

**International Conference
On
Biotechnology Based Sustainable Agriculture**

**Saturday, December 19, 2009
New Delhi, India**

Conference Recommendations

Sponsored By

**International Life Sciences Institute India (ILSI-India)
ILSI International Food Biotechnology Committee (IFBiC)**

Co-Sponsored By

**Department of Biotechnology (DBT),
Ministry of Science and Technology, GOI
Indian Council of Agricultural Research (ICAR)**

International Life Sciences Institute - India

International Conference on Biotechnology Based Sustainable Agriculture

RECOMMENDATIONS

About the Conference

ILSI-India and ILSI International Food Biotechnology Committee organized the International Conference on "Biotechnology Based Sustainable Agriculture" on December 19, 2009 in New Delhi. The Conference was cosponsored by Department of Biotechnology, Ministry of Science and Technology, GOI and Indian Council of Agricultural Research.

About 130 participants from Government, academia and industry attended the Conference. Eighteen leading national and international experts addressed the Technical Sessions of the Conference on: The Dynamics of Sustainable Agriculture; Recent Developments in Biotechnology- Transgenics; Recent Developments in Biotechnology- Non Transgenics For Enhancing Conventional Breeding; Safety Assessment for Food and Feed Derived from GM Technology; and Laboratory Networking for Safety Management and Knowledge Sharing.

The Background

Indian agriculture is at crossroads. The Green Revolution had reached a plateau at the beginning of this decade. Food grains production has since been increasing at nearly the same rate as the growth of population.

The green revolution relied mainly on irrigation, fertilizers and hybrid varieties of seeds. After-effects of green revolution have been mining of nutrients from soils, lowering water table, developing salinity and creating soil, water and atmospheric pollution. Further expansion of irrigation is not easy and more intensive use of fertilizers will not give commensurate results.

With low growth of production, India may become a net importer of food grains from net exporter it was a few years back. To ensure food and nutrition security it is therefore important to look at new options, principally new technology, which are beneficial to farmers and acceptable to consumers.

There are many effective and sustainable technology options available to enhance agricultural growth. Conservation agriculture is one practical method consisting of laser leveling, use of zero-till, ferti-seeds drill, timely use of herbicide and field and farm residue management. Conservation agriculture has been favored in many countries but its commercialization is rather limited.

Why Biotechnology?

An effective option is bio-technology application to agriculture. What is important is to develop varieties that are stress tolerant, apart from herbicide tolerance and insect resistance which are already in use. The former are important considering the limitation of land and water resources. There are also non-transgenic bio-tech approaches for enhancing conventional farming like marker assisted selection as also other genomic technologies.

Biotechnology applications will enable:

- Improvement in productivity.
- Reduction in costs.
- Enrichment of nutrition content of crops.
- Extension of shelf life of products.

There are still concerns about the use of transgenics. It is therefore important to have an efficient regulatory framework to ensure safety of GM foods. Codex has recommended "substantial equivalence" as criteria to ensure safety.

The Recommendations

On the basis of the presentations and subsequent discussions, the Conference made the following recommendations:-

1. Government, industry and academic institutions must invest adequately in agricultural bio-technologies through capacity building with emphasis on education, training and research.
2. Tissue culture micropropagation is a simple and cost effective technology which has not been adequately utilized and should be extensively used for mass seed production of crops likes potato, banana, mentha, sugarcane, ornamental and medicinal plants.
3. Transgenic technology holds significant promise for developing crop varieties possessing resistance to biotic and abiotic stresses. This technology has made a beginning with cotton and should be extended to other crops. which possesses' tremendous potential for precision gene transfer and should be effectively used for improving various agronomic traits and crop productivity.
4. *DNA* marker technology such as marker assisted selection (MAS) possesses tremendous potential for precision gene transfer and should be effectively used for improving various agronomic traits and crop productivity.
5. The "Guidelines for the Safety Assessment of Foods Derived from Genetically Engineered Plants" and the associated "Protocols for Food and Feed Safety Assessment of GE Crops" approved by RCGM and GEAC in 2008 follow internationally accepted standards and are adequate to address human food and livestock feed safety assessment.
6. GM foods currently available on the international market have passed rigorous safety assessments and, to date, no adverse effects on human health have been shown as a result of the consumption of such foods by the general population in the countries where they have been approved.

7. Risk communication is often overlooked as an essential element of risk analysis. The Government of India should consider establishing a biotechnology risk communication cell so that the regulation of GM crops and foods and related decisions can be more effectively communicated to stakeholders and the public.
8. The government should seek to enhance societal confidence in biotechnology through public understanding of the safety and regulations of agriculture biotechnology by launching comprehensive outreach programs aimed at the public as well as other stakeholders including policy makers, media, and NGO's.