



HIGHLIGHTS

OF

ISAAA BRIEFS NO. 34-2005 GLOBAL STATUS OF COMMERCIALIZED BIOTECH/GM CROPS: 2005

by

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The Brief, the tenth in an annual series, was released on 11 January 2006. ISAAA Brief 34 characterizes the global status in 2005 of commercialized GM crops, now often called biotech crops, as referred to consistently in the Brief. The focus on developing countries is consistent with ISAAA's mission to assist developing countries in assessing the potential of biotech crops. The principal aim, is to present a consolidated set of data that will facilitate a knowledge-based discussion of the current global trends in biotech crops.

- 2005 marked the tenth anniversary of the commercialization of genetically modified (GM) crops, now more often called biotech crops, as referred to consistently in these Highlights.
- In 2005, the global biotech crop area continued to soar as the billionth acre, equivalent to the 400 millionth hectare of a biotech crop, was planted by one of 8.5 million farmers, in one of 21 countries. This unprecedented high adoption rate reflects the trust and confidence of millions of farmers in crop biotechnology.
- Over the last decade, farmers have consistently increased their plantings of biotech crops by double-digit growth rates every single year since biotech crops were first commercialized in 1996. Remarkably, the global biotech crop area increased more than fifty-fold in the first decade of commercialization.
- The global area of approved biotech crops in 2005 was 90 million hectares, equivalent to 222 million acres, up from 81 million hectares or 200 million acres in 2004. The increase was 9 million hectares or 22 million acres, equivalent to an annual growth rate of 11% in 2005.
- A historic milestone was reached in 2005 when 21 countries grew biotech crops, up significantly from 17 countries in 2004. Notably, of the four new countries that grew biotech crops in 2005, compared with 2004, three were EU countries, Portugal, France, and the Czech Republic whilst the fourth was Iran. Portugal and France resumed the planting of Bt maize in 2005 after a gap of 5 and 4 years respectively, whilst the Czech Republic planted Bt maize for the first time in 2005, bringing the total number of EU countries now commercializing modest areas of Bt maize to five, viz: Spain, Germany, Portugal, France and the Czech Republic. In 2005, the 21 countries growing biotech crops included 11 developing countries and 10 industrial countries; they were, in order of hectareage, USA, Argentina, Brazil, Canada, China, Paraguay, India, South Africa, Uruguay, Australia, Mexico, Romania, the Philippines, Spain, Colombia, Iran, Honduras, Portugal, Germany, France and the Czech Republic.
- In 2005 biotech rice (Bt) was grown commercially for the first time on approximately four thousand hectares in Iran by several hundred farmers. Iran and China are the most advanced countries in the commercialization of biotech rice, which is the most important food crop in the world, grown by 250 million farmers, and the principal food of the world's 1.3 billion poorest people, mostly subsistence farmers. Thus, the commercialization of biotech rice has enormous implications for the alleviation of poverty, hunger, and malnutrition, not only for the rice growing and consuming countries in Asia, but for all biotech crops and their acceptance on a global basis. China has already field tested biotech rice in pre-production trials and is expected to approve biotech rice in the near-term.
- In 2005, the US, followed by Argentina, Brazil, Canada and China continued to be the principal adopters of biotech crops globally, with 49.8 million hectares planted in the US (55% of global biotech area) of which approximately 20% were stacked products containing two or three genes, with the first triple gene product making its debut in maize in the US in 2005. The stacked products, currently deployed in the US, Canada, Australia, Mexico, and South Africa and approved in the Philippines, are an important and growing future trend which is more appropriate to quantify as "trait hectares" rather than hectares of adopted biotech crops. Number of "trait hectares" in US in 2005 was 59.4 million hectares compared

with 49.8 million hectares of biotech crops, a 19% variance, and globally 100 million “trait hectares” versus 90 million hectares, a 10% variance.

- The largest increase in any country in 2005 was in Brazil, provisionally estimated at 4.4 million hectares (9.4 million hectares in 2005 compared with 5 million in 2004), followed by the US (2.2 million hectares), Argentina (0.9 million hectares) and India (0.8 million hectares). India had by far the largest year-on-year proportional increase, with almost a three-fold increase from 500,000 hectares in 2004 to 1.3 million hectares in 2005.
- Biotech soybean continued to be the principal biotech crop in 2005, occupying 54.4 million hectares (60% of global biotech area), followed by maize (21.2 million hectares at 24%), cotton (9.8 million hectares at 11%) and canola (4.6 million hectares at 5% of global biotech crop area).
- In 2005, herbicide tolerance, deployed in soybean, maize, canola and cotton continued to be the most dominant trait occupying 71% or 63.7 million hectares followed by Bt insect resistance at 16.2 million hectares (18%) and 10.1 million hectares (11%) to the stacked genes. The latter was the fastest growing trait group between 2004 and 2005 at 49% growth, compared with 9% for herbicide tolerance and 4% for insect resistance.
- Biotech crops were grown by approximately 8.5 million farmers in 21 countries in 2005, up from 8.25 million farmers in 17 countries in 2004. Notably, 90% of the beneficiary farmers were resource-poor farmers from developing countries, whose increased incomes from biotech crops contributed to the alleviation of their poverty. In 2005, approximately 7.7 million poor subsistence farmers (up from 7.5 million in 2004) benefited from biotech crops – the majority in China with 6.4 million, 1 million in India, thousands in South Africa including many women Bt cotton farmers, more than 50,000 in the Philippines, with the balance in the seven developing countries which grew biotech crops in 2005. This initial modest contribution of biotech crops to the Millennium Development Goal of reducing poverty by 50% by 2015 is an important development which has enormous potential in the second decade of commercialization from 2006 to 2015.
- During the period 1996 to 2005, the proportion of the global area of biotech crops grown by developing countries increased every year. More than one-third of the global biotech crop area in 2005, equivalent to 33.9 million hectares, was grown in developing countries where growth between 2004 and 2005 was substantially higher (6.3 million hectares or 23% growth) than industrial countries (2.7 million hectares or 5% growth). The increasing collective impact of the five principal developing countries (China, India, Argentina, Brazil and South Africa) is an important continuing trend with implications for the future adoption and acceptance of biotech crops worldwide.
- In the first decade, the accumulated global biotech crop area was 475 million hectares or 1.17 billion acres, equivalent to almost half of the total land area of the USA or China, or 20 times the total land area of the UK. The continuing rapid adoption of biotech crops reflects the substantial and consistent improvements in productivity, the environment, economics, and social benefits realized by both large and small farmers, consumers and society in both industrial and developing countries.
- There is cause for cautious optimism that the stellar growth in biotech crops, witnessed in the first decade of commercialization, 1996 to 2005, will continue and probably be surpassed in the second decade 2006-2015. Adherence to good farming practices with biotech crops will remain critical as it has been during the first decade and continued responsible stewardship must be practiced, particularly by the countries of the South, which will be the major deployers of biotech crops in the coming decade.

(1 hectare = 2.47 acres)

***Information about ISAAA and the author**

A not-for-profit public charity, cosponsored by the public and private sectors, working to alleviate poverty in developing countries, by facilitating the sharing of knowledge, and transfer of crop biotechnology applications, to increase crop productivity and income generation, particularly for resource-poor farmers, and to bring about a safer environment and more sustainable agricultural development. ISAAA is a small International Network with a global hub in the Philippines and centers in Nairobi, Kenya, and at Cornell University, Ithaca, New York, USA. Clive James, chairman and founder of ISAAA, has lived and worked for the past 25 years in the developing countries of Asia, Latin America and Africa, devoting his efforts to agricultural research and development issues with a particular focus on crop biotechnology and its contribution to global food security and the alleviation of poverty, hunger and malnutrition.

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