HIGHLIGHTS

Global Status of Commercialized Biotech/GM Crops: 2011

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Dedicated by the author to the 1 billion poor and hungry people, and their survival

Biotech Crop hectares continue to climb after 15 consecutive years of strong growth, as global population soars to 7 billion

Due to significant benefits, strong growth continued in 2011 with a double-digit increase of 12 million hectares, at an annual growth rate of 8%, reaching 160 million hectares, up from 148 million hectares in 2010.

A 94-fold increase from 1.7 million hectares in 1996 to 160 million hectares in 2011, makes biotech crops the fastest adopted crop technology in recent history.

The most compelling testimony to biotech crops is that, in the period 1996 to 2011, millions of farmers in 29 countries worldwide, made more than 100 million independent decisions to plant and replant an accumulated hectarage of 1.25 billion hectares – one principal reason underpins the trust and confidence of risk-averse farmers in the technology – biotech crops deliver sustainable and substantial, socioeconomic and environmental benefits.

Of the 29 countries planting biotech crops in 2011, 19 were developing and 10 were industrial countries. The top 10 countries each grew more than one million hectares and they provide a broad-based, worldwide foundation for diversified growth in the future.

In 2011, a record 16.7 million farmers, up 1.3 million or 8% from 2010, grew biotech crops – notably over 90%, or 15 million, were small resource-poor farmers in developing countries; farmers are the masters of risk aversion and in 2011, a record 7 million small farmers in China and another 7 million in India, elected to plant 14.5 million hectares of Bt cotton.

Developing countries grew ~50% of global biotech crops in 2011 and are expected to exceed industrial country hectarage in 2012. In 2011, growth rate for biotech crops was twice as fast, and twice as large, in developing countries, at 11% or 8.2 million hectares, versus 5% or 3.8 million hectares in industrial countries.

Stacked traits are an important feature – 12 countries planted biotech crops with two or more traits in 2011, and encouragingly 9 of the 12 were developing countries – 42.2 million hectares, or more than a quarter, of the 160 million hectares were stacked in 2011, up from 32.3 million hectares or 22% of the 148 million hectares in 2010.

The five lead developing countries in biotech crops are India and China in Asia, Brazil and Argentina in Latin America, and South Africa on the continent of Africa, which together represent 40% of the global population, which could reach 10.1 billion by 2100.

Brazil, for the third consecutive year, was the engine of growth globally, increasing its hectarage of biotech crops more than any other country – a record 4.9 million hectares, up 20% from 2010. A fast-track system approved 6 new products in 2011, including a homegrown biotech virus resistant bean, developed in the public sector by EMBRAPA (Brazilian Agricultural Research Cooperation).

The US continued to be the lead producer of biotech crops globally with 69.0 million hectares, with an average adoption rate of ~90% across all biotech crops. Planting of RR®alfalfa resumed with up to 200,000 hectares,

plus 475,000 hectares of RR®sugarbeet. Virus resistant papaya from the US was approved for consumption as a fresh fruit/food in Japan, effective December 2011.

India celebrated the 10th anniversary of Bt cotton, with plantings exceeding 10 million hectares for the first time, reaching 10.6 million hectares, and occupying 88% of the record 12.1 million hectare cotton crop. The principal beneficiaries were 7 million small farmers growing, on average, 1.5 hectares of cotton. India enhanced farm income from Bt cotton by US$9.4 billion in the period 2002 to 2010 and US$2.5 billion in 2010 alone.

In China, 7 million small farmers (average of 0.5 hectare) grew a record 3.9 million hectares of Bt cotton at record adoption rate of 71.5%. The expected commercial approval of Golden Rice in the Philippines in 2013/14 will be of significance to China.

Mexico grew 161,500 hectares of biotech cotton, at an adoption rate of 87%, up a record 178% from 58,000 hectares in 2010. The aim is self-sufficiency in cotton, and planting of biotech maize in the northern states, to partially offset 10 million tons of increasing and costly maize imports.

Africa made steady progress with regulation. South Africa, Burkina Faso and Egypt, together planted a record 2.5 million hectares; three more countries, Kenya, Nigeria, and Uganda conducted field trials.

Six EU countries planted a record 114,490 hectares of biotech Bt maize, up 26% from 2010, and an additional two countries planted the biotech potato "Amflora".

From 1996 to 2010, biotech crops contributed to Food Security, Sustainability and Climate Change by: increasing crop production valued at US$78.4 billion; providing a better environment, by saving 443 million kg a.i. of pesticides; in 2010 alone reducing CO_2 emissions by 19 billion kg, equivalent to taking ~9 million cars off the road; conserving biodiversity by saving 91 million hectares of land; and helped alleviate poverty by helping 15.0 million small farmers who are some of the poorest people in the world. Biotech crops are essential but are not a panacea and adherence to good farming practices such as rotations and resistance management, are a must for biotech crops as they are for conventional crops.

There is an urgent need for appropriate, science-based and cost/time-effective regulatory systems that are responsible, rigorous but not onerous, for small and poor developing countries and for the EU.

Global value of biotech seed alone was valued at ~US$13 billion in 2011, with the end product of commercial grain from biotech crops valued at ~US$160 billion per year.

Future Prospects up to the MDG year of 2015 and beyond, look encouraging: an increase of up to ~10 new countries; the first biotech-based drought tolerant maize planned for release in North America in 2013 and in Africa by ~2017; Golden Rice in the Philippines in 2013/2014; biotech maize in China with a potential of ~30 million hectares and thereafter, Bt rice. Biotech crops have the potential to make a substantial contribution to the 2015 MDG goal of cutting poverty in half, by optimizing crop productivity, which can be expedited by public-private sector partnerships, such as the drought tolerant maize for Africa supported by philanthropic entities such as the Bill and Melinda Gates Foundation.

ISAAA's focus on the troika of knowledge sharing, innovation and creative partnership is consistent with the Gates Foundation's proposal to the G20 in November 2011.

Detailed information is provided in ISAAA Brief 43 "Global Status of Commercialized Biotech/GM Crops: 2011", authored by Clive James. For further information, please visit http://www.isaaa.org or contact ISAAA SEAsiaCenter at +63 49 536 7216, or email to info@isaaa.org.