



SOUTH ASIA
BIOSAFETY PROGRAM

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SABP

The South Asia Biosafety Program (SABP) is an international developmental program initiated with support from the United States Agency for International Development (USAID). The program is implemented in India and Bangladesh and aims to work with national governmental agencies 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.

SABP is working with its in-country partners to:

- Identify and respond to technical training needs for food, feed and environmental safety assessment.
- Develop a sustainable network of trained, authoritative local experts to communicate both the benefits and the concerns associated with new agricultural biotechnologies to farmers and other stakeholder groups.
- Raise the profile of biotechnology and biosafety on the policy agenda within India and Bangladesh and address policy issues within the overall context of economic development, international trade, environmental safety and sustainability.

USE OF TRANSGENIC TECHNOLOGY FOR MOSQUITO CONTROL

Dr. P. Balakrishna Murthy, Director, International Institute of Biotechnology and Toxicology, Padappai, Tamil Nadu

Development of effective and environment friendly techniques has been continuously attempted to control insect pests that are damaging to human health and agriculture. 'RIDL®' is one such novel technology platform, which has been developed by Britain's Oxford University and its part-owned company Oxitec Limited.

The technology uses genetics and molecular biology techniques to improve safety and cost-effectiveness of



Aedes aegypti

the well-known Sterile Insect Technique (SIT) – a form of 'birth control for insects' which has been used for over 50 years with success stories such as the eradication of the New World Screwworm. SIT involves the release of a large number of sterile male insects to mate with females of their kind in the field. The progeny from such matings do not develop into adult insects, thus leading to a decline in the target pest population when SIT is carried out in a sustained manner. With RIDL-SIT, transgenic insects are bred to be sterile without the need for radiation to induce sterility, thus avoiding the drawbacks of using radiation. One of the major drawbacks is that classical SIT has not been applicable to mosquitoes because radiation incapacitates the male insects in the process of rendering them sterile. RIDL-SIT, on the other hand has made mosquito SIT a reality. Release of male insects will not be a problem as male mosquitoes cannot bite.

The International Institute of Biotechnology and Toxicology (IIBAT), a DSIR-recognized non-profit institution near Chennai has entered into research collaboration with Oxitec Limited. The scope of this collaboration is limited to carrying out fitness experiments under containment involving Oxitec's RIDL OX513A strain of *Aedes aegypti* in IIBAT's GLP-certified Arthropod Containment Facilities (ACL). These trials are being monitored and evaluated independently by a committee of government experts appointed by the Review Committee on Genetic Manipulation (RCGM) under India's Department of Biotechnology. IIBAT has imported the strain from Oxitec to study the mating competitiveness with local mosquito strains under containment. Co-Principal Investigator of this project and Oxitec's Head of Public Health Dr. S.S. Vasan said "If proven to work, this technology will nicely fit into existing integrated mosquito control programmes to combat diseases including chikungunya and dengue fever". Similar trials have been successfully concluded in Malaysia and Thailand recently, he added.

BT BRINJAL GETS PANEL NOD

Financial Express – October 15, 2009

The Genetic Engineering Approval Committee (GEAC) on Wednesday (October 14) gave its nod to the environmental release of Bt Brinjal, the first genetically modified food crop. With this, Bt Brinjal is expected to be commercially launched in the country despite protests from environmental groups over health issues. Sources told FE that GEAC accepted the recommendation of a special committee, set up to study bio-safety data of Bt Brinjal. Local seed company Maharashtra Hybrid Seeds Co (Mahyco) is developing the food crop with technology assistance from US-based multinational Monsanto.

Monsanto had given the technology free to Tamil Nadu Agriculture University and the University of Agricultural Science, Dharward for commercial use after due regulatory approval.

Mahyco had claimed that Bt Brinjal, which is resistant to pest and also entails far lesser use of pesticides, would be available to small farmers through public agencies.

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CALENDAR OF EVENTS

Event	Organized by	Date and Venue	Website
INDIA			
National Seminar -- Spices Improving Productivity and Quality with Focus on Himalayan Spices	Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu	October 22 - 24, 2009 Jammu	http://skuastkashmir.ac.in/
Sixth Solanaceae Genome Workshop	School of Life Sciences, University of Hyderabad	November 9 - 13, 2009 New Delhi	http://202.71.128.144/sol2009.org/index.html
Symposium on Biosafety and Environmental Impact of Genetically Modified Organisms and Conventional Technologies for Pest Management	The Academy of Environmental Biology, Lucknow, and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	November 20-21, 2009 Patancheru, AP	http://www.icrisat.org/
7th Pacific Rim Conference on the Biotechnology of <i>Bacillus thuringiensis</i> and its Environmental Impact	Indian Council of Agricultural Research, Department of Biotechnology, Calcutta University and All India Crop Biotechnology Association	November 25 - 28, 2009 New Delhi	http://7btconference.org/
Conference on Biotechnology Based Sustainable Agriculture	ILSI – India, New Delhi and ILSI International Food Biotechnology Committee, Washington DC	December 2009, New Delhi	http://www.ils-i-india.org/activities-events/forthcoming-activities.htm

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GEAC has now referred the matter to environment and forest minister Jairam Ramesh for further decision.

While a GEAC official declined to comment, Ramesh later told reporters "I understand that GEAC has given approval for the environmental release of the Bt brinjal and, I will study the panel's report before deciding whether it should

brinjal varieties in the country and the government should not use Bt crop in a hurry without 'satisfying' the health impact.

"If Bt Brinjal approval happens, it would open the floodgate to all the 56 crops including 40 other food crops, which are presently undergoing various stages of approval. This in the absence of a labeling law leaves consumers with no choice," Krishna R, campaigner, sustainable agriculture, Greenpeace India, said.

"It will help millions of brinjal farmers who have been suffering from the havoc caused by the Brinjal Fruit and Shoot Borer (BFSB) and it will help farmers tackle this pest in an environment-friendly manner and increase yields and farm income," Raju Barwale, managing director, Mahyco, said in a statement.

Brinjal is grown in around 5.5 lakh hectare in the country and is a critical cash crop for more than 1.4 million small and marginal farmers. West Bengal is the biggest producer of brinjal in the country with 1.6 lakh hectare under cultivation.

BRINJAL AND BEYOND

The Hindu – October 20, 2009

The Genetic Engineering Approval Committee's recommendation that Bt brinjal be commercialised is a significant marker in the country's slow and somewhat hesitant embrace of agri-biotechnology. The nod has come a full seven years after approval for the country's first transgenic crop — Bt cotton. But Bt brinjal is the country's first approved genetically modified (GM) food crop and the decision of the GEAC, the high-level committee under the Union Ministry of Environment and Forests, may be read as an affirmation of a key principle. It is that transgenic seeds will be approved for commercialisation as long as they adhere to the bio safety and other requirements demanded by the regulatory process. This may well spur the process for clearance of other transgenic food crops at different stages of the regulatory



be given clearance or not". He, however, did not specify any timeframe when the decision would be taken by the government.

If commercially released, Bt Brinjal would be second crop after Bt Cotton, which was introduced in 2002 to be commercially cultivated in the country.

Many environmental groups have been opposed to BT Brinjal saying there are enough number of indigenously developed

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CREAM OF THE (WEB) CROP

harvesting the best from the worldwide web

THIS MONTH'S PICK:

ICGEB Biosafety Web Pages

<http://www.icgeb.org/~bsafesrv/>

The role of the International Centre for Genetic Engineering and Biotechnology's (ICGEB) Biosafety Web Pages is to disseminate as widely as possible significant information related to biosafety issues raised through the use of products derived from modern biotechnology, as well as to assist its 59 member states (<http://www.icgeb.org/member-states.html>) in their capacity to identify, regulate, manage and monitor those products within their own Countries.

Sections of the Biosafety Web Pages include:

Introduction to Biosafety

Contains a general introduction to and the rationale behind ICGEB's biosafety activities and information about international efforts in biosafety, global GM crop cultivation and topics of concern, which include risks for animal and human health, risks for the environment, horizontal gene transfer, risks for agriculture and general concerns. It also holds information about the activities of the ICGEB Biosafety Unit including:

- **Bibliosafety**, a biosafety bibliographic database comprising a collection of biosafety studies featuring records from the CAB abstract database published by CABI UK;
- **The Risk Assessment Searching Mechanism (RASM)**, an open access collection of risk assessment documents related to official government decisions concerning the commercial release of GMOs worldwide, irrespective of the individual authority's Convention on Biological Diversity signatory status;
- **BiosafeRes**, a web-based, free and public-access database of past and current research projects in GMO biosafety.

Databases

There are ten separate categories of databases, including general, agricultural, bibliographic, environmental, glossaries, health (human and animal), molecular, patents, research and treaties/regulations.

Library

There are three subdivisions in the Library section:

- Information about and links to international organization such as the Convention on Biological Diversity, European Commission, Food and Agriculture Organization, the United Nations and three of its programs, Global Environment Facility, Organisations for Economic Co-operation and Development and World Bank.
- Information about and links to International Treaties/Agreements such as the Cartagena Protocol on Biosafety and the International Plant Protection Convention.
- A publications section with links to:
 - Published documents, meeting reports and briefing papers such as those produced by FAO and ISNAR;
 - Electronic forums such as the FAO electronic forums on biotechnology in food and agriculture;
 - A selection of free scientific journals and links to web-sites offering free access to scientific literature;
 - General information resources such as the AGBIOS, GMO Compass and Royal Society websites;

News/Publications

Contains links to in-house newsletters, 12 online news services, and external newsletters; a selection of biosafety reviews, in-house articles, external publications and ICGEB Biosafety News.

Biosafety Research

Contains information about the ICGEB Ca'Tron Biosafety Outstation and a link to the Environmental Biosafety Research Journal.

Training

Contains information about ICGEB workshops and ICGEB fellowships in biosafety.

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and approval process. It is imperative that Union Minister for Environment and Forests Jairam Ramesh, who says he will study the GEAC's recommendation in depth before giving a final stamp of approval, bases his decision solely on the body of scientific data culled from Bt brinjal trials. He should ignore the huge pressure from organisations that have no time for the scientific evidence while claiming to speak for the environment and the public. It is not just the 'organic' movement but also the pesticide industry lobby that is viscerally opposed to Bt crops, which acquire a pest-resistant character with the introduction of a gene derived from a common soil bacterium (*Bacillus thuringiensis*).

Introduced commercially in the United States in the mid-1990s, genetically modified crops have expanded substantially in recent years. An estimated 125 million hectares were under such cover in 2008 in 25 countries, including China, Brazil, Egypt, and Australia. Even in GM-phobic Europe, seven countries, including Germany and Portugal, grow genetically modified maize commercially. It is nobody's case that the massive spread of agro-biotechnology is proof of its safety. India's regulatory process must continue to put transgenic plants through a battery of rigorous tests — for toxicity, allergenicity, bio safety, agronomic worth, and so forth — before recommending commercial release. It is also important that the country addresses issues such as labelling GM products through an independent regulatory process that commands public confidence. Legislation must be speedily introduced to set up a National Biotechnology Regulatory Authority, as recommended in 2004 by a task force led by eminent agricultural scientist M.S. Swaminathan. In a country where agricultural productivity and food security are vital issues, agri-biotechnology holds great promise. We need to regulate its application, not allow it to be strangled by misconceived or motivated campaigns.

U.K. ROYAL SOCIETY REPORT BACKS GM CROPS, OTHER MEASURES TO BOOST FOOD PRODUCTION

Science – October 21, 2009 (John Travis)

A call for more money into agricultural science and greater attention to soil management and irrigation schemes? With recommendations such as those in a new report on how to address the world's growing demand for food, it's not a complete surprise that most of the press attending a briefing yesterday at the U.K.'s Royal Society quickly turned their attention to the report's embrace of genetically modified (GM) crops, an ongoing source of controversy here. "No technology should be ruled out," says David Baulcombe, the University of Cambridge plant biologist and Royal Society Fellow who chaired the study.

In its primary recommendation, the report calls on the U.K. to inject an extra £50 million to £100 million annually over the next decade into agricultural research that could help boost the world's food production by 50% by 2050. Baulcombe notes that he and his coauthors reviewed analyses conducted by others and concluded that food production would need to rise between 25% and 100% over the coming decades. They reject the notion that simply reducing waste and improving distribution can solve future food shortages. "Yes, we do need more food," Baulcombe says, "We can't sit back and rely on what we've got."

At the briefing, Baulcombe tried to keep the focus on the report's call for developing crop management techniques

that are more efficient and sustainable. He, for example, highlighted a "push-pull" strategy of pest management used to grow maize in Africa. In this scheme, maize is surrounded by border of grass that is intended to lure destructive moths to lay their eggs away from the crop, and another crop that the moths dislike is interspersed among the maize. "By growing different plants together one can grow the crops sustainably," says Baulcombe.

But stoked by an inflammatory Daily Telegraph story earlier this week previewing the report ("Britain will starve without GM crops"), the reporters at the briefing showed little interest in such matters and zeroed in on panel's call for "genetic improvement" of crops, through conventional plant breeding and, more controversially, direct modification of crop genomes.

The U.K., like many European countries, has largely resisted the introduction of GM food crops, although there is no Europe-wide ban on their sale and there is a process for their approval. At the briefing yesterday, Baulcombe and his coauthors struggled to move the discussion beyond the GM food issue, even as they clearly made the case that such crops must be one element of future food production. They acknowledged the public resistance to GM crops so far, but argued that much of it stemmed from the fact that current GM crops were largely developed by multinational companies and are designed to tolerate the pesticides and herbicides those firms sell.

Baulcombe stresses that the next generation of GM crops will benefit from scientists having access to the deciphered genomes of plants, which should allow modifications that increase yields—or allow current yields to be maintained with less damage to the environment. The report cites as goals developing nitrogen-fixing cereal crops that would need less fertilizer and creating crops with improved photosynthetic efficiency. "There's a tremendous opportunity to apply science to productive, sustainable agriculture," says Baulcombe. "But there's an element of urgency in what we're talking about. We need to start doing the research now."

However, as several journalists noted in their questioning yesterday, the report makes no specific recommendations on safeguarding the ability of U.K. scientists to conduct GM crop research. Anti-GM forces in the U.K. have successfully destroyed many field trials of such crops, leading some scientists to abandon such research and others to call for the U.K. government to conduct trials at secure or secret sites.

The full report can be viewed at <http://royalsociety.org/document.asp?tip=0&id=8825>

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