Prospects of Biotech Cotton in Brazil

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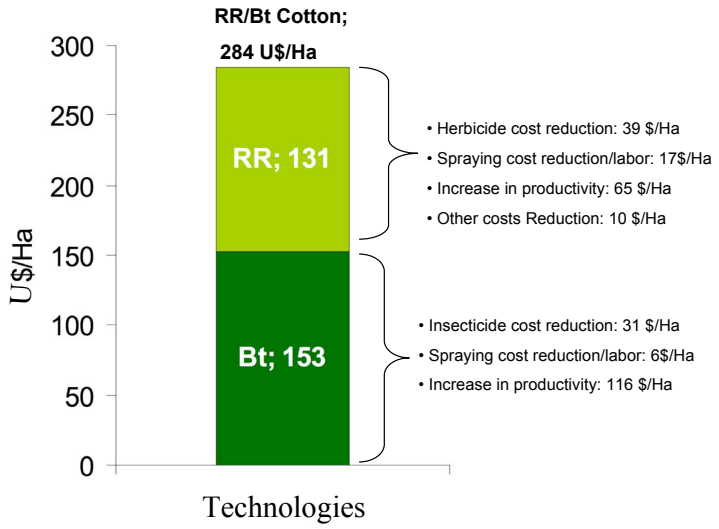
The global area officially cultivated with biotech crops in 2005 was 90 million hectares. It was planted by 8.5 million farmers in 21 countries, marking the tenth anniversary of the commercialization of genetically modified (GM) crops, now called biotech crops. Notably, 7 million poor subsistence farmers benefited from biotech crops, the majority cultivating Bt cotton in China (Mainland). The global area planted with GM cotton reached 9.8 million hectares in 2006. The global adoption of GM cotton has increased from 2% in 1996/07 to 28% in 2005/06. At the moment there are 14 events of GM cotton that have received regulatory approval in at least one country. All the 14 GM cotton events are related to genetic transformations to provide insect resistance (IR), herbicide tolerance (HT) or both at the same time.

Studies aimed at measuring the economic impact of GM cotton show that it has had a significant positive impact on average yields and on the economic performance of cotton growers. The aggregate economic advantage of IR and HT cotton in Brazil has been estimated to be 284 US$/ha (Figure 1). The seed costs for IR (Bt) Cotton in Brazil will be in the range of 35 to 40 US$/ha. The costs for HT Cotton has not yet been estimated.

GM cotton adoption in China (Mainland) was shown to reduce pesticide use which resulted in a substantial reduction in the risk and incidence of farmer poisonings. Growers who adopted GM cotton varieties have been able to achieve effective insect and weed control with reduced use of insecticides or herbicides. GM cotton also provided growers with flexibility and simplicity to execute chemical treatments, which growers consider to be an important and positive factor for the adoption of the technology.

Figure 1. Aggregate Economical Advantage of Insect Resistance (Bt) an Herbicide Tolerance (RR) Technologies for Brazilian Cotton Production



Conventional cotton production relies heavily on chemical pesticides to control insects. It is estimated that cotton production consumes about 25% of the agricultural pesticides used worldwide, including some of the most toxic chemicals available. Another important advantage of IR cotton over chemical control of pests is the fact that it offers farmers certainty of control over a wide range of growing conditions.

Brazil, the largest agricultural exporter in South America, has been struggling for the last ten years with many complex issues associated with transgenic crops. These issues include important economic, political, scientifical, ethical and biosafety questions. However, the main issue was, who should decide that a transgenic crop could be planted and commercialized in Brazil and on what basis should such decisions be taken.

The Brazilian biosafety legislation dates from 1995. The National Technical Committee for Biosafety (CTNBio) under the Ministry of Science and Technology was given the responsibility for assessment of health and environmental risks that might be caused by genetically modified organisms (GMOs). However, CTNBio's decisions concerning releases for field trials and commercial production of GMO crops were repeatedly challenged in court.

The legal problems of the CTNBio, associated with a conflict of competency with other regulatory agencies which defined their own rules and biosafety protocols, resulted in a complet stop to GMO research under field conditions from 1998 to 2004. On March 24, 2005 a new biosafety law was submitted to the congress by the government and it was approved. The new law assigned full authority to CTNBio for issuing technical decisions on both research-related activities and the commercial use of GMOs and their products. Although, final authority has been given to CTNBio to take decisions on technical and environmental issues, the final word on commercialization of GMOs will still depend on decision taken by a newly created National Biosafety Committee (CNBS), made up of 11 Ministers, which is attached to the office of the Brazilian President.

The creation and implementation of the biosafety legislation in Brazil has been successful regarding scientific participation, but it has been a real chaos when one considers the political and judicial participation in decisions. The delays caused by judi-

cial and political decisions resulted in an increase in illegal planting of GMOs in Brazil, mainly HT soybean. From 2003 to 2005, Brazil moved from an officially free transgenic crop country to become the third largest producer of GMO crops, just after USA and Argentina. This "magic jump" became possible when the new biosafety law legalized the production and marketing of 4 million hectares of previously illegal HT soybean. Following the same case of the illegal GM soybean, it was recently made public by the Ministry of Agriculture that they had officially detected 18,000 hectares of illegal HT cotton on Brazilian farms

A this time, the rules governing the operation of the new CTNBio, which is now composed of 27 experts, all holding a doctorate degree, are still being discussed. Regarding GM cotton, the old CTNBio decided in March 2005 to approve commercialization of Bollgard Bt cotton and to set the limit of 1% for transgene contamination in conventional cotton seed. On August 2006, the new CTNBio approved a record number of proposals for controlled field experiments with transgenic crops. Out of 47 approved proposals six were related to transgenic cotton. Currently, there are two proposals being analyzed by CTNBio, that are seeking approval for commercial production of HT cotton. One is LibertLink cotton from Bayer Cropscience, and another is Roundup Ready cotton from Monsanto.

Another legal problem to considerer is that Brazil signed the Cartagena Protocol in February 2004, and but not yet developed all the procedures for export and import of GMO products.

Thus far, transgenic crops have delivered large economic and environmental benefits. In all countries where transgenic crops have been grown, there have been no verifiable reports that they cause any significant health or environmental harm. A panel of several national and international scientific organizations published a consensus document which states that GMOs, now on the market, have passed all tests and have been properly authorized, so on the basis of current knowledge, they should be considered safe for both human and animal consumption. However, scientists agree that complete safety can never be assured, thus there is a strong obligation to develop appropriate methods to predict, and properly assess, the possible negative health and environmental impacts of GMOs on a case-by-case basis.

Based on the agronomic, economic and environmental benefits already proved, there is no doubt that Brazilian cotton growers will promptly adopt Biotech Cotton as soon as: 1 - An end to the ambiguities in the present Brazilian biosafety legislation has been reached; 2 - Legal biotech cotton seeds become available in the Brazilian market.

Additional Information

Brazilian Biosafety Legislation and the Brazilian National Technical Comittee for Biosafety – CTNBio. Website: http://www.ctnbio.gov.br.

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