

Agricultural Biotechnology in Brazil

In 2009, after the United States, Brazil was the 2nd largest producer of GE crops.

In 2008, Brazil was the 3rd largest and surpassed Argentina in 2009 to gain the second spot. The reason for this increase in GE crop output is that the Brazilian government allocated a significant investment in agricultural production in 2008 and 2009. Commodity analysts state that this was used to increase GE production. This included US\$50 billion in 2008 to address farm debt relief and in 2009 US\$52 billion in new agricultural loans.

HT soybeans account for the largest percentage of GE acreage in Brazil.



GE crops currently approved in Brazil

- BT and HT Cotton
- BT and HT Maize
- HT soybeans

Brazil - Regulatory Framework

- 1995 – Brazil passes its first Biosafety Law (8974)
- 1999 - Brazilian farmers smuggle HT soybeans from Argentina and plant them, ignoring ban on GE crops.
- 2004 – Brazil issues guidelines for labeling food products containing more than 1% GE food
- 2005-06 – Brazil passes a new Biosafety Law (11,105) and related Decree (5,591)
- 2007 – Brazil amends the 2005 law (11,460)
- These Biosafety Laws created two regulatory bodies to oversee the Brazilian biotechnology industry.
 - CTNBio (National Technical Commission of Biosafety) – This organization was established in 1995. It is under the authority of the Ministry of Science & Technology. Technical issues related to biotechnology are reviewed by 27 appointed members that include representatives from the federal government, scientists, as well as agricultural and socio-economic specialists. These members are appointed for two years on a rotating basis. The CTNBio approval process requires submitting documentation to: 1) The Ministry of Agriculture, Livestock & Food Supply (MAPA); 2) Ministry of Health; and 3) Ministry of the Environment. All field testing requires a CTNBio Certificate of Quality in BioSafety (CQBs)
 - CNBS (National Biosafety Council) – This organization is under the authority of the Office of the President. It is responsible for establishing directives within other federal government agencies regarding the implementation of national biosafety policy. It does only reviews socio-economic issues related to the implementation of new biotechnologies. It does not handle technical issues and considers all approvals by CTNBio conclusive.

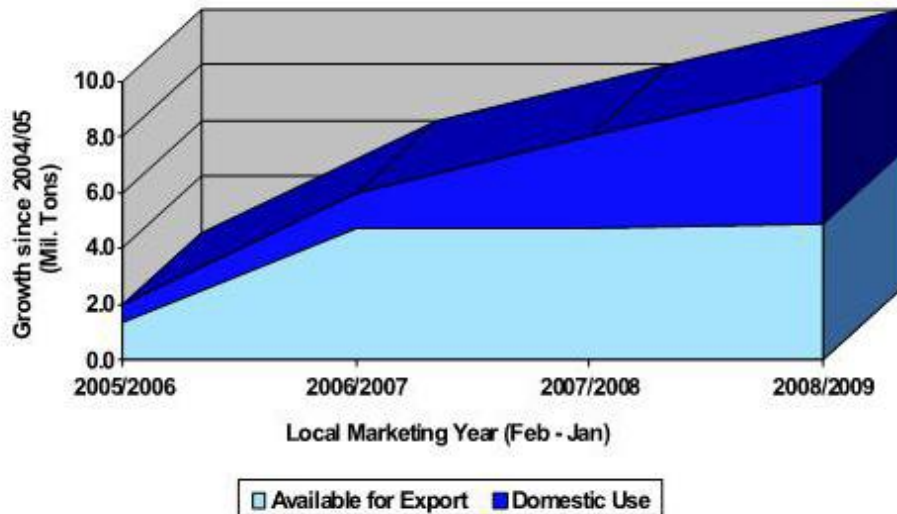


Sources: Joao F. Silva, USDA Foreign Agricultural Service, Global Agricultural Research Report 9621, U.S. Embassy – Brasilia, 15 July 2009; Canada, Industry of Canada, International Marketing Research Reports (IMMR), 2004 ; and N.R. Bonalume, “Smugglers Aim to Circumvent GM Count Ban in Brazil.” *Nature*, 402, 344-345.

Brazil - Expanding Soybean Crop

Brazilian farmers have increased soybean area continues at a historical expansion rate. The expansion has occurred by converting existing pastures that are prevalent throughout Brazil, as well as the opening of virgin grasslands called “Cerrado.”

In the 1990s, the expansion was fueled by exports. By 2005, the expansion was being fueled by increased domestic use as well as exports.



Source: USDA, Foreign Agricultural Services, Oilseeds: World Markets and Trade, Brazil's Soybean Export Growth Limited By Expanding Domestic Use, October 2008.

Brazil - Some Recent Initiatives



Sugar Genome Project – In 2003, after four years of research Dr. Paulo Arruda of the State University of Campinas (Unicamp) working with more than 200 scientists from 22 Brazilian research groups successfully sequenced the sugarcane genome. This is a significant accomplishment for Brazil as it produces approximately 25% of the global sugar cane crop. Ongoing research is focused on mapping and applying DNA markers to better understand sugarcane genetics. This includes research from a network of 38 research groups in Brazilian public and private universities. The project is funded by Coopersucar, the major private sugar cane institute in Brazil. (Source: Carlos Fioravanti, “Brazil Sequences Sugarcane Genome”, Science and Development Network citing *Revista da Fapesp*, 15 Sept. 2003. www.scidev.net/en/news/brazil-sequences-sugarcane-genome.html)



The Amazon Biotechnology Center (CBA) – In 2002, the Brazilian government invested US\$5 million in a biotechnology center in Manaus, at the center of the Amazon region that is equipped with 20 laboratories. It was set up as a part of the National Program of Molecular Ecology for the Sustainable Use of the Amazon Biodiversity Resources – PROBEM. Its mission is find technological ways to use the natural resources of the Amazon rainforest. One way its aims at achieving this goal is to establish a network private and public universities invests in research projects. In recent years, Manaus has become the center of a growing “natural products” cosmetics industry. In addition to its biotechnology research, CBA oversees quality and control issues related to the Amazonian botanicals industry.

Emerging &
Developing
Countries in
Africa, Asia &
Latin America
as a Growing % of
World Population

1950

2050

Rank	Country or Area	Population	Country or Area	Population
1	China	562,579,779	India	1,656,553,632
2	India	369,880,000	China	1,303,723,332
3	United States	152,271,000	United States	439,010,253
4	Russia	101,936,816	Indonesia	313,020,847
5	Japan	83,805,000	Ethiopia	278,283,137
6	Indonesia	82,978,392	Pakistan	276,428,758
7	Germany	68,374,572	Nigeria	264,262,405
8	Brazil	53,443,075	Brazil	260,692,493
9	United Kingdom	50,127,000	Bangladesh	233,587,279
10	Italy	47,105,000	Congo (Kinshasa)	189,310,849
11	Bangladesh	45,645,964	Philippines	171,964,187
12	France	42,517,690	Mexico	147,907,650
13	Pakistan	39,448,232	Egypt	137,872,522
14	Ukraine	36,774,854	Uganda	128,007,514
15	Nigeria	31,796,939	Vietnam	111,173,583
16	Mexico	28,485,180	Russia	109,187,353
17	Spain	28,062,963	Turkey	100,955,188
18	Vietnam	25,348,144	Japan	93,673,826
19	Poland	24,824,000	Sudan	88,227,761
20	Egypt	21,197,691	Iran	81,490,039
21	Philippines	21,131,264	Germany	73,607,121
22	Turkey	21,121,639	Burma	70,673,160
23	Korea, South	20,845,771	Thailand	69,799,501
24	Ethiopia	20,174,562	France	69,768,223
25	Thailand	20,041,628	Tanzania	66,843,312

Source: U.S. Census Bureau, International Data Base, January 2009