

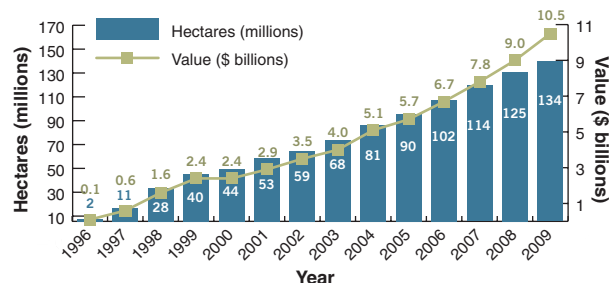
2nd-generation GM traits progress

Andrew Marshall

With 5.6 million new hectares (35%) of transgenic crops, Brazil supplanted Argentina to become the 2nd largest cultivator. China's transgenic plantings shrank, although biosafety certificates were issued for *Bacillus thuringiensis* (Bt) rice and phytase maize, clearing the way

Historical global area of transgenic crops

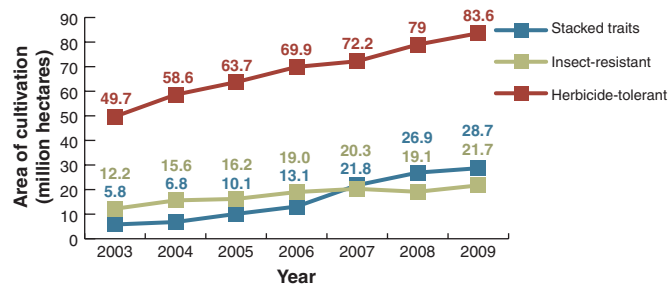
The area planted with transgenic crops rose by 7% in 2009, with their value from seeds/licensing revenues climbing to \$10.5 billion.



Source: International Service for the Acquisition of Agri-Biotech Applications, Cropnosis. Value data are explicitly from seeds and licensing revenues rather than from 'crops' themselves.

Global area by transgenic trait

Growth in all categories of transgenic crop continued last year.



Source: International Service for the Acquisition of Agri-Biotech Applications

2009 transgenic crop approvals in US and EU

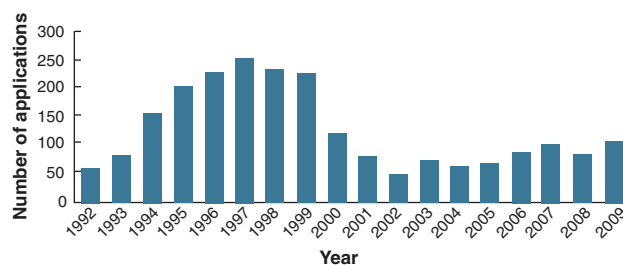
Country	Company/Institution	Description	Approval type
US	Syngenta Seeds	SYN-IR67B-1/Cotton resistant to lepidopteran pests via expression of Bt cry1Ab	Food
US	Pioneer Hi-bred International	DP-098140-6/Corn tolerant to glyphosate and ALS-inhibiting herbicides via expression of glyphosate acetyltransferase and maize acetolactate synthase	Food/feed
US	Pioneer Hi-bred International	DP-305423/Soybean with high oleic acid, low linolenic acid content via expression of soybean microsomal omega-6 desaturase	Food/feed
US	United States Department of Agriculture	ARS-PLMC5-6(C5)/Plum resistant to plum pox virus via expression of viral coat protein	Food/feed
US	University of Florida	UFL-X17CP-6 (X17-2)/Papaya resistant to ringspot virus via expression of viral coat protein	Environment
EU	Monsanto	MON88017/Corn resistant to lepidopteran pests and glyphosate via expression of Bt Cry3Bb and 15-enolpyruvyl shikimate-3-phosphate synthase	Food/feed
EU	Monsanto	MON89034/Corn resistant to lepidopteran pests via expression of Bt Cry1A.105 and Cry2Ab2	Food/feed
EU	Bayer CropScience	T45/Argentine canola resistant to phosphinothricin herbicide (glufosinate ammonium) via expression of phosphinothricin-N-acetyltransferase	Food/feed

Source: agbios.com

to commercialization. The first transgenic high oleic soybean was approved in the US, as were disease-resistant varieties of plum and papaya. 2010 plantings of glyphosate-resistant sugarbeet await a US Federal Court ruling.

EU transgenic crop field trials

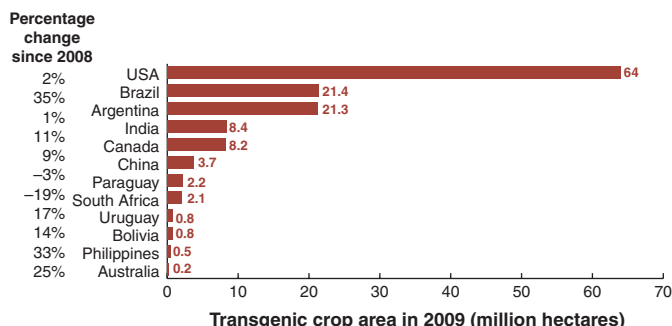
GM field trials in Spain, Czech Republic, Portugal, Romania, Poland and Slovakia increased to 103, with Spain and Romania particularly active.



Source: European Commission Joint Research Center; http://gmoinfo.jrc.ec.europa.eu/gmp_browse.aspx

Global area of biotech crops by country

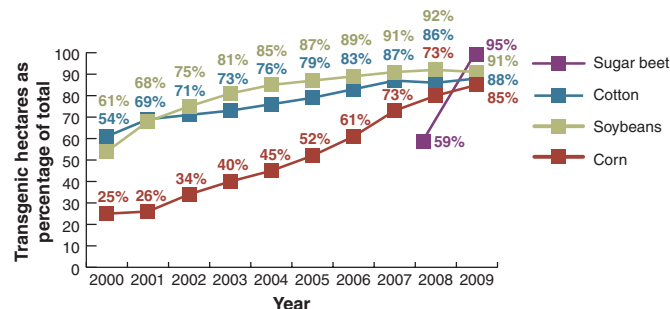
Although transgenic hectarage in China shrank, Brazil continued its rapid growth, supplanting Argentina as the 2nd biggest cultivator of GM crops, with India, Canada, South Africa and Paraguay also expanding cultivation.



Source: International Service for the Acquisition of Agri-Biotech Applications

Transgenic crops as a share of total US crops

Herbicide-tolerant transgenic sugarbeet was rapidly adopted.



Source: National Agricultural Statistics Service; Sugarbeet Growers Association

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