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Pakistan

Biotechnology

Agricultural Biotechnology Report

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Report Highlights:

Despite the lack of any approved GM crop in Pakistan, it is estimated that as much as 40 percent of the 2007 domestic cotton crop was planted in illegal biotech varieties. Pakistan still does not have an official regulatory framework for agricultural biotechnology.

Includes PSD Changes: No
Includes Trade Matrix: No
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SECTION I. EXECUTIVE SUMMARY

The major U.S. agricultural trade issues related to biotechnology in Pakistan at this time are related to cotton, the soybean sector and animal feed.

Pioneer Hi-bred (DuPont) recently applied for registration of its Institutional Biosafety Committee with the National Biosafety Committee

The Secretary of Pakistan's Ministry of Food, Agriculture and Livestock visited Monsanto's headquarters in St. Louis to discuss collaboration in the field of agricultural biotechnology.

Pakistan still does not have an official regulatory framework for agricultural biotechnology. The Plant Breeders' Rights and Amendments to the Seed Act of 1976 are still awaiting promulgation.

SECTION II. BIOTECHNOLOGY TRADE AND PRODUCTION

Illegal BT Cotton Planting Widespread

There is currently no commercial production of any approved biotech crop in Pakistan. That said, approximately 5 percent (500,000 acres) of the 2006 domestic cotton crop was planted to illegal Bt cotton varieties. For 2007, it is estimated that as much as 40 percent of the crop will be illegal biotech varieties.

Widespread planting of illegal BT cotton varieties poses several serious problems. These varieties were not developed for Pakistan's agronomic conditions and, under certain conditions, have proven to be poor performers. The original Bt cottonseed varieties smuggled into Pakistan were developed for conditions in India, China and Australia. While generally effective against most cotton bollworms, these illegal Bt cotton varieties do not address the specific climatic, insect pest and plant disease problems found in Pakistan.

Biotech Crops under Development

Despite approval of National Biosafety Guidelines in April 2005, Pakistan is presently developing only a small number of biotech crops with none commercially available to farmers and none expected to be commercialized in the coming year.

See Section III for crops currently under development but not yet ready for commercial release.

Imports of Crops and Products of Biotechnology

Pakistan imports large quantities of cotton from the United States and other sources. Much of this is Bt cotton. Imports of feed corn, soybeans, and soybean meal from the United States and other sources include GM product. U.S. soybean oil derived from GM soybeans is also imported into Pakistan. Snack foods and other processed products containing U.S. soybean oil are imported into Pakistan without difficulty.

Food Aid

Since 2003, Pakistan received soybean oil, wheat, non-fat dry milk and tallow from the United States under various USDA-funded assistance programs. U.S. soybean oil is generally derived from GM soybeans.

Non-U.S. Biotech Crops in Export Channels

Pakistan's major export items include cotton yarn, cotton fabric and items manufactured from cotton. These products could be derived in part from illegal Bt cotton grown in Pakistan or from Bt cotton imported from other trading partners. Cotton textiles and apparel are major export items from Pakistan to the United States.

SECTION III. BIOTECHNOLOGY POLICY

Regulatory Framework

To date, Pakistan does not have an official biotechnology regulatory framework.

The proposed regulatory guidelines are built upon on a three-tier system composed of the National Biosafety Committee (NBC); a Technical Advisory Committee (TAC); and Institutional Biosafety Committees (IBC). The Secretary of the Ministry of Environment heads the NBC, and will be responsible for oversight of all laboratory work and field trials, as well as authorizing the commercial release of GM products. The three monitoring and implementing bodies will administer enforcement of the National Biosafety Guidelines. The IBC may make recommendations to the NBC regarding the awarding of exemptions for laboratory and fieldwork related to products of bioengineering. 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.

Responsible Government Ministries/Institutes

The National Biosafety Committee (NBC) at the National Biosafety Directorate in the Ministry of Environment is responsible for all biosafety work related to biotechnology. There are nearly 20 members of the NBC from the Ministries of Environment, Science and Technology, Health, Agriculture, Education, the Pakistan Agriculture Research Council, the Pakistan Atomic Energy Commission, and representatives from the Provinces, Azad Jammu and Kashmir. The NBC discusses, evaluates and make decisions regarding submissions from the Institutional Biosafety Committee (IBC) and/or the Technical Advisory Committee (TAC).

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

The National Commission on Biotechnology (NCB) was established on November 30, 2001, with the purpose of focusing on policy issues in the field of biotechnology. The NCB coordinates and serves as a focal point for the exchange of information with other Ministries and Agencies, as well as all international initiatives related to agricultural biotechnology. Unfortunately, the NCB has so far been ineffective in gaining concensus in resolving issues related to biotech intellectual property rights, plant breeder's rights and biosafety laws.

Unresolved Political Factors - Seed Policy

On the policy and legislative side, the Seed Act of 1976 Amendment and the Plant Breeders' Rights Bills are yet to be approved by Parliament.

The current Seed Act is outdated and limited to public sector seed companies only. Proposed amendments to the Seed Act would allow research and development (R&D) national centers to transfer genetic material to private companies. Punitive measures and fines must be increased to deter the illegal sale of seed.

The Plant Breeders' Rights (PBR) Bill would allow for the registration of varieties and the payment of royalties along the lines of the European system. Farmers would be allowed to exchange seed but could not sell the seed on a commercial basis.

The delay in seed and plant breeder legislation is perceived as a major impediment to investment in Pakistan by multinational seed companies. Reluctance in finalizing this legislation is due, in part, to the desire of Pakistan's research communities to remain autonomous. Moreover, potential investors do not believe that their proprietary rights will be fully protected under the current proposals.

Approved Biotechnology Crops

To date, there is no biotechnology crop approved for cultivation in Pakistan. Consequently, there is no domestic biotech crop legally approved for food, processing or animal feed in Pakistan.

Field Testing of Biotechnology Crops

The National Biosafety Committee has recently allowed field testing of biotechnology crops.

At present, 28 research centers claim to be working in the field of biotechnology. However, no more than 5 of them are capable of performing DNA recombination to develop bioengineered plant varieties.

Table 1. Biotech Crops Under Development in Pakistan

Crops	Cotton, wheat, rice, sugarcane, canola (rapeseed), tomatoes, potatoes, chilies, peppers and melons.
Desired Traits	Virus resistance, insect resistance, salinity tolerance, drought tolerance, and male sterility.

In May 2007, two new research centers were approved. The National Institute for Agriculture Genomics and Advanced Biotechnology (NIGAB) will be located at the National Agricultural Research Centre in Islamabad. The University Institute for Biotechnology and Biochemistry (UIBB) will be located at the University of Arid Agriculture in Rawalpindi.

Treatment of Stacked Events

The National Biosafety Committee considers each event as a separate case and would consider combined "stacked events" as a unique event.

Policy on Coexistence

At present, the GOP has not formulated a policy on coexistence between biotech and non biotech crops.

Labeling of Packaged Foods or Feed

The GOP does not require labeling of packaged food or feed originating from GM crops.

Biosafety Protocol

The GOP is a signatory to the Biosafety Protocol. Ratification is pending with the Federal Cabinet, which could lead to stricter rules regarding the labeling and transboundry movement of genetically engineered products.

Biotechnology-Related Barriers to Trade

To date, Pakistan has not approved any biotech seed for domestic cultivation. However, there are no laws banning the import of biotech cotton for further processing, GM soybeans and meal, GM feed corn, soybean oil derived from GM soybeans or products containing such soybean oil.

SECTION IV. MARKETING ISSUES

Market Acceptance of Biotech Products

Industry and consumers currently accept GM soybeans, soybean meal, soyoil and other processed food products without opposition. NGOs have raised their voices against agricultural biotechnology with minimal impact on the public debate.

Pakistan's agricultural community advocates the utilization of GM technology to increase productivity. As evidence, over 30 percent of the 2007-08 cotton crop is considered planted to illegal/unapproved Bt cotton varieties.

SECTION V. CAPACITY BUILDING AND OUTREACH

Recent U.S. Government or USDA-funded Activities

The U.S. Government has funded the following capacity building and outreach projects in Pakistan related to agricultural biotechnology.

- USAID helped fund a Tripartite Meeting on Agricultural Biotechnology (United States, India and Pakistan) held on May 24-25, 2005 in Lahore, Pakistan.

- 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 conduct research on issues of agricultural biotechnology.

- 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.

- USAID funded biotechnology training of fifteen scientists under the Management of Agricultural Research and Training (MART) program.

- An MOU for $7.5 million has been signed under the Pakistan-U.S. Science and Technology Program between Pakistan's Higher Education Commission (HEC) and the Ministry of Science and Technology and the U.S Agricultural Research Service for scientific collaboration and capacity building of scientists.

- A high level U.S. delegation visited Pakistan on March 15-21, 2007 to discuss issues of biosafety, biosecurity and overlapping areas with scientists and officials.

- Pak U.S. Projects USNAS: Higher Education Commission and Ministry of Science and Technology - 3-5 projects on GM crop development.

- Agricultural Linkages Program at the Pakistan Agriculture Research Council, Islamabad and Faculty Development, Technology Transfer and Product Commercialization (FDTTPC) funding to University of Agriculture, Faisalabad – ongoing activity to fund projects on biotechnology for crop and livestock improvement.

Areas for Potential Future Capacity Building Efforts

- Pakistan is looking to build the capacity of its young scientists in the legislative, regulatory, and policy areas related to agricultural biotechnology.

- Other areas for future biotechnology collaboration include with the National Biosafety Directorate at the Ministry of Environment, specialists at Pakistan's National Animal and Plant Health Inspection Service, and scientists involved in biotechnology applications for crops and livestock.

SECTION VI. REFERENCE MATERIAL

Biosafety guidelines and rules approved by the Government of Pakistan in April 2005.

Biosafety Guidelines:

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

Biosafety Rules:

www.environment.gov.pk

Intellectual Property Organization of Pakistan

http//:www.ipo.gov.pk

National Institute for Genetic Engineering and Technology (NIBGE)

http//:www.nibge.org

Zafar,Y (2007) Development of Agriculture Biotechnology in Pakistan. Journal of AOAC International, Vol 90, No.5