



2 MARCH 2010

Detailed programme for Day 2 of the FAO international technical conference on Agricultural Biotechnologies in Developing Countries (ABDC-10). Last Updated 26 February 2010. Note, all documents prepared for ABDC-10 by FAO and by FAO's partners referred to below can be downloaded from <http://www.fao.org/biotech/abdc/backdocs/>

9:00-10:45	PLENARY				
9:00-9:45	Summary- output of day 1				
9:45-10:15	Investing in agricultural research and agricultural biotechnologies (IFAD)				
10:15-10:45	Enabling R&D in agricultural				
10:45-11:15	COFFEE BREAK				
11:15-13:00	PLENARY				
	Enabling R&D in agricultural biotechnologies (continued)				
	a) Capacity development				
	b) Funding				
	c) Regulation				
13:00-14:30	LUNCH BREAK				
14:30-16:15	PARALLEL SESSIONS				
	Cross-cutting issues				
	Development of genomic resources: Current status and future prospects (CGIAR)	Enhancing human capacities: Training and education (ICGEB)	Ensuring equitable access to technology, including gender issues (Oxfam International)	Empowering public participation in informed decision-making (IUCN-CEC)	Prioritising the role of the farmer (FAO/IFAP)
16:15-16:45	COFFEE BREAK				
16:45-18:30	PARALLEL SESSIONS				
	Cross-cutting issues (contd.)				
	Genomic applications: Molecular breeding in developing countries (CGIAR)	Enhancing human capacities: Training and education (ICGEB)	Ensuring equitable access to technology, including gender issues (Oxfam International)	Empowering public participation in informed decision-making (IUCN-CEC)	Public-private partnerships (FAO/IFAP)
18:45-21:00	KNOWLEDGE SHARE FAIR				

9.00 -10.45: Plenary Session

1. Presentation of short reports summarising results of the 10 sector-specific parallel sessions and roundtables held on afternoon of 1 March

2. Investing in agricultural research and agricultural biotechnologies

By: Rodney Cooke, Director, Technical Advisory Division, International Fund for Agricultural Development, Rome, Italy.

See document ABDC-10/IFAD.

3. Enabling R&D in agricultural biotechnologies

Relevant background information is contained in Section B of the background document “Policy options for agricultural biotechnologies in developing countries” (ABDC-10/8.1; its synthesis is

provided in document ABDC-10/8.2). Section B is entitled “Enabling policies for agricultural biotechnologies” and it comprises three main sections:

- Building scientific, technical and innovation capacities
- Funding: Instruments and options
- Regulation

11.15 -13.00: Plenary Session: Enabling R&D in agricultural biotechnologies (continued)

Enabling R&D in agricultural biotechnologies (continued)

14.30 – 16.15: Parallel Sessions: Cross-sectoral issues

For these parallel sessions, FAO invited relevant intergovernmental and non-governmental organisations to organise parallel sessions on a specified issue of cross-sectoral importance. For each one, the programme for the session was developed by the organizers, with guidance from FAO. The structure that FAO suggested for each session to the organizers was one with 2-3 speakers/panellists, each of whom would speak for 15 minutes (providing a brief background on the topic and setting the scene) followed by an open discussion moderated by a facilitator. The organizers were also invited to contribute an Issue paper, focussing on the key topics to be discussed during the session, and those provided can be downloaded from <http://www.fao.org/biotech/abdc/backdocs/en/>. They were also invited to provide a short abstract describing the session content. These abstracts are provided at the end of this document. Both the Issue papers and the abstracts are the responsibility of the session organizers.

a) Development of genomic resources: Current status and future prospects

Organized by the Consultative Group on International Agricultural Research (CGIAR)

Speakers:

1. Rajeev K Varshney, Centre of Excellence in Genomics, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, India
2. Roberto Tuberosa, Department of Agroenvironmental Sciences and Technology, University of Bologna, Bologna, Italy
3. Jasper G Rees, Department of Biotechnology, University of Western Cape, Bellville, South Africa
4. Jeremy Taylor, Animal Sciences Center, University of Missouri, United States

Facilitator: Rajeev K Varshney

b) Enhancing human capacities: Training and education

Organized by the International Centre for Genetic Engineering and Biotechnology (ICGEB)

Speakers:

1. Godelieve Gheysen, Department of Molecular Biotechnology, Ghent University, Ghent, Belgium
2. Sudhir Sopory, Plant Molecular Biology, ICGEB, New Delhi, India
3. Idah Sithole-Niang, Department of Biochemistry, University of Zimbabwe, Harare, Zimbabwe
4. Jorge Allende, Research and Development, Universidad de Chile, Santiago, Chile

Facilitator: Roger Beachy, National Institute of Food and Agriculture, United States Department of Agriculture, Washington, United States.

c) Ensuring equitable access to technology, including gender issues

Organized by Oxfam International

Speakers:

1. Luz Amparo Fonseca, Confederación Colombiana del Algodón, Bogota, Colombia
2. Patricia Zambrano, International Food Policy Research Institute, Washington, United States
3. Wilhelmina Pelegrina, South East Asian Regional Institute for Community Empowerment (SEARICE), Quezon City, Philippines
4. Andrew Mushita, Community Technology Development Trust (CTDT), Harare, Zimbabwe

Facilitator: Gigi Manicad, Global Strategies and Alliances, Oxfam Novib, The Hague, The Netherlands

d) Empowering public participation in informed decision-making

Organized by the International Union for Conservation of Nature Commission on Education and Communication (IUCN-CEC)

Speakers:

1. John Francis, National Geographic Society, Washington, United States
2. Sarah Stokes Alexander, Sustainability and Leadership Programs, The Keystone Center, Keystone, United States
3. Joseph M. Russo, ZedX Inc., Bellefonte, United States
4. Marcos Algara Siller, Sistema Nacional de Vigilancia Epidemiológica Fitosanitaria (SINAVEF), Universidad Autonoma De San Luis Potosi, San Luis Potosi, Mexico.

Facilitator: Keith Wheeler, IUCN Commission on Education and Communication, Pennsylvania, United States

e) Prioritising the role of the farmer

Organized by FAO, with support from the International Federation of Agricultural Producers (IFAP)

Speakers:

1. Herman Kumera, General Secretary of the World Forum of Fisher Peoples (WFFP), Negombo, Sri Lanka
2. Miguel Altieri, Department of Environmental Science, Policy, and Management, University of California Berkeley, United States

Facilitator: Karin Nichterlein, FAO Office of Knowledge Exchange, Research and Extension, Rome, Italy

16.45 – 18.30: Parallel Sessions: Cross-sectoral issues

a) Genomic Application: Molecular breeding in developing countries

Organized by the Consultative Group on International Agricultural Research (CGIAR)

Speakers:

1. Roberto Tuberosa, Department of Agroenvironmental Sciences and Technology, University of Bologna, Bologna, Italy
2. Carmen de Vicente, Generation Challenge Program, The International Maize and Wheat Improvement Center (CIMMYT), Mexico

Facilitator: Jean-Marcel Ribaut, Generation Challenge Program, CIMMYT, Mexico

b) Enhancing human capacities: Training and education

Organized by the International Centre for Genetic Engineering and Biotechnology (ICGEB)

Speakers and facilitator given above

c) Ensuring equitable access to technology, including gender issues

Organized by Oxfam International

Speakers and facilitator given above

d) Empowering public participation in informed decision-making

Organized by the International Union for Conservation of Nature Commission on Education and Communication (IUCN-CEC)

Speakers and facilitator given above

e) Public-private partnerships

Organized by FAO, with support from the International Federation of Agricultural Producers (IFAP)

Speakers:

1. Francisco Aragão, Embrapa Recursos Genéticos e Biotecnologia, Brasília, Brazil.
2. Jacob D.H. Mignouna, Technical Operations, African Agricultural Technology Foundation (AATF), Nairobi, Kenya.
3. Denis Murphy, Division of Biological Sciences, University of Glamorgan, United Kingdom

Facilitator: Michael Baum, Biodiversity and Integrated Gene Management Program, International Center for Agricultural Research in the Dry Areas, Aleppo, Syria.

18.45 – 21.00: Knowledge Share Fair

The Knowledge Share Fair will take place in the foyer of the Conference rooms in the Hilton Guadalajara Hotel on the evenings of 1-3 March. Its purpose is to promote good knowledge sharing practices in the field of agricultural biotechnologies (for crops, forestry, livestock, fisheries and aquaculture, agro-industry) for rural development and food security. This event will offer ABDC-10 participants a place to meet informally, discuss and share ideas, experiences, and information. There are 20 information booths available, 20 boards for posters and 20 tables for information materials (leaflets, brochures, publications etc). There will also be limited opportunity for 'Open Space', a method for suggesting an idea/theme and then convening small groups around a specific question, task, or area of importance. The groups thus formed would create their own agenda and examine the issues on hand. Proposals for Open Space initiatives can be submitted directly during the conference in Guadalajara.

ABSTRACTS

Abstracts provided by the organizers for the parallel sessions they are organizing on 2 March

Development of genomic resources: Current status and future prospects (Organized by the CGIAR)

Recent years have witnessed the importance and utility of genomic resources for genetic analysis and breeding applications. The first sets of genomic resources in the form of molecular markers were developed sometimes in 1980s. Since then a variety of molecular markers such as RFLPs, RAPDs, AFLPs, SSRs, DArTs, SNPs have been developed for a range of agricultural species including crops, livestock, forest trees, fisheries, etc. While these resources can be used for molecular characterization of genetic resources, they have important roles in genetics and breeding applications. For instance, genetic maps based on molecular markers can be used for mapping the trait of interest to the breeders and subsequently promising molecular markers linked with the trait can be used in breeding programmes through marker-assisted selection (MAS). On the other hand, large insert genomic DNA libraries (e.g. BAC library) can be used to develop the physical map for cloning of genes involved in expression of trait of interest as well as sequencing the genome of species to understand the genome architecture and dynamics. Genome sequencing, in fact, has been possible for model/major species in different crop, animals, microbe, fish as well as forest tree species. Genome wide sequence/marker data has also shown conservation of gene sequences/orders in related species and thus facilitated transfer of marker/sequence information from model/major species to orphan/less important species through comparative genomics. Functional genomics approaches either by using microarrays or second generation sequencing also provide the candidate genes involved in expression of traits of interest to enhance understanding the mechanism of trait.

This session will start with a few lead presentations that would provide an overview on current status as well as future prospects of genomic resources in crop, livestock and forest tree species. Subsequently, the session will have general discussions among participants to assess the current stocks, constraints as well as future prospects on availability/development of genomic resources in a range of agricultural species, especially in context of several major genomics initiatives and second generation of sequencing and genotyping technologies, so that agriculture community have access to genomic resources for applying them in breeding programme.

Genomic Application: Molecular breeding in developing countries (Organized by the CGIAR)

Molecular Breeding (MB) is the generic term used to describe several modern breeding strategies including: marker-assisted selection (MAS) – the selection of specific alleles for traits conditioned by a few loci; marker-assisted backcrossing (MABC) – the transfer of a limited number of loci from one genetic background to another, including transgenes, more recently, marker-assisted recurrent selection and probably soon genome wide selection.

MB holds great promise for developing countries. However, developing countries are hardly homogenous in this regard. While newly industrialised countries (NICs) routinely use several MB applications and are exploring the latest approaches, developing countries with mid-level economies are testing marker applications and taking the first steps towards adopting MB in day-to-day breeding. Various bottlenecks still impede adoption in these countries. Limited human resources, inadequate field infrastructure, limited access to technologies remain major challenges, although through virtual platforms aided by the ICT revolution, breeders can now access genomic resources, advanced laboratory services, and robust analytical and data management tools.

By nature, MB is expected to improve the efficiency of crop breeding, but comparing the cost-effectiveness of MB with phenotypic selection is not always straightforward, especially if MB is conducted at low scale. Where operating capital is not a limitation, MB maximises the net present value. With the easy access to marker service laboratories and the cost decline per marker data point,

costs of MB activities are shrinking, which from an economical perspective increases the attractiveness of this approach.

Access to technology, capacity building, cost and potential impact of MB in developing countries for both crop and animals will be discussed, among others.

Enhancing human capacities: Training and education (Organized by the ICGEB)

In today's ever-changing world, the relentless progress of scientific knowledge is coupled not only to the growing influence of the economic, scientific and technological capabilities of some "developing" countries, but also to the increasing social and cultural divide with those left behind. Serious thought is urgently needed to define the most effective methods to train future generations of scientists, in particular those from the developing world, to ensure that they are able to both anticipate and assimilate future trends in agricultural biotechnology and molecular biology, and thus provide their countries with all the ensuing potential benefits. ICGEB has operated since 1987 as a centre of excellence for research and training in biotechnology, with a major focus on building capacities in the developing world; it has been entrusted by its Board of Governors to develop this side event to consider the future challenges of scientific training and education. The session, which foresees an active interaction between the facilitator, speakers and participants, will be articulated along specific broad and intra-sectorial themes such as:

- re-positioning the younger generation of scientists in a changing world;
- new strategies to be adopted by the international scientific community to take into account the influence of some "developing" countries;
- changes in the relationship of science and society;
- the need to develop new PhD curricula that take into account the above-referred changes, as well as the relationship between research centers and universities and the requirements of interdisciplinary training;
- teaching students in assessing the reliability and quality of the data produced and/or analysed;
- teaching the teachers: prepare for curricula changes at all levels;
- the need to consider the development of science managers and entrepreneurs in the biotechnological industry;
- the role of biosafety considerations to effect regulatory oversight and market entry.

Ensuring equitable access to technology, including gender issues (Organized by Oxfam International)

In many farming communities world-wide, quite simply, no seeds mean no food. This session looks at the stress and resilience of farmer seeds systems in 3 instances, one with the introduction of Bt cotton in Colombia; two, the up-scaling and mainstreaming of participatory plant breeding of rice in Asia; and three, how Farmers Rights, especially focused in Africa, can help capture the policy space for ensuring farmers access and control of technology. The session will specifically look at the perspective of women, starting from their position of strength and agency: as managers of biodiversity and their role in ensuring food security.

The three regional experiences will draw lessons on ensuring the equitable access and control of technology for poor farmers, including women. Factors will include:

1. Role of international and national agriculture research systems in facilitating the steady and constant supply of genetic materials (parent breeding lines) so that farming communities can select and develop their own seeds under their specific conditions, which are constantly changing
2. Complementary role of the formal seed systems for the supply of finished varieties, which farmers can test and select from.

3. Cooperation with research institutes for the use of biotechnologies (e.g. genomics, molecular assisted breeding) for the characterization and breeding of crops
4. Market support to enable farmers to produce and sell their seeds and crops.
5. Capacity building approaches to help farmers organize, manage their seeds and production systems and engaged in corresponding plant genetic resources (PGR) policy development and governance
6. Engaging women in the management of PGR.

Empowering public participation in informed decision-making (Organized by the IUCN-CEC)

The IUCN Commission on Education and Communication (CEC) has had a 60-year history of shaping and bridging the communication, learning and knowledge management strategies for the world's conservation and sustainability issues. This session will draw upon the many lessons learned to focus on the coming challenges of food insecurity. Climate change will serve as a threat multiplier to food security throughout the world. Water and energy scarcity, plant disease, and increased population will push the limits of food security to critical levels. The need to provide innovative agricultural, forestry and fisheries biotechnological solutions will be paramount to mitigate and adapt to impacts of climatic change. Public participation and user empowerment will be key to the overall success in implementing effective biotechnology strategies. The "*Empowering public participation in informed decision-making*" session will explore a variety of strategic communication strategies that work to empower stakeholders throughout the technology innovation and implementation cycles. These strategies will include moving beyond the jargon that serves as a barrier to the widespread understanding of the key scientific issues, to the application of integrated communication, education and public awareness (CEPA) strategies that have been extensively and successfully deployed across a wide range of developing country sustainable natural resource management programs, to the utilization of role-based knowledge management and decision support tools in international plant disease and monitoring, to web-based tools for creating opportunities across the agricultural supply chain for continuous improvements in productivity, environmental quality, and human well-being. The communication strategies to be discussed are critical if we are going to achieve a "bottom-up" demand driven approach to research and development that will meet the needs of the greatest cross section of stakeholders in agricultural, forestry and fisheries communities throughout the developing world. The key to the success of future biotechnologies will be empowering stakeholders to actively participate in the design demand, development framework articulation and implementation strategies.