new developments, Sjöberg says, helps not only to devise better communication strategies but also to identify new and potential problems.

Using collected risk perception data from a total of 2,338 respondents, Sjöberg found that the public ranked gene technology low in a list of 34 hazards. A number of important factors determined people's perception of gene technology

risk, among them a fear of interference with nature, as well as New Age and Anti-Science beliefs.

Download the full article in PDF format at <http://www.nature.com/cgi-taf/DynaPage.taf?file=/embor/journal/v5/n1s/full/7400258.html&filetype=pdf>

FUNGUS RESISTANCE GENES FOUND IN TOMATOES

The Netherlands Organization for Scientific Research reports that Dutch researcher Marco Kruijt has discovered two genes, Cf-4 and Cf-9, which provide resistance against the fungus *Cladosporium fulvum* in several wild tomato species. *Cladosporium fulvum* causes a fungal disease in tomato plants.

Kruijt explained that the fungus was probably already a pathogen of the ancestral tomato species, and the resistance genes may have been retained in various modern wild tomato species. He also demonstrated that DNA exchange between the various Cf genes has led to a new Cf resistance gene.

Email Marco Kruijt at marco.kruijt@wur.nl for more information regarding his research.

ANNOUNCEMENTS:

DHAKA INTERNATIONAL BIOTECH CONFERENCE

The fifth International Plant Tissue Culture and Biotechnology Conference will be held at the Department of Botany, University of Dhaka, Bangladesh on December 4 to 6, 2004. It is organized by the Bangladesh Association for Plant Tissue Culture and Biotechnology and is co-sponsored by the Ministry of Science, Information and Community Technology, and University of Dhaka.

The conference theme is "Sustainable Biotechnology for Developing Countries." For more information, contact Dr. R.H. Sarker of the University of Dhaka at bhsarker2000@yahoo.co.uk.

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BIOTECHNOLOGY FORUM IN JAMAICA

Apart from Cuba, the experience of most of the Caribbean countries in biotechnology is limited to micro-propagation of plants by tissue culture. Jamaica, Trinidad, and Barbados have had more experience in the area of modern biotechnology, although efforts are still in their infancy. Jamaica for example, is actively conducting field trials on transgenic papaya resistant to the Papaya Ring Spot Virus, while Trinidad is engaging in exciting innovative work on anthuriums.

The Scientific Research Council of the Caribbean community is proposing a high level forum to discuss prospects for the commercialization of biotechnology in the Caribbean, and to develop a road map towards this end. The forum aims to review the status of biotechnology in the Caribbean, identify areas of comparative advantage amenable to the use of biotechnology in respective countries, draft a road map to achieve targets agreed, and draft a master plan for the commercialization of biotechnology in the region.

The forum will be held on December 7 - 9 2004, and is organized by the Scientific Research Council, with the assistance of the National Commission on Science and Technology, Secretariat, and The Biotechnology Center, UWI, Mona.

For more information, visit <http://www.src-jamaica.org/forum/>.

WORKSHOP ON GLOBAL CHALLENGES FOR GUIDING AND MANAGING BIOLOGICAL TECHNOLOGIES

The National Academies' Board on Agriculture and Natural Resources and Board on Life Sciences will host a workshop on October 25-26, 2004 in Washington, DC.

Entitled "Global Challenges for Guiding and Managing Biological Technologies," the workshop aims to address the following questions: 1) what are the most important global problems facing society? (With focus on the long-term goals of preserving biodiversity, conserving natural resources, achieving food security, improving the health of populations, cleaning up polluted lands and bodies of water, and obtaining adequate sources of energy); 2) can the use of agricultural biotechnology, as one of many tools, help provide solutions to these problems? If so; 3) what are the scientific risks and socioeconomic issues associated with its use that need to be considered?

This workshop will provide prognostic views about what biological technologies should and should not do in the future, concentrate on sustainable and socially acceptable solutions to problems, and examine the challenging and contentious issues of transgenics in plant production systems.

For more information, please contact Peggy Tsai at ptsai@nas.edu, or visit <http://www.nationalacademies.org/banr/>.

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