REGISTRATION IS OPEN

3rd Annual South Asia Biosafety Conference

September 19-20, 2015
Dhaka, Bangladesh

Featuring Sessions on:

• Biotechnology Research in South Asia
• Considerations for International and Regional Harmonization
• Nutritionally Enhanced Crops and their Safety Assessments
  • Preparing a Regulatory Dossier
  • Regulation of Biotechnology in South Asia
• What Happens After Release: Stewardship and Monitoring

Show your work during the Poster Session!

The 3rd Annual South Asia Biosafety Conference Poster Program is a new opportunity for individuals to share their research, findings, and achievements with colleagues at the conference. Presenting a poster is a noteworthy way to share expertise or accomplishments, and poster presenters will have a dedicated time to present and discuss their work with the diverse group of attendees.

For more information, please see pages 7-8 or visit http://sabc.biotech.co.in/
The Bangladesh Agricultural Research Council (BARC) and the Bangladesh Rice Research Institute (BRRI) co-organized a technical briefing on the status of the Golden Rice Project and plans for upcoming regulatory submissions in Bangladesh and the Philippines. Dr. Donald MacKenzie, the newly appointed regulatory affairs and stewardship leader for the Golden Rice Project at the International Rice Research Institute (IRRI), delivered the seminar on June 23, 2015, at the BARC Training Building. Approximately 50 participants attended the seminar from various National Agricultural Research System (NARS) institutes, including the Bangladesh Agricultural Research Institute, BRRI, BARC, the Bangladesh Institute of Nuclear Agriculture, the Cotton Development Board, the Bangladesh Standards and Testing Institute, the South Asian Regional Standards Organization, university faculty, and members of the Biosafety Core Committee (BCC) responsible for the safety assessment of new plant biotechnology products.

Following welcoming comments by Mr. Aminuzzaman, Director, Human Resource and Training Unit, BARC, the Chief Guest, Dr. Abul Kalam Azad, Executive Chairman of BARC, provided the inaugural address. Dr. Md. Ansar Ali, Director (Research), BRRI, chaired the seminar.

During his introduction, Dr. MacKenzie provided a brief recap of the significant health toll due to Vitamin A Deficiency (VAD), particularly in high-risk populations such as pre-school children and pregnant and lactating women in a number of Asian countries. In Bangladesh, the incidence of VAD is about 22 percent in pre-school children and about 24 percent in pregnant women. By comparison, the corresponding statistics for India are 62 percent and 16 percent, respectively. Across South and Southeast Asia, it was noted that more than 90 million children suffer from VAD, resulting in 670,000 deaths per year and about 350,000 cases of blindness per year. Dr. MacKenzie emphasized that combating VAD requires a combination of interventions, including poverty alleviation and diet diversification, the promotion of optimum infant feeding practices, such as breast feeding, the use of dietary supplements and food fortification, and crop bio-fortification.

The development of pro-vitamin A enriched Golden Rice is a crop bio-fortification approach intended to help address VAD. As noted by Dr. MacKenzie, the bio-fortification of rice can be a very effective means of increasing pro-vitamin A intake, particularly in Bangladesh where rice provides more than 70 percent of daily calories, on average.

Following a brief overview of the history of development of Golden Rice, Dr. MacKenzie discussed the breeding objectives of the project and some of the regulatory studies completed and in process. Golden Rice was developed through Agrobacterium-mediated transformation of a temperate japonica cultivar to express the phytoene synthase enzyme from maize and a phytoene (carotene) desaturase enzyme from a common soil bacterium (Erwinia uredovora). Expression of these two enzymes in the rice endosperm creates a functional biosynthetic pathway for β-carotene (pro-vitamin A). The other new enzyme expressed in Golden Rice is phosphomannose isomerase, from E. coli, which was used as a selectable marker for regenerating transformed plants on mannose-containing media. The criteria for acceptability of Golden Rice varieties is that they must contain ≥ 5 ppm β-carotene in the grain (after two months storage), there should be no unintended effects resulting from the genetic modification, and yield and agronomic performance must be equivalent to conventional varieties.

Previous work on the GR2-R event in different germplasm backgrounds demonstrated it did not meet all these criteria in that unintended effects on agronomic parameters were observed in certain circumstances and yield performance was inconsistent. The current focus is on event GR2-E, which has undergone five generations of

Continued on page 3
backcrossing into three indica cultivars, IR64, PSBRc82, and BRRI dhan 29, which is intended for cultivation in Bangladesh.

Dr. MacKenzie presented Southern blot data showing that the genetic construct in GR2-E had been stably inserted at a single site within the rice genome with no evidence of rearrangement. Furthermore, there was no interruption of any endogenous gene, or the potential to create new novel open reading frames, as verified by nucleotide sequence analysis. He also provided data showing that the phytoene synthase (Psy) and phytoene desaturase (CrtI) proteins were rapidly degraded by pepsin, and thus would be metabolized in the body like any other dietary protein, and that there were no significant amino acid sequence similarities with known protein toxins or allergens.

As noted by Dr. MacKenzie, additional work remains, including acute toxicity testing of the CrtI protein; examining expression levels of CrtI and Psy in rice grain to estimate potential dietary exposure; the analysis of key nutrients and anti-nutrients in grain and straw following recommendations in the OECD consensus document on new rice varieties; and agronomic and phenotypic characterization. Dr. MacKenzie highlighted the Project’s commitment to openly engaging with stakeholders in developing all the necessary safety data to the highest quality to meet regulatory requirements internationally, and sharing this information widely.

At the end of his presentation Dr. MacKenzie gave an outline of the overall research planning for GR2-E in the Philippines and Bangladesh. GR2-E (in PSBRc82 background) is undergoing two seasons of confined field trials in the Philippines during 2015/16 to generate material for compositional analysis. The goal is to submit an application for food/ feed safety review in multiple countries in the fall of 2016. Additional multi-location trials are anticipated in the Philippines during 2016/17 to generate agronomic and phenotypic data to support an application for environmental review. In Bangladesh, BRRI is planning for confined field trials during two seasons in 2016 to perform the agronomic assessment of GR2-E in BRRI dhan 29 and to collect the necessary biosafety data.

After the presentation, there was a lively discussion with the participants asking several questions and offering many suggestions. The Chair, Dr. Md. Ansar Ali, provided the closing comments and vote of thanks, expressing continued strong support for the project and prospects for the future.

NEW BOOK ON “GM CROPS: PERCEPTION VS REALITY” NOW AVAILABLE

Author: Dr. T. M. Manjunath, Consultant in Agri-biotechnology & Integrated Pest Management

An excerpt from the book: “Genetic Engineering (GE) or Genetic Modification (GM) of plants is a precise and well-researched area in life sciences and it has the potential to offer solutions to several biotic and abiotic challenges faced in agriculture, contributing to improved farming. When the GM crops were first approved for commercial cultivation in the USA followed by five other countries in 1996, the area occupied by them was only 1.7 million hectares. Since then, their adoption has increased significantly every single year and reached about 175 million hectares grown by 18 million farmers in 27 (19 developing, 8 industrial) countries by 2013 – an incredible 100-fold increase in the area in 18 years! These have substantially contributed to effective control of target pests and better weed management, resulting in increased crop production and steep reduction in use of chemical pesticides.

These benefits have percolated to improving the social and economic conditions of millions of farmers and also in reducing the environmental pollution across the globe. Such benefits have been derived in India also following the introduction of Bt cotton in 2002. This is reflected by the fact that as of 2013, about 7 million (70 lakh) Indian farmers have cultivated Bt cotton on 11 million hectares that comprised 95% of the total cotton acreage in our country. There is no credible scientific evidence to prove that GM crops have caused any ill effects on humans, animals or the environment anywhere in the world.

Despite such facts, the opponents have been projecting the GM technology and GM crops as controversial through unsubstantiated allegations, agitations and scaremongering stories regarding their safety and benefits. Their persistent and orchestrated misinformation has created a suspicion about this technology among the farmers and general public who ask endless questions such as “Is GM technology unnatural? Is it needed? Are GM crops safe? Do they affect biodiversity? Are they a threat to local varieties? Do they consume more water and fertilizers? Do they encourage new pests and diseases? Are they affordable? Are they beneficial? Were they responsible for farmers’ suicides?” etc. Besides the deliberate negative propaganda, lack of adequate knowledge about this modern technology is also responsible for such doubts.

The objective of this publication, “GM Crops: Perception vs Reality” is to clarify some of the commonly held perceptions with the help of scientific facts drawn from authentic publications. It is hoped that it would help dispel doubts and enable the readers to understand and appreciate the value of GM technology and GM Crops.”

To access the book: Please contact the publisher to receive hard copies, by emailing ram@ableindia.org.in and shivendra@ableindia.org.in
The Biosafety Research in Pakistan Grants Program (BRPGP) supports laboratory, field, and literature research that will significantly advance knowledge relevant to environmental risk assessment of genetically engineered plants in Pakistan.

The Biosafety Research in Pakistan Grants Program is managed by the ILSI Research Foundation Center for Environmental Risk Assessment (CERA) as part of the biosafety component of the Pakistan Strategy Support Program (PSSP). The PSSP is financially supported by the US Agency for International Development (USAID) through the International Food Policy Research Institute (IFPRI), which manages PSSP. The Biosafety Research in Pakistan Grants Program recognizes the need for biosafety research as part of a broader effort to support science-based decision-making and policy development and will fund research aimed at addressing the effects of agricultural biotechnology, particularly transgenic crops, on the environment and biodiversity in Pakistan.

Grantees come from agricultural or environmental research institutions and universities in Pakistan. All grantee’s work must:

- Address the effects of genetically engineered (transgenic) crops on the environment.
- Be relevant to Pakistan and take place in Pakistan.
- Demonstrate applicability to environmental risk assessment of transgenic plants and regulatory decision-making in Pakistan.

BRPGP is well known in Pakistan and has succeeded in bringing together a community of practice that can serve as an important information resource for the Pakistan government. It has awarded a total of 16 grants since it began in 2012. In this month's SABP newsletter, we will be featuring project updates from Dr. Bushra Mirza, Dr. Fiaz Ahmad and Dr. Shaukat Ali.

**GRANTEE:** Dr. Bushra Mirza  
**JOB TITLE:** Professor and Chairperson, Department of Biochemistry  
**ORGANIZATION:** Quaid-i-Azam University  
**PROJECT TITLE:** “Evaluation of Potential Gene Flow from Bt Cotton in Pakistan”  

**PROJECT UPDATE:** Agriculture plays a pivotal role in the economy of Pakistan. Expansion of genetically modified cotton in Pakistan started in 1997, but commercialization was delayed for another decade. Different survey reports show that Bt varieties were cultivated on about 60% of the cotton growing area in 2007; 50% in Punjab and 80% in Sindh. In Pakistan, it is still the only transgenic crop being cultivated. At least 16 Bt cotton varieties, including one Bt cotton hybrid, have been approved for cultivation in Pakistan so far.

Through the funding provided by the Biosafety Research in Pakistan Grant Program, a project is being executed to gather information about varieties of Bt cotton under cultivation in main cotton growing areas of Southern Punjab. Information is also being gathered about cultivation practices, neighboring crops and the presence of the pollinator(s) in the field. To assess any possible gene flow, evaluation of presence of transgene and its protein in the non-Bt plants identified and collected in proximity of the Bt cotton crops is also being conducted. Furthermore, ethnobotanical data of these cultivated or wild plants is also being studied.

During this project, extensive field work has been conducted and samples have been collected from six districts of Punjab, specifically Faisalabad, Khanewal, Vehari, Bahawalpur, Multan and Toba Tek Singh. These districts represent 80% of the cotton belt area of Pakistan.

To view all grant projects, visit the CERA website at:

http://cera-gmc.org/index.php/The_Biosafety_Research_in_Pakistan_Grants_Program
From these research findings, it is concluded that Bt cotton may be grown safely without having any adverse effects on soil microflora and fertility related soil parameters.
The South Asia Biosafety Program (SABP) is an international developmental program implemented in India, Bangladesh and Pakistan 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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<td><strong>INDIA</strong></td>
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<td>Media Workshops on Communicating Science and Biosafety</td>
<td>Indian Institute of Mass Communication (IIMC)</td>
<td>July 22-23, 2015 Ahmedabad July 28-29, 2015 Chandigarh</td>
<td><a href="http://www.iimc.nic.in">www.iimc.nic.in</a></td>
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<td>National Symposium on Germplasm to Genes: Harnessing Biotechnology for Food Security and Health</td>
<td>Society for Plant Biochemistry and Biotechnology, National Research Centre on Plant Biotechnology, and Indian Agricultural Research Institute</td>
<td>August 9-11, 2015 New Delhi</td>
<td><a href="http://www.nrcpb.org">www.nrcpb.org</a></td>
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<td>Advanced Training Course on Recent Advances in Improvement of Vegetable Crops</td>
<td>Dr. YS Parmar University of Horticulture &amp; Forestry</td>
<td>September 2-22, 2015 Nauni-Solan (HP)</td>
<td><a href="http://www.yspuniversity.ac.in/trainings/caft-2015.pdf">www.yspuniversity.ac.in/trainings/caft-2015.pdf</a></td>
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<td>3rd Annual South Asia Biosafety Conference</td>
<td>South Asia Biosafety Program (SABP)</td>
<td>September 19-20, 2015 Dhaka, Bangladesh</td>
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Registrations are limited to 100 for the conference. Registrants that cannot be accommodated will be added to a waitlist, and notified if space becomes available.

Attach mailing label from brochure, or your business card.

Name Preferred on Badge ____________________________

Complete the following if the information on the mailing label is incorrect or no label is provided.

Registrant is:

Gender   Male   Female
Title    Mr.   Mrs.   Ms.   Dr.

First Name _________________________________
Middle Initial _________________________________
Last/Surname _________________________________
Job Title _________________________________
Employer/Company/Institution _________________________________
Address _____________________________________
Street _____________________________________
City _____________________________________
State/Province _________________________________
Zip/Postal Code ______________
Country _____________________________________
Telephone _____________________________________
Facsimile _____________________________________
E-mail _____________________________________

Cancellation/Refund Policy
Registration cancellations must be made in writing and received by BCIL no later than September 1, 2015. Cancellations received by this date are subject to a 20% processing fee. Registration and ticketed event cancellations received after September 1, 2015, are NOT subject to a refund.

Registration forms should be sent to:
Dr. Vibha Ahuja, Chief General Manager
Biotech Consortium India Limited (BCIL)
Anuvrat Bhawan, 5th Floor
210, Deen Dayal Upadhyaya Marg
New Delhi - 110 002
Telephone Number +91-11-23219064-67 (Ext. 204; 205); 23219059(D)
Fax Number +91-11-23219063
Email: vibhaahuja@biotech.co.in; vibhaahuja.bcil@nic.in

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<td>BCIL Biotech Club Members</td>
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<td>Additional delegates from same organization (except students)</td>
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<td>Government departments and ministries</td>
<td>No fee up to two nominations and Rs. 2,000/- each for additional nomination</td>
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*In case you face difficulty in online registration, please download the registration form and send it to us along with payment through bank transfer. The details for Bank Transfer are as follows:

Beneficiary Name: Biotech Consortium India Limited
Account Number: 00032320008527
IFSC Code: HDFC0000003 (HDFC Bank Limited)
THE 3RD ANNUAL SOUTH ASIA BIOSAFETY CONFERENCE POSTER PROGRAM is a new opportunity for individuals to share their research, findings and achievements with colleagues at the conference. Presenting a poster is a noteworthy way to share expertise or accomplishment, and poster presenters will have a dedicated time to present and discuss their work with the diverse group of attendees.

All poster abstracts must convey relevance to biosafety research, risk assessment, or regulation of genetically modified organisms (including programs or activities to improve capacity and knowledge generation).

The following are some suggestions about poster abstracts that will contribute to ensuring the readability and quality of the submission. Abstracts of accepted posters will be included as part of the conference onsite program and will be published as submitted, without content editing.

• Check for proper spelling and grammar.
• Use a standard typeface such as Times Roman with a font size of 12.
• Begin sentences with words (not numbers).
• Standard abbreviations may be used without definition, but nonstandard abbreviations/acronyms should be placed in parentheses after the first use of the terminology. It is important to keep nonstandard abbreviations/acronyms to a minimum, to allow for readability and understanding.
• Do not include tables, figures, or graphs in the abstract. Such content is appropriate for the poster.
• Limit the abstract to 300 words.
• Try to organize the abstract with the following headings where appropriate: purpose, methods, results, conclusions (e.g., for research projects) OR purpose, description, evaluation and outcomes (e.g., for capacity building projects).

Space is limited. Posters will be considered on a first come, first served basis, based on the relevance to the program.

ABSTRACT SUBMISSION FORM FOR POSTER PROGRAM

PLEASE COMPLETE THE FORM BELOW AND E-MAIL IT TO lwilliams@ils.org AND COPIED TO vibhaahuja.bcil@nic.in.

You will receive a return email acknowledging receipt of your abstract and subsequently a second email informing you if your poster has been accepted for the conference poster program.

I. Lead Presenter
   First Name: ___________________________
   Last Name: ___________________________
   Institution and Address: ___________________________
   E-mail: ___________________________
   Telephone Number: ___________________________

   (NOTE: Poster Presenters must register for the 3rd Annual South Asia Biosafety Conference. If an abstract is received from an author who is not registered, the abstract will NOT be included in the review process).

II. Poster Title: ___________________________
   Poster Authors: ___________________________

   (NOTE: list all poster authors including their name, organization, address and e-mail. Separate authors with a semi-colon and please INCLUDE the lead presenter also).

III. Poster Abstract (maximum 300 words)

   ______________________________________
   ______________________________________