

## WORKSHOP SPEAKERS

### BIODIVERSITY CONSERVATION FOR SUSTAINABLE AGROECOSYSTEMS

*Brad Fraleigh, Special Adviser, Biodiversity and Genetic Resources, Agriculture and Agri-Food Canada*

Fraleigh began the first workshop session of the morning by identifying some of the issues related to biological diversity in sustainable ecosystems, with particular focus on the impact of biotechnologies. Much of his discussion was in the context of the Convention on Biological Diversity, a legally binding international treaty that is the first legal and conceptual framework for the consideration of agricultural biodiversity at the global level. Fraleigh pointed out that there is little doubt that the conservation of genetic resources is essential for maintaining genetic diversity. He outlined some of the conventional conservation methods and expressed the need to expand the use of many of these techniques to a broader range of germplasm conservation. He also cited the concerns of some regarding whether advanced methods will soon replace conventional gene banks that will enable existing DNA sequences to be stored and resynthesized at will and will enable the synthesis of new sequences. Fraleigh stated that one of the biggest issues facing the Convention on Biological Diversity is the realization by all countries that they must harmonize the need to benefit from these technologies with the need to protect the biological safety of the environment. The latter part of Fraleigh's discussion focused on the difficulties many developing countries, in particular, are having in reconciling these goals and questions of technology transfer between developed and developing countries.

*Geoffrey Hawtin, Director General, IPGRI, Rome*

In the afternoon workshop session, Hawtin brought an international perspective to the question of the role of biotechnology in the maintenance and use of crop genetic diversity. Like several of the previous speakers, he expressed concern over the increasing trend to reduce publicly funded research and the growing concentration of biotechnological expertise in the private sector. He also discussed *in situ* and *ex situ* methods for conserving genetic diversity, stressing the need for improvements in maintaining and documenting collections worldwide to ensure that the widest possible range of genetic diversity is conserved. Furthermore, he identified the need to apply biotechnological methods to conservation efforts, rather than the current focus on engineering plants for specific needs or environments. Hawtin addressed the issues of ownership and access to genetic diversity, citing the need for international access if we are to realize the full potential of biotechnology for improving the human condition and protecting the natural environment.

## REGULATORY AND ECONOMIC ASPECTS OF ACCESSING INTERNATIONAL MARKETS

*W. H. Furtan, Director, Centre for Studies in Agriculture, Law, Environment, University of Saskatchewan*

Furtan introduced the second workshop by addressing the issues of regulation and the economics of accessing international agricultural biotechnology markets. He described the Canadian federal government's rather complex system for regulating biotechnology and related products by the. The complexity of the system seems to lie in the overlapping jurisdiction of regulatory bodies, as well as differences in opinion as to what is acceptable and safe. From an economic point of view, this regulation is expensive and slow for firms seeking to introduce new products, making investment in Canada expensive and risky. Furtan also addressed the area of intellectual property rights. With the increase in privately sponsored research in the agricultural sector in Canada, the need to protect intellectual property becomes even more important. According to Furtan, ineffective and inefficient regulation will not only force firms to locate elsewhere but will negatively affect farmers' competitiveness if a technology is not made available to them at the same time it is made available to competitors. The final issues addressed by Furtan were consumer acceptance of genetically engineered products of biotechnology and the rules set out by the World Trade Organization (WTO) affecting trade of these products in the international marketplace. Furtan stressed Canada's need to lower the costs of doing business in order to compete in the international market place.

*Margaret Gadsby, Director, Regulatory Affairs, AgrEvo*

Gadsby painted a very chaotic picture of the international systems regulating exportation of agricultural biotechnology products and processes. There is no uniformity in regulations among countries or even regions considering the importation of biotech products, and many countries have no regulatory processes in place. The industry needs to find a controlled, stepwise approach that balances the sequential pattern of regulatory clearances and the slow maturation of public awareness and acceptance with the needs of the export trade to keep commodities moving freely. Gadsby proposed six recommendations intended to minimize the needless confusion and complexity that exist to today and implored everyone engaged in biotechnology to embrace their role in educating, communicating, and lobbying for a science-based global system that will facilitate trade.

## BIOTECHNOLOGY AND SOCIAL ISSUES IN RURAL AGRICULTURAL COMMUNITIES

*Michael Gertler, Professor of Sociology, University of Saskatchewan*

Gertler led the third concurrent workshop of the morning by identifying many of the social issues brought about by biotechnology that are currently facing or potentially threatening, rural agricultural communities. He extended the concept of agricultural sustainability from a purely environmental context to include sustainability of the community structure. He discussed ten specific issues ranging from the costs and risks of biotechnology to the farmer, to the lack of farmer participation in setting research agendas and the narrowing of public research agendas. One common theme was the unbalanced effect biotechnology has or will have on a community, depending on factors such as farm size and diversity, the education level of the farmer, gender, and fundamental belief systems. Gertler concluded by moving from considering individual communities to considering the impacts of biotechnology on the global community. As an example, he cited the historic evidence of relegating peasants to marginal lands. According to Gertler, should biotechnologies make farming these lands commercially feasible, a new round of evictions and appropriations by the rich and powerful would be expected.

*Bob Stirling, Professor of Sociology and Social Studies, University of Regina*

In the third concurrent workshop session, Stirling gave a sociological comparison of how rural populations incorporate traditional machinery and biotechnology into farming practices. He outlined a proposal for industrial management and drew parallels with farming and the manner way the farming industry has progressed historically. Stirling argued that rural people have had more success incorporating machinery than biotechnology into their farm lives. He maintains that there is a public knowledge, autonomy, and control over machinery that does not exist with biotechnology and that this knowledge is shared and passed on by custom, contributing to the community social structure. Stirling proposed protecting local knowledge of farm technology in the law and trade agreements, as well as limiting the proprietary knowledge claims of companies through patents and trade incentive programs.

## LUNCHEON SPEAKER

*Murray McLaughlin, Deputy Minister of Agriculture and Food, Saskatchewan*  
McLaughlin gave a very positive speech about the role of agricultural biotechnology in Canada and the centralization of research and production in Saskatchewan. He emphasized that biotechnology as a tool for agricultural science is here to stay and will be increasingly used on a global scale. Those countries that adopt the technology early will help ensure that their agricultural industries remain viable. McLaughlin noted nine Canadian organizations that are involved with awareness of biotechnology and cited Canada's strong research infrastructure for supporting ag-biotech research. He then narrowed his focus to the province of Saskatchewan and specifically the city of Saskatoon, discussing the features that make it ideally suited as a center for agricultural biotechnology. He stressed that the key to Saskatoon's success has been the right mixture of people, facilities, and resources and the willingness of research, business, and government to work together to make Saskatchewan globally recognized.