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Biotechnology

Agricultural Biotechnology Report

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Report Highlights:

No GM crop was officially evaluated or released commercially despite the availability of National Biosafety Guidelines since April 2005. Only one application has been submitted to the National Biosafety Committee for review and no formal action has been taken to date. Intellectual Property Rights protocols have been strengthened through the formation of the Intellectual Property Organization – Pakistan (IPOP) as an independent agency. Proposed legislation on Plant Breeders Rights is being reviewed by the Federal Law Department and will then be submitted for final approval to the National legislature.

Includes PSD Changes: No
Includes Trade Matrix: No
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Executive Summary

The Government of Pakistan continues to envision biotechnology as high priority area and has funded more than one billion rupees (\$16.7 million) on research & development in this sector through various ministries and Higher Education Commission (HEC). Out of 28 centers claiming to be involved in biotechnology only a few (3-5) are capable of doing DNA recombination research of GM crops. Target crops are cotton, wheat, sugarcane, tomato, canola & potato and traits are virus resistance, insect resistance, salt tolerance, drought tolerance and male sterility for hybrid seed development.

All multinational companies having business in Pakistan are gearing up to formally submit cases for approval to the NBC for hybrid transgenic crops. It is expected that within 1-2 years GM crops will be authorized to be grown in Pakistan and respond to the strong demand in the farming community to use GM technology.

Biotechnology Trade and Production

Pakistan, at present, is producing small quantities of a variety of biotech crops, but none have been commercialized despite the issuance of National Biosafety Guidelines in April 2005. The National Institute for Biotechnology and Genetic Engineering (NIBGE) has submitted an application to the National Biosafety Committee (NBC) for the approval of a GM cotton but approval is pending the establishment of monitoring and evaluation systems. A directorate is being established in the Ministry of Environment with the necessary expertise to monitor and evaluate incoming proposals. A number of in-vitro strains of locally developed cotton, wheat, sugarcane, tomato and canola are in the process of being developed for the traits of insect resistance, virus resistance, salt & drought tolerance and male sterility. In due course these will be submitted to the NBC for approval. It is anticipated it will take another two years after approval before there will be a commercial release of these GMO's.

Work on GM rice has been undertaken through the auspices of the Rockefeller Foundation, though it not encouraged by the Government of Pakistan as non-GM rice has strong markets in the European Union. Biotech research on indigenous crops used locally, like potato, chillies, peppers and melons, is also underway.

Pakistan has addressed Intellectual Property Rights by forming an independent body, the Intellectual Property Organization - Pakistan (IPOP). This agency has streamlined access to the organization by having one point of entry. In the past the Ministry of Commerce managed "trade marks," the Ministry of Education managed "Copyrights" and the Ministry of Industries was responsible for "patents." Simultaneously, a bill on Plant Breeder's Rights is in the process of being discussed by the National Legislature after having received concurrence from the Provincial Assemblies. It is expected this will be promulgated soon.

Pakistan is importing GM soybeans, soybean oil and other processed food products from the United States and other countries. After the establishment of Plant Breeder Rights the GMO seeds coming from the U.S. through multinational seed companies like Pioneer, Dupont and Monsanto will find a market in Pakistan.

Biotechnology policy:

Pakistan's policy at the national level is envisioned to harness the potential of biotechnology as a key contributor to the development of the agricultural sector. The implementation and monitoring mechanisms of the proposed guidelines are built upon on a three-tier system composed of the National Biosafety Committee (NBC); a Technical Advisory Committee (TAC); and the Institutional Biosafety Committees (IBC) at the level of the distinct organizations. The Secretary of the Ministry of Environment heads the NBC, and will be responsible to oversee all laboratory work and field trials, and authorize the commercial

release of GM products. The three monitoring and implementing bodies will administer enforcement of the various clauses of the National Biosafety Guidelines. The IBC may make recommendations to NBC regarding the awarding of exemptions for laboratory and fieldwork with genetically modified organisms. These recommendations will be accepted, and formal approval granted, if sufficient information and grounds exist to consider the risk as being minimal or non-existent. After permission for deregulation is granted by the NBC, approval can still be withdrawn provided sufficient technical data and other evidence later becomes available that warrants a review.

The responsible government ministries are Environment; Food, Agriculture and Livestock; Science & Technology; Health and Education.

The biotech research institutes, multinational firms and local companies marketing pesticide and seeds follow decisions closely in Pakistan on agricultural biotechnology issues. They monitor changes in the structure of the regulatory framework, the formation of biotechnology policy and the implementation of the action plans & procedures.

To date in Pakistan, no biotechnology crop has been approved for cultivation on a commercial basis, as the government is primarily focused on putting the system in place. Ministerial level bio-safety committees and directorates are currently being structured as outlined in the Biosafety Guidelines, rules and an action plan. It is commonly accepted that it will take 1-2 years before one sees the beginning of commercial agricultural biotechnology activity in Pakistan.

The National Commission on Biotechnology (NCB) was established on November 30th 2001, with the purpose of undertaking research in the field of biotechnology. Its mandate is to coordinate and to act as a focal point for exchanges of information with other ministries and agencies, and all international initiatives in agricultural biotechnology. It is effectively coordinating the issues of intellectual property rights, plant breeder's rights and bio-safety laws.

The public and private sector is waiting for the promulgation of PBR's to submit their proposals to the NBC and the Ministry of Environment. When enacted, it will change the pace of commercialization of biotechnology products and the simultaneous enforcement of labeling and packaging rules. Cotton is the priority area for Biotech research, fortunately its production does not fall with the food chain system, it is presumed there will be no issue associated with the labeling and packaging whereas, for food commodities one will have to observe all codal formalities before their commercial release.

Pakistan has signed the Biosafety Protocol but it has not yet been ratified.

There are no biotechnology-related trade barriers between the U.S. and Pakistan. Soybeans, soybean oil and other processed food products from U.S. are currently imported into Pakistan. Post does not anticipate any pending legislation will affect U.S. exports to Pakistan.

Marketing issues:

The Pakistani market will accept the sale of biotechnology products for all segments of society, and post does not perceive product rejection as being an issue. Industry and consumers are using GMO soybeans, soybeans oil and other processed food products without any opposition, and the only voices against agricultural biotechnology have been raised by NGO's with minimal impact on the public debate. Farmer community in Pakistan advocates the use of GM technology for increasing agricultural productivity. In case of cotton crop for 2006-07, unofficial sources suggest that farmers have brought more than eight percent of area under cultivation through transgenic cotton varieties.

Capacity Building and Outreach:

The U.S. Government has funded capacity building and outreach projects in Pakistan that relate to agricultural biotechnology.

- 1) USAID helped fund a Tripartite Meeting on Agricultural Biotechnology (USA, India and Pakistan) held on 24-25 May 2005 at Lahore, Pakistan.
- 2) Under a 2003 PL-480 Food for Progress grant with USDA, the University of Agriculture Faisalabad will provide \$50,000 per year to fund Borlaug Fellows to do research on issues of agricultural biotechnology.
- 3) Post-Doctoral research on biotechnology and related agricultural issues will be funded under A Young Scientists Program, part of the USDA-funded sustainable endowment to support the Agriculture Linkage Program at the Pakistan Agricultural Research Council.
- 4) USAID funded the biotechnology training of fifteen scientists under the Management of Agricultural Research and Training (MART) program.
- 5) Under PL-480 Program for 2007 FAS, USDA is planning to propose the setting up of an endowment fund for Research and Development activities in the field of Biotechnology.

Pakistan needs to build the capacity of its young scientists to offer guidance on legislative, regulatory, and policy issues related to Agricultural Biotechnology. To the limits of its resources, the FAS office in Pakistan will continue to promote this type of capacity building.

Reference material:

Biosafety guidelines and the rules approved by the Government of Pakistan in April 2005. To download websites are:

Biosafety Guidelines:

www.environment.gov.pk/act-rules/BiosafetyGlines2005.pdf

Biosafety Rules:

www.environment.gov.pk/act-rules/Biosafetyrules.pdf