

In 2010

- Brazil, the second largest grower of biotech crops in the world.
- Biotech crops occupied 25.4 million hectares; an increase of 4.0 million hectares or a 19% increase over 2009.
- Brazil planted 17% of all the biotech crops in the world.
- The economic gains at the farm level for the seven year period 2003 to 2009 was US\$3.5 billion and US\$0.7 billion for 2009 alone.
- Of the 25.4 million hectares of biotech crops,



17.8 million hectares were planted for the eighth consecutive year to RR[®]soybean, up from 16.2 million hectares in 2009 and representing a record 75% adoption rate, versus 71% in 2009.

- Brazil planted 7.3 million hectares of biotech maize for the third time in both the summer and winter seasons with hectareage increase of 2.3 million hectares (~50% increase over 2009), with an adoption rate of 56%.
- There were 250,000 hectares of biotech cotton planted for the fifth time at an adoption rate of approximately 25%.

- Stacked gene products (herbicide tolerance and insect resistance) have already been approved for all three biotech crops – cotton, maize and soybean.

Biotech Crops Approval and Plantings in 2010

- More hectares of RR[®]soybean were planted in virtually all of the states in Brazil, largest plantings in Mato Grosso (4.13 million hectares) followed by Rio Grande do Sul (4.12 million hectares) Parana and Goias ranked third and fourth, planting 3.39 and 1.74 million hectares, respectively.
- Brazil has approved 27 crop events (as of 15 December 2010), with 8 events (4 maize, 3 soybeans and 1 cotton) expedited in 2010 alone.

Benefits from Biotech Crops in Brazil (Brookes and Barfoot, 2011)

- In thirteen years (1996/97 to 2008/09), the economic benefits captured by Brazilian farmers and the developers of the technology (industry) was estimated at US\$3.6 billion, contributed by soybeans at 78% (US\$2.8 billion), biotech maize at 18% (US\$648,000), and biotech cotton, at 4% (US\$144,000).

Population: **194.2 million**
 GDP: **US\$1,575 billion**
 GDP per Capita: **US\$8,210**
 Agriculture as % GDP: **7%**
 Agricultural GDP: **US\$110 billion**
 % employed in agriculture: **21%**
 Arable Land (AL): **59.6 million hectares**
 Ratio of AL/Population*: **1.3**

*Ratio: % global arable land / % global population

Major crops:

- Sugarcane
- Soybean
- Maize
- Cassava
- Oranges

Commercialized Biotech Crops:

- HT Soybean
- Bt Cotton
- Bt Maize

Total area under biotech crops and (%) increase in 2010:

25.4 Million Hectares (+19%)

Farm income gain from biotech, 2003-2009: **US\$3.5 billion**

- Of the total US\$3.6 million benefits, farmer benefits was 81% derived from lower cost of production resulting in savings of 63% (US\$2.7 billion) and yield gains equivalent to 18% or US\$648,000. Return on investment by biotech crops developers was only 19%, or US\$684,000.
- The socio-environmental benefits (in terms of savings in water, pesticides, diesel, and CO₂ emissions) derived from biotech crops in Brazil, for the period 1996/97 to 2008/09 were: 12.6 billion liters of water; 104.8 million liters of saved diesel - enough diesel to supply a fleet of 44,000 thousand light vehicles; savings of 270,000 tons of CO₂, equivalent to conserving 2 million trees in the Riparian forest.
- Savings in pesticides were 6,800 tons of active ingredients - biotech soybean was responsible for 84%, cotton at 10%, and maize 6%.
- Brazil had enhanced farm income from biotech crops by US\$3.5 billion in the seven-year period 2003 to 2009 and the benefits for 2010 alone was US\$0.7 billion.

Future Prospects

- The future of biotech crops in Brazil looks very promising with a "home-grown" virus resistant bean developed by EMBRAPA, in the final stages of field testing, and a herbicide tolerant soybean developed jointly by Embrapa and BASF ready for commercialization in 2011.
- In the near-term there are opportunities for significant growth in HT and Bt/HT soybean hectareage, substantial expansion in biotech maize on the 13 million hectares of maize; expansion in biotech cotton; probably the first country in the world to commercialize biotech sugarcane on the 8.1 million hectares of sugarcane.
- Brazil also has 2.8 million hectares of rice (10th largest hectareage in the world) that can benefit from biotechnology being developed in Asia which produces and consumes 90% of the world's rice.
- The challenges are the lack of infrastructure in transportation and marketing, and the increasing dependency on Asian markets.



Excerpts from:

James, Clive. 2010. Global Status of Commercialized Biotech/GM Crops: 2010. *ISAAA Brief* No. 42. ISAAA: Ithaca, New York.

Other Sources:

The World Bank. <http://www.worldbank.org/>
 Food and Agriculture Organization of the United Nations.
<http://www.fao.org/countryprofiles/>

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