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South Asia Biosafety Program

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BANGLADESH

Feed the Future Biotechnology Potato Partnership Launches 3R-Gene Late Blight Resistant Potato in Bangladesh

Jan Fierro, Communications Manager, Feed the Future Biotechnology Potato Partnership

Dr. Tapan Kumar Paul, Director, Tuber Crops Research Centre, Bangladesh Agricultural Research Institute, addresses the audience at the Feed the Future Biotechnology Potato Partnership launch ceremony.

On December 13, 2017, the Bangladesh Agricultural Research Council (BARC) announced the launch of the Feed the Future Biotechnology Potato Partnership during a ceremony in Dhaka. Minister of Agriculture, Matia Chowdhury, attended as the Chief Guest.

Smallholder farmers in Bangladesh are fighting an uphill battle against Late Blight disease. This season, a large percentage of crops in the northern part of the country are experiencing heavy losses. Advances in Late Blight resistant biotech potatoes are offering new hope to these farmers.

Dr. Abul Kalam Azad, Director General of the Bangladesh Agricultural Research Institute, who serves as the project implementing partner, addressed the audience saying, "The launch of the 3R-gene potato variety would save almost 25-28% of production costs, which is being spent by the farmers for protecting the potato crop from the devastating late blight fungal disease." This savings comes primarily from the reduced need to spray costly fungicides.

The project's social impact goals are to [...] reduce malnutrition and improve health, reduce the use of harmful fungicides, reduce pre- and post-harvest losses and improve the social and economic standing of small-holder farmers.

Agriculture Minister Chowdhury told the group that in addition to the farmers spending large amounts of money to combat late blight, "the fungicides cause air and environment pollution and increase risk to farmers health. But the GM potato could be the ultimate solution of these health hazards."

The Feed the Future Biotechnology Potato Partnership, a USAID-funded project, is managed by Michigan State University, along with partners at the University of Minnesota, University

Continued on page 2

Continued from page 1

Feed the Future Biotechnology Potato Partnership launch ceremony attendees.

Dr. David Douches of Michigan State University delivering the keynote.

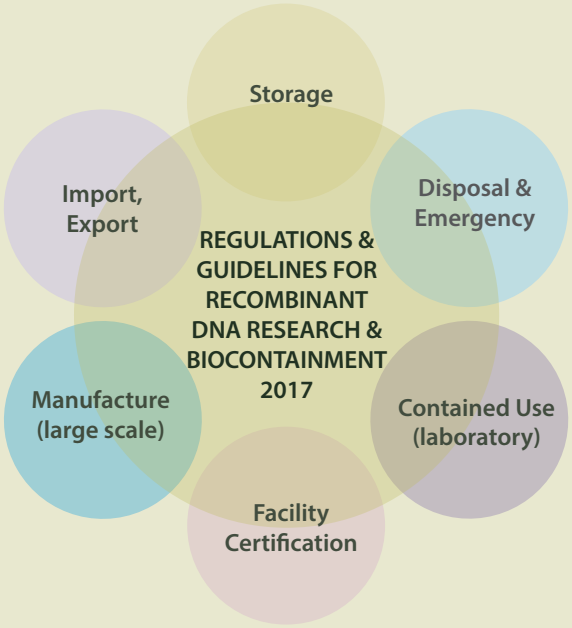
of Idaho, and Idaho-based J. R. Simplot Company. The project also consists of two in-country institutional partnerships, one in Bangladesh and one in Indonesia. The Partnership will develop and bring to market a three R(resistance)-gene potato containing the *Rpi-blb2, Rpi-vnt1*, and *Rpi-mcq1* genes. In addition, the Feed the Future Biotechnology Potato Partnership will conduct collaborative research on a USAID-funded International Potato Center's three gene Late Blight resistant (LBR) potato containing the *RB, Rpi-blb2*, and *Rpi-vnt1* genes.

The project's social impact goals are to increase the partner countries' food security, reduce malnutrition and improve health, reduce the use of harmful fungicides, reduce pre- and post-harvest losses and improve the social and economic standing of small-holder farmers. In addition, the project works to develop institutional capacity in partner institutions and their respective governments, develop biosafety operating procedures and stewardship, meet regulatory requirements to ensure safety for human health and the environment, and communicate to the public and stakeholders the benefits of the late blight resistant potato.

Release of Regulations and Guidelines on Biosafety of Recombinant DNA Research & Biocontainment, 2017

Regulations and Guidelines on Biosafety of Recombinant DNA Research & Biocontainment, 2017 was released by the Secretary, Department of Biotechnology (DBT), Prof. K. VijayRaghavan, during the 2017 Meeting of the States Parties to the Biological Weapons Convention (BWC) on December 5, 2017 in Geneva, Switzerland.

In view of recent developments in the field of biotechnology, biosafety, and biosecurity, as well as experience gained while implementing the biosafety frameworks within the country, new guidelines on biosafety of recombinant DNA research and biocontainment were prepared by the Review Committee on Genetic Manipulation (RCGM), DBT, New Delhi, with due incorporation of views from researchers, experts, academics, concerned ministries/departments, and other stakeholders. At approximately 190 pages, the document specifies best practices for handling hazardous biological material, recombinant nucleic acid molecules and cells, as well as organisms and viruses containing such molecules, in order to ensure optimal protection of public health and the environment. It provides clarity on competent authorities, biosafety requirements, and recommendations for laboratory facilities, such as facility design, biosafety equipment, personal protective equipment, risk assessment and management strategies, good laboratory practices and techniques, provisions for transboundary exchange of regulated materials, waste management, etc.



Expressing his delight at the document's finalization and release, Prof. VijayRaghavan mentioned that the regulations have been formulated through an elaborate process of consultation and is compatible with global standards. Underlining how recombinant DNA has undergone changes over the years through gene editing, he added that the document will go a long way toward preventing unregulated handling, as well as regulating the exchange and conduct of research and development with regard to risk-inherent microorganisms, genetically engineered organisms, or cells and products.

Adoption of this guideline shall be binding for all public and private organizations involved in research, development, and handling of GE organisms (microorganisms, animals, plants, arthropods, aquatic animals, etc.), non-GE hazardous microorganisms, and products produced through the exploration of such organisms.

Source: http://www.dbtindia.nic.in

Foods Containing Genetically Modified Golden Rice Can Be Sold in Australia and New Zealand

Gary Scattergood (originally published in FoodNavigator-Asia; reprinted with permission of the author)

Products containing traces of golden rice, which is genetically modified to produce beta-carotene, should be able to be sold in Australia and New Zealand, regulators have ruled.

It follows an application to Food Standards Australia New Zealand (FSANZ) from the humanitarian organization International Rice Research Institute, which cultivated the GR2E rice line to mitigate vitamin A deficiency in developing countries.

The regulator stressed the application was based on trade issues and did not permit the rice to be grown in Australia or New Zealand.

"The Institute intends for Golden Rice to be grown in developing countries. Permitting Golden Rice in the [Australian] Food Standards Code would mean if small amounts were present in other shipments of imported rice there would be no trade issues," it noted.

WHAT THIS MEANS

This means that there would be no cost involved in having to exclude GR2E grain from co-mingling and hence that there would be no consequential need to increase the prices of foods that are manufactured using co-mingled rice grain, said the regulator.

In approving the application, FSANZ stated that food derived from Golden Rice would have to be labelled as "genetically modified" because it would contain novel DNA and novel protein.

"FSANZ has determined that Golden Rice would contain novel DNA and novel protein, as well as an altered nutritional profile (contains beta-carotene), and would be required to carry the mandatory statement 'genetically modified' on the package label," it stated.

"This requirement would apply to rice sold as a single ingredient food (e.g. a package of rice) and when the rice is used as an ingredient in another food (e.g. rice flour, rice milk)."

Another product from the rice is rice bran oil. Under the labelling provisions, rice bran oil derived from Golden Rice would be unlikely to require labelling because it would not contain novel DNA or novel protein, or have an altered nutritional profile because beta-carotene would not be present.

Golden Rice (Photo Credit: PhilRice)

THE NEED FOR FUNCTIONAL FOOD

The Institute wants the GR2E rice to be cultivated for humanitarian purposes in developing countries including Bangladesh, Indonesia, and the Philippines, which are at high risk of vitamin A deficiency (VAD) and where 30–70% of energy intake is derived from rice.

While acknowledging that GR2E rice will not solve the issue of population-based VAD for these countries, it believes it can be a major part of an overarching strategy to reduce deficiency.

Countries wishing to adopt the Golden Rice technology are free to introduce the GR2E event into preferred varieties that suit the local environment and meet certain criteria outlined in a Humanitarian Use Licence Agreement, subject to local regulatory arrangements.

In 2013, Australia imported 145,370 tons of milled rice (representing around 45% of the rice consumed). The main suppliers were Thailand (49%), India (19%), and Pakistan (13%) (FAOSTAT 2017). In the same year, New Zealand imported 42,381 tons of milled rice with the main suppliers being Australia (39%), Thailand (26%), and the US (13%).

The Australia and New Zealand Ministerial Forum on Food Regulation has been notified of FSANZ's decision.

Similar applications are currently under review in the USA, Canada, and the Philippines.

CALENDAR OF EVENTS

EVENT	ORGANIZED BY	DATE	WEBSITE
INDIA & BANGLADESH			
Recent Techniques and Tools for Nutritional Quality Assessment and Enhancement of Food Crops	ICAR-Indian Agricultural Research Institute	January 23 – February 12, 2018 New Delhi	http://bit.ly/2iZvUQR
Training Course on Recent Advances and Accomplishments in Heterosis Breeding of Crops	Tamil Nadu Agricultural University	January 31 – February 20, 2018 Coimbatore	http://www.tnau.ac.in/
7th International Botanical Conference	Bangladesh Botanical Society	February 2 – 3, 2018 Dhaka	http://www.bdbotsociety.org
3rd ARRW International Symposium on Frontiers of Rice Research for Improving Productivity, Profitability, and Climate Resilience	Association of Rice Research Workers, in collaboration with ICAR-National Rice Research Institute	February 6 – 9, 2018 Cuttack	http://bit.ly/2BJoEME
Workshop: Big Data Analytics in Agriculture	ICAR-National Academy of Agricultural Research Management	February 8 – 9, 2018 Hyderabad	http://bit.ly/2CUMJkE
Winter School (2017-18): Molecular Breeding for Higher Productivity, Quality, Food Colorants, Nutraceutical, and Bioactive Health Compounds in Vegetable Crops	Division of Vegetable Science, Indian Agricultural Research Institute	February 13 – March 5, 2018 New Delhi	http://bit.ly/2ADZrUH
BioAsia 2018	Genome Valley, Govt. of Telangana Federation of Asian Biotech Associations, and the Pharmaceutical Export Promotion Council	February 22 – 24, 2018 Hyderabad, India	http://2018.bioasia.in/
Workshop: Smart Metabolic Engineering of Plants for Drug Biosynthesis	International Centre for Genetic Engineering and Biotechnology (ICGEB)	March 16 – 17, 2018 New Delhi, India	https://www.icgeb.org/meetings-2018.html
INTERNATIONAL			
Indian Seed Congress 2018	National Seed Association of India	February 5 – 6, 2018 Colombo, Sri Lanka	http://bit.ly/2FvzXe0
ICGEB-NASSL "South Asian Biotechnology Conference 2018 - SABC 2018"	National Academy of Sciences of Sri Lanka (NASSL), ICGEB, and the South Asian University (SAU)	March 28 – 30, 2018 Colombo, Sri Lanka	https://www.icgeb.org/meetings-2018.html

SOUTH ASIA BIOSAFETY PROGRAM

The South Asia Biosafety Program (SABP) is an international developmental program implemented in India and Bangladesh with support from the United States Agency for International Development. SABP aims to work with national governmental agencies and other public sector partners to facilitate the implementation of transparent, efficient, and responsive regulatory frameworks for products of modern biotechnology that meet national goals as regards the safety of novel foods and feeds, and environmental protection.

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