October - December, 2017, Vol. IX, Issue 4

BIOSAFETY

A Quarterly Newsletter

Ministry of Environment, Forest & Climate Change

In this Issue

From the Desk of Editor

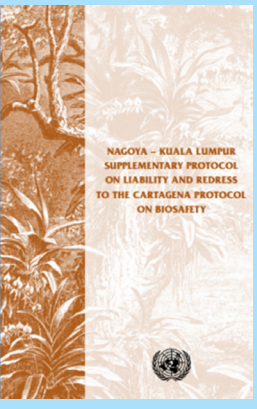
I am pleased to inform the readers that the UNEP/GEF supported Phase II Capacity Building Project on Biosafety has been officially closed in June, 2017 with the successful completion of all project activities. The terminal evaluation process has also been initiated by UNEP/GEF. In view of the efficient planning and contribution made by the project partners, we have achieved major outcomes and outputs. Some additional activities are underway and will be completed shortly.

As a significant achievement of the Phase II Capacity Building Project on Biosafety, four laboratories are strengthened for detection of living modified organisms (LMOs) and the four laboratories viz., National Bureau of Plant Genetic Resources, Punjab Biotechnology Incubator, DNA Fingerprinting and Transgenic Crop Monitoring Laboratory and Export Inspection Agency – Kochi have recently been notified by the Ministry of Agriculture and Farmers Welfare as the National Referral Laboratories to detect the presence or absence of LMOs.

Wishing all readers a Happy and Prosperous New Year.

Arun Kumar Mehta
Additional Secretary
Ministry of Environment, Forest and Climate Change

Nagoya – Kuala Lumpur Supplementary Protocol to the Cartagena Protocol on Biosafety: 40th Ratification Submitted



The Nagoya – Kuala Lumpur Supplementary Protocol to the Cartagena Protocol on Biosafety (CPB) was adopted by the Conference of the Parties serving as the Meeting of the Parties (COP-MOP) to the CPB on 15 October 2010. In accordance with its Article 17, the Supplementary Protocol was opened for signature on 7 March 2011 at the United Nations Headquarters in New York by Parties to the CPB. It remained open for signature until 6 March 2012.

As per the Article 18 of the Nagoya – Kuala Lumpur Supplementary Protocol, the Supplementary Protocol to the CPB is to come into force on the ninetieth day after the deposit of the 40th instrument of ratification and acceptance. Japan has submitted the instrument of acceptance to the Supplementary Protocol on 5 December 2017. Accordingly the Nagoya – Kuala Lumpur Supplementary Protocol will enter into force on 5 March 2018. It is of great symbolic value that Japan, where the Nagoya – Kuala Lumpur Supplementary Protocol was adopted, has deposited the decisive instrument which will trigger the entry into force of this important international instrument.

India's Participation in the 23rd National Project Coordinators Meeting

The 23rd National Project Coordinators (NPC) meeting of UNEP-GEF supported projects for Asia Pacific region was held in Shiraz, Iran from October 7-11, 2017 and was jointly organized by UNEP and Department of Environment (DoE), Government of Iran. The meeting was attended by representatives from India, Bangladesh, Cambodia, Turkey, Iran, Kenya, Malaysia along with UNEP officials namely Dr. Alex Owusu Biney, Portfolio Manager (Biosafety) and Ms. Ruth Irungu, Finance and Accounts Manager, UNEP.

The main objectives of the meeting was to discuss about: institutional capacity building trends and mainstreaming biosafety into national processes, sharing of lessons learnt and best practices, New and Emerging Biosafety and Biosecurity trends and Regulatory issues and project management in ANUBIS

During the NPC meeting the following topics were discussed:

- Current status of individual projects by countries/
- Project reporting requirements like Work plans, Rephasals and Budgeting
- COP/MOP8- Key Outcomes and potential areas for Capacity Building
- GEF 7 – Potential Programs and Possible fit for Biosafety
- Project Reporting Obligations like drafting and finalization of terminal documents project progress reporting
- Biosafety and Biosecurity Regulatory Issues
- Socio-Economic Considerations – The Indian Experience
- The Biosecurity Approach to management of Biological Organisms
- Project Reporting Obligations: Hands on Exercises issues
- Project Closure Requirements and obligations including UNEP valuation
- Workshop Evaluation & Perspective Gained

Dr. Murali Krishna Chimata, Joint Director, Ministry of Environment, Forest and Climate Change (MoEFCC) represented India. He made a detailed presentation on various activities undertaken as part of the UNEP-GEF supported Phase-II Capacity Building Project on Biosafety. He also moderated the session on implementation of the CPB and also shared Indian experience with regard to implementation of activities related to Socio-Economic considerations and Handling, Transport, Packaging and Identification (HTPI)- LMO Detection during the meeting.

During the interactive session, issues related to submission of project closure documents for the Phase II Capacity Building Project on Biosafety were discussed. These documents included the terminal project report, project summary, final work plan, final inventory and equipment transfer etc. That were reviewed and finalized by India and UNEP official for submission in ANUBIS.

Indian participation in the NPC meeting was very fruitful and several suggestions like submission of a concept note and proposal under GEF-7 cycle for accessing funds from GEF for strengthening capacities for implementation of CPB and Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress was agreed. India also agreed to assist countries in the region to strengthen their capacities in risk assessment and risk management (RARM), Socio-economic considerations and detection of LMOs.

Interaction with Project Partners for Evaluation of the Phase II Capacity Building Project on Biosafety

As part of the UNEP's monitoring and evaluation procedures, the process of terminal evaluation of the UNEP/GEF Phase II Capacity Building Project on Biosafety has been initiated. Dr Emilia Venetsanou, International Consultant on Sustainable Development met project partners during her visit from November 27 to December 1, 2017. The Project Coordination Unit (PCU) facilitated meeting with the senior officials and experts associated with implementation of key project activities. She also visited National Bureau of Plant Genetic Resources (NBPGR) and had detailed interaction about detection facilities for LMOs as also the activities undertaken for enforcement officials.

NEW MOLECULAR BIOLOGY LABORATORY AT EXPORT INSPECTION AGENCY – KOCHI

Export Inspection Agency - Kochi (EIA-Kochi) functioning under the administrative and technical control of Export Inspection Council of India (EIC), under the Ministry of Commerce and Industry, Government of India has inaugurated its new molecular biology laboratory to facilitate export, import and domestic trade related to food and feed. The laboratory is located at EIA- Kochi, Shipyard Quarters Road, Panampilly Nagar, Kochi.

EIA-Kochi is one of the beneficiary and partner organization in UNEP-GEF supported Phase II Capacity Building Project on Biosafety, implemented by the Ministry of Environment Forest and Climate Change (MoEFCC), Govt. of India. The GMO detection facility at EIA-Kochi has been strengthened under the biosafety project and also identified to be included under the "National Referral Laboratory Network for GMO Detection". The laboratory has now been notified as one of the "National Referral Laboratory to detect the presence or absence of LMOs/GMOs", under the Seeds Act, 1966 by the Ministry of Agriculture and Farmers Welfare, Govt. of India through Gazette Notification dated 15th November, 2017.

EIA-Kochi laboratory received funding for instrumentation and building capacities through trainings for LMO/GMO detection. EIA-Kochi further participated actvley in various programs organised by MoEFCC under the project. Phassed trainings of laboratory officials/staff from EIA-Kochi at national (PBTI, Mohali and EIA-Kochi Lab) and international level (Intertek Scan Bi Diagnostics Laboratory, Alnarp, Sweden) have been undertaken in the area of detection of GMO/LMOs. EIA-Kochi organized the hands on training in detection of LMOs from February 29, 2016 – March 4, 2016 at Kochi.

Officials from EIC-Kochi have also presented at the training workshop on "Detection of LMOs: DNA based Techniques" for Strengthening Capacities of Enforcement Agency including customs officials for Trans-boundary Movement of LMOs, organized by NBPGR in association with MoEFCC. The official from EIA-Kochi laboratory was nominated by MoEF&CC, Govt. of India through EIC, New Delhi as a representative from India to attend "Asia-Pacific Workshop on the Detection and Identification of Living Modified Organisms", Kuala Lumpur, Malaysia, 20-24 March 2017 organised by the Secretariat of the Convention on Biological Diversity (CBD), UNEP.

EIA laboratories are backed by qualified technical and experienced manpower, having nearly five decades of diversified experience of quality control and inspection of notified commodities including their testing as per International standards/ Importing country's standards or the foreign buyers' specifications.

EIA-Kochi has setup a new state of the art Molecular biology laboratory of about 1500 sq. ft. area on third floor of the building.The Molecular biology laboratory was inaugurated by Shri. Santosh Kumar Sarnagi, IAS, Chairman, EIC & Joint Secretary, Ministry of Commerce and Industry on Novemeber 22, 2017. Dr. S. K. Saxena, Director, EIC, New Delhi presented the key note address at the inaugural function. The molecular laboratory is equipped with all modern and sophisticated instruments like PCR, Real Time PCR, DNA Sequencer and other supporting instruments for the testing of various Molecular Biology based parameters in Food and Agricutureproducts., Virus

testing. The new laboratory includes the facilities for Detection of GMO/LMO, Detection of Viruses pathogens in shrimps, Meat and Meat Products species identification etc. The Molecular Biology lab is also in the process of addition/upgradation of its testing scope for the Identification and Quantification of GMO/ LMO, Basmati Rice Authenticity testing by genotyping, Species/ pathogen identification, etc. using PCR, Real Time PCR and DNA Sequencer.

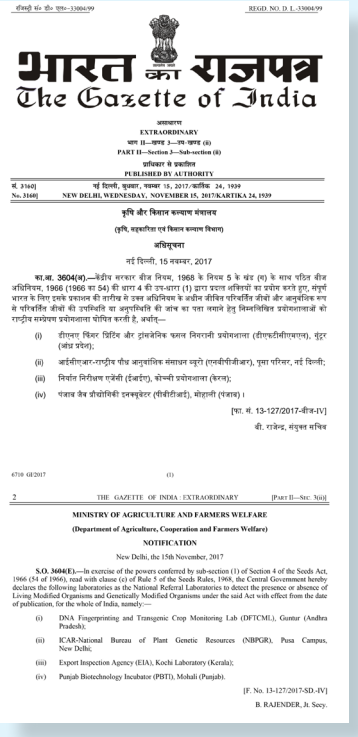
EIA-Kochi laboratory is also an accredited food testing laboratory through National Accreditation Board for Testing and Calibration Laboratories (NABL) since 2007 for Chemical and Microbiological testing complying with the requirements of ISO/IEC 17025:2005. The state of the art laboratory is facilitated with all modern and sophisticated equipment to cater to the needs of analyzing GMOs, Residues (antibiotics and pesticides), contaminants (heavy metals), toxins (mycotoxins), proximate parameters and microbiological tests. The laboratory is regularly involving in the testing of food and agriculture commodities as part of export certification and as and when required by various government and statutory bodies.

EIA-Kochi laboratory regularly participate in International Proficiency Testing programs and also organize and participate in Inter Laboratory Comparison programs in various parameters including GMOs to demonstrate technical competency.In addition to the testing services being delivered as part of export certification, EIA laboratory also extends the services of testing to various government and statutory bodies based on requirement and also open to any stake holders and potential customers.

Prepared by: Shri.Jayapalan G, Deputy Director (I/c), Dr. Anoop A. Krishnan, Assistant Director, Dr. Lijo John, Assistant Director- EIA-Kochi

NOTIFICATION OF THE NATIONAL REFERRAL LABORATORIES TO DETECT THE PRESENCE OR ABSENCE OF LMOs / GMOs

In the context of Article 17, 18 and 25, the detection and identification of LMOs is important for national authorities to distinguish whether or not there are LMOs in a shipment.This is accomplished both through proper packaging and labeling of shipments and through the analytical, laboratory based analysis of the contents of a shipment to detect unauthorized and unintended LMOs.



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भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)
प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

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No. 3160] NEW DELHI, WEDNESDAY, NOVEMBER 15, 2017/KARTIKA 24, 1939

कृषि और किसान कल्याण मंत्रालय
(कृषि, सहकारिता एवं किसान कल्याण विभाग)
अधिसूचना
नई दिल्ली, 15 नवम्बर, 2017

का.आ. 3604(अ).—केंद्रीय सरकार बीज नियम, 1968 के नियम 5 के खंड (क) के साथ पठित बीज अधिनियम, 1966 (1966 का 54) की धारा 4 की उप-धारा (1) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, संपूर्ण भारत के लिए इसके प्रकाशन की तारीख से उक्त अधिनियम के अधीन जीवित परिवर्तित जीवों और अनुवंशिक रूप से परिवर्तित जीवों की उपस्थिति या अनुपस्थिति की जांच का पता लगाने हेतु निम्नलिखित प्रयोगशालाओं को राष्ट्रीय संदर्भन प्रयोगशाला घोषित करती है, अर्थात्:—

(i) डीएनए फिंगर प्रिंटिंग और ट्रांसजेनिक फसल निगरानी प्रयोगशाला (डीएफटीसीएमएल), गुंटूर (आंध्र प्रदेश);
(ii) आईसीएआर-राष्ट्रीय पौध आनुवंशिक संसाधन ब्यूरो (एनबीपीजीआर), पूसा परिसर, नई दिल्ली;
(iii) निर्यात निरीक्षण एजेंसी (ईआईए), कोच्ची प्रयोगशाला (केरल);
(iv) पंजाब जैव प्रौद्योगिकी इनक्यूबेटर (पीबीटीआई), मोहाली (पंजाब)।

[फा. सं. 13-127/2017-बीज-IV]
बी. राजेन्द्र, संयुक्त सचिव

6710 GI/2017 (1)

2 THE GAZETTE OF INDIA : EXTRAORDINARY [PART II—SEC. 3(ii)]

MINISTRY OF AGRICULTURE AND FARMERS WELFARE
(Department of Agriculture, Cooperation and Farmers Welfare)
NOTIFICATION
New Delhi, the 15th November, 2017

S.O. 3604(E).—In exercise of the powers conferred by sub-section (1) of Section 4 of the Seeds Act, 1966 (54 of 1966), read with clause (c) of Rule 5 of the Seeds Rules, 1968, the Central Government hereby declares the following laboratories as the National Referral Laboratories to detect the presence or absence of Living Modified Organisms and Genetically Modified Organisms under the said Act with effect from the date of publication, for the whole of India, namely:—

(i) DNA Fingerprinting and Transgenic Crop Monitoring Lab (DFTCML), Guntur (Andhra Pradesh);
(ii) ICAR-National Bureau of Plant Genetic Resources (NBPGR), Pusa Campus, New Delhi;
(iii) Export Inspection Agency (EIA), Kochi Laboratory (Kerala);
(iv) Punjab Biotechnology Incubator (PBTI), Mohali (Punjab).

[F. No. 13-127/2017-SD.-IV]
B. RAJENDER, Jt. Secy.

In view of the above, strengthening institutional infrastructure for detection of LMOs has been one of key project components under the UNEP/GEF supported Phase II Capacity Building Project on Biosafety being implemented by the Ministry of Environment, Forest and Climate Change (MoEFCC). Four laboratories shortlisted on the basis of stocktaking assessment by national and international experts have been provided state-of-the-art equipment and series of trainings for key technical personnel to strengthen national capacities for LMO detection in India. The four laboratories have been recently been designated as National Referral Laboratories to detect the presence or absence of Living Modified Organisms and Genetically Modified Organisms under the Seeds Act, 1966. The laboratories include:

- **DNA Fingerprinting and Transgenic Crop Monitoring Lab (DFTCML)**, Department of Agriculture, Government of Andhra Pradesh, Old Mirchi Yard, Chuttugunta Center, Guntur - 522004, Andhra Pradesh
- **ICAR-National Bureau of Plant Genetic Resources (NBPGR)**, Pusa Campus, New Delhi – 110 012
- **Export Inspection Agency (EIA), Kochi Laboratory**, 27/1767 A, Shipyard Quarters Road, Panampilly Nagar (South), Kochi – 682036; Kerala
- **Punjab Biotechnology Incubator (PBTI)** SCO: 7&8, (First Floor), Phase-V, SAS Nagar (Mohali) 160059, Punjab

TRAINING WORKSHOP ON DETECTION OF LMOs FOR OFFICIALS OF MINISTRY OF ENVIRONMENT & FOREST, BANGLADESH

A hand on training workshop on detection of LMOs was organized for the officials from Ministry of Environment and Forest, Bangladesh from December 11-15, 2017 at the Punjab Biotechnology Incubator (PBTI), Mohali. The one week training workshop was coordinated by MoEFCC, Govt. of India on the request of Government of Bangladesh in association with PBTI.

Punjab Biotechnology Incubator (PBTI), is a component of Agri-Food Biotechnology cluster in Knowledge city Mohali, having State-of-the-Art NABL accredited LMO/GMO detection facility. It is one of the beneficiary laboratories to have been strengthened for detection of LMOs under the UNEP/GEF supported Phase II Capacity Building Project on Biosafety, being implemented by MoEFCC and has been notified as one of the National referral laboratories for detection of LMOs by the Ministry of Agriculture and Farmers Welfare under Seeds Act 1966.

The training program was attended by seven participants including officials from Ministry's secretariat and Laboratory personnel from Department of Environment, Bangladesh.

Dr. Ajit Dua, Chief Executive Officer, PBTI while welcoming the participants during the inaugural session gave an overview of PBTI establishment by Department of Science, Technology & Environment, Govt. of Punjab and emphasized on the importance of detection of GMOs and Good Laboratory Practices in GMO detection laboratories. Dr. T.R. Sharma, Executive Director, National Agri-Food Biotechnology Institute (NABI), Mohali; inaugurated the workshop and in his inaugural address informed the participants about the need of GMOs and associated biosafety concerns as well as global scenario of their acceptance. Dr. Naresh Kumar, Ex-outstanding Scientist CSIR, also graced the occasion. He congratulated MOEFCC and PBTI for takinga step towards regional cooperation for SAARC countries by organizing the training workshop for International participants from Bandladesh.

The technical sessions of the training were structured in a systematic manner to include extensive step by step concept building and hands-on exposure on laboratory techniques for detection of GMOs and related laboratory operations. The first technical session taken by Dr. Vandana Awasthi, gave an overview of the global scenario of GM Crops and different types of methods used worldwide for their detection. The technical session on DNA based analysis was taken by Ms. Dimple Trikha and Mr. Praveen Singh Danu comprised of theoretical and practical aspects of various steps viz Lab sampling, Grinding, DNA extraction & purification, PCR plate set-up & run and result analysis by using RT-PCR. The Protein based detection of GMOs using Lateral Flow Strips with GM and non-GM seeds was explained and demonstrated by Mr. Amit Agarwal.

All the participants got the opportunity to individually handle the different steps of analysis in the

laboratory. The training workshop also covered related topics like Good Laboratory Practices (GLP), handling and maintenance of Reference Material and documentation requirements as per ISO/IEC 17025. The group activities included mock calculations for Primer & probe and PCR plate set-up. The participants were also guided to surf GMO related web links to get information related to methods of analysis, proficiency testing (PT), reference material etc as a part of on-line group activity. The Five days training concluded with a short visit to National Agri-Food Biotechnology Institute (NABI), Mohali to further enhance the outlook of participants on Genetic Engineering.

One of the feedback provided by the trainees was implementation of RT-PCR based analysis and Good Laboratory Practices in their GMO detection laboratories in Bangladesh.

TRAINING WORKSHOP ON STRENGTHENING CAPACITIES OF ENFORCEMENT AGENCIES FOR TRANS BOUNDARY MOVEMENT OF LMOs AT INTEGRATED CHECK POST, RAXAUL, BIHAR

In continuation to the series of training workshops for strengthening capacities of enforcement agencies for trans boundary movement of LMOs, by National Bureau of Plant Genetic Resources (NBPGR) in association with Ministry of Environment, Forest and Climate Change, one more training workshop was held at the Integrated Check Post, Raxaul, Bihar on November 22-23, 2017. It was organized in association with National Academy of Customs, Indirect Taxes and Narcotics (NACEN), Patna.

Shri Santosh Kumar, Deputy Commissioner, LCS Customs, Raxaul graced the event. The training workshop was attended by thirty one officials from the Customs and Plant Quarantine Departments. The training was conducted by Dr Shashi Bhalla, Principal Scientist, Division of Plant Quarantine, Officer In-charge, Prioritization, Monitoring and Evaluation (PME) Cell, NBPGR, Dr V Celia Chalam, Principal Scientist, Plant Virology Laboratory, Division of Plant Quarantines, Dr Ranjini Warrier, Former Adviser, MoEFCC and the conveners of the training workshop from NBPGR, New Delhi.

The participants were apprised about LMOs, National and International Frame-work on Biosafety, Role of Customs Officials in the implementation of Cartagena Protocol on Biosafety, National Plant Quarantine System, Documentation Requirements for Transboundary Movement of LMOs, Sampling Strategy for LMOs and Use of Biosafety Clearing House and Detection of LMOS (immunodiagnostics and PCR based). Participants were also demonstrated the detection of LMOs by a simple, efficient and accurate technique viz., Lateral Flow Strip Test for detection of Cry1Ac in Bt cotton seeds.

An interactive session with the representatives of both the customs and plant quarantine officials was held for discussion about their view points. A visit to the Indo-Nepal border was also made.

NEW RELEASE

OPPORTUNITIES AND CHALLENGES FOR RESEARCH ON FOOD AND NUTRITION SECURITY AND AGRICULTURE IN EUROPE

The European Academies Science Advisory Council (EASAC) has recently published a report titled "Opportunities and Challenges for Research on Food and Nutrition Security and Agriculture in Europe", that presents the findings of a two year extensive analysis on the future of food, nutrition, agriculture and health.The report is a part of a global project led by the Inter Academy Partnership, supported by 130 science academies from around the globe to bring together the latest knowledge on the future of food, health and the environment.

The report combines analysis of the current status in Europe with exploration of ways forward for ensuring agriculture productivity and food and nutrition security. EASAC has taken a systems approach to food and nutrition security, assessing the issues both horizontally i.e., food systems–climate– other environmental resources and vertically i.e., agriculture–nutrition–health.

Addressing the prospects for innovation to improve agronomic practice, the report reiterates that new technologies such as genetic engineering should be evaluated according to scientific evidence base and acceptability must be made in context of evaluating competing risks. It mentions that in view of resolving the problem of food and nutrition security, acceptability of new technologies is important.

The report recommends the use of opportunities offered through genome editing in improving agriculture productivity. The panel of scientists from the EASAC working group have also opinioned in line with the recommendation made in a report by the US National Academies of Science, Engineering and Medicine published in 2016 i.e, "*In determining whether a new plant variety should be subject to premarket government approval for safety, regulators should focus on the extent to which the novel characteristics of the plant variety (both intended and unintended) are likely to pose a risk to human health or the environment, the extent of uncertainty regarding the severity of potential harm, and the potential for exposure, regardless of the process by which the novel plant variety was bred*".

The report makes recommendations under key themes such as plants and animals in agriculture, nutrition, food choices and food safety, environmental sustainability and trade and markets. The report can be accessed at **http://mta.hu/data/EASAC_FNSA_report_complete_Web.pdf**

COMMUNITY ATTITUDES TO GENE TECHNOLOGY

Office of the Gene Technology Regulator (OGTR) of Australia has released a report on "Community Attitudes to Gene Technology" that presents analysis of a study undertaken to understand the of the public attitudes towardsgenetically modified organisms (GMOs), gene technology and its regulation in Australia. The overall finding of the survey undertaken in 2017 is that attitudes towards GMOs have settled, mirroring very closely to the results from the 2015 study. The survey focused on exploring current awareness and understanding towards general science and technology, specific biotechnology issues and specific applications besides awareness and controllers of the technology. The objective was to explore the differences in awareness, perceptions and attitudes according to key demographic variables such as age, gender, location and education etc. A mixed methodology of both quantitative and qualitative approach has been adopted for the study. The survey reports that most of the respondents (71%) felt that biotechnology would improve our way of life in the future, while only 46% felt that GMOs would improve our way of life in the future. Although only 43% of people had any awareness or knowledge of synthetic biology, there was significant support for it (once given a definition) with 62% of respondents stating they felt it would improve our way of life in the future. In addition, more than half the respondents (56%) stated they were aware of gene editing and 57% thought it might improve our way of life in the future, but 17% thought it might make things worse. Gene editing received quite high acceptance (42%) relative to other techniques, when asked about making a small change to an existing gene within a plant, as is done in gene editing.

The findings of this study lay a strong foundation for better engaging with the public. They provide a clear understanding of the factors that influence people's attitudes towards GMOs and how, by aligning communications with these factors, OGTR should be able to achieve a better level of engagement in how GMOs are regulated and used in this country. **The report can be accessed at http://www.ogtr.gov.au/**

Upcoming Events

Title	Organized/hosted by	Date and Venue	Website
National			
National Symposium on Sustainable disease management: Approaches and applications	G.B. Pant University of Agriculture and Technology, Pantnagar	December 21-23, 2017, Pantnagar, Uttarkhand	http://nationalsymposiumpantnagar.dhyeya.co.in/
1st National Biotechnology Conclave 2017: Accelerating the Biotech ecosystem in India	Confederation of Indian Industry (CII)	December 22, 2017, New Delhi	
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://www.iari.res.in/files/Latest-News/Brochure-IARIwebsite_08112017.pdf
Training course on Recent Advances and accomplishments in Heterosis breeding of crops	Tamil Nadu Agricultural University, Coimbatore	January 31 - February 20, 2018	http://www.tnau.ac.in/
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://www.crri.nic.in/1circular_ARRW_IS_Feb18.pdf
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://www.iari.res.in/files/Latest-News/Winter_school_22092017.pdf
BioAsia 2018	Genome Valley, Govt. of Telangana Federation of Asian Biotech Associations and Pharmaceutical Export Promotion Council	February 22-24, 2018, Hyderabad	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	https://www.icgeb.org/meetings-2018.html
International			
ICGEB-NASSL "South Asian Biotechnology Conference 2018 - SABC 2018"	National Academy of Sciences of Sri Lanka (NASSL), Sri Lanka, ICGEB and the South Asian University (SAU)	March 28-30, 2018, Colombo, Sri Lanka	https://www.icgeb.org/meetings-2018.html
2nd World Congress & Expo on Biotechnology and Bioengineering	Biocore Conferences	June 25-27, 2018 Dubai, UAE.	https://biocoreconferences.com/biotechnology2018/
Ninth meeting of the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety (CP COP-MOP-9)	Convention on Biological Diversity	November 10 – 22, 2018 Sharm El-Sheikh, Egypt	http://bch.cbd.int/protocol/meetings/

For feedback please contact :

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