



China is one of the six “founder biotech crop countries” in 1996, and in 2017 planted 2.8 million hectares biotech crops.

In 2017, China planted biotech cotton and biotech papaya on a total of 2.8 million hectares.

China has been one of the leaders in planting biotech insect resistant (IR) cotton since 1997. In 2017, the area planted to IR cotton in China was 2.78 million hectares, which is 95% of the country's total national cotton area of 2.9 million hectares.

The adoption rate of IR cotton in China in 2017 was similar to the 2016 adoption rate of 95%.

Around 7 million farmers planted IR cotton in 2017.

Biotech papaya, planted since 2006, was grown on 7,130 hectares in 2017, 17% lower than the 2016 area of 8,550 hectares. Biotech papaya is planted in Guangdong province, Hainan island, and Guangxi province.

BIOTECH CROP APPROVALS

Since 1997, China has approved 64

biotech events for food, feed, and cultivation: maize (18), Argentine canola (12), soybeans (12), cotton (11), tomato (3), poplar (2), rice (2), papaya (1), petunia (1), sugar beets (1), and sweet pepper (1).

China has planted Bt cotton since 1997, as well as small hectarages of GM papaya and poplar. While approval of biotech products for food and feed have been going on, protests affect regulation and hinder biotech crop approvals.

To date, there are 10 biotech events awaiting the approval of the Ministry of Agriculture.

President Xi Jinping has been supportive of “strong research and innovation” on biotech crops, providing some US\$3 billion funds to research institutes and domestic companies to develop home-grown disease and drought resistant wheat, disease resistant rice, drought resistant maize, soybeans that produce more and nutritious oil, and biotech peanuts.



Other initiatives also include biotech cabbage with resistance to diamondback moth, herbicide tolerant cotton with low glyphosate residues, and high antioxidant purple rice. ChemChina's acquisition of Syngenta in June 2017 facilitated the re-approval of 14 biotech crops by the Ministry of Agriculture and extended the review process to 2020.

Two Bt rice lines, Bt Shanyou 63 and Huahui-1, developed by Huazhong Agricultural University were given phytosanitary certificates in August 2009, but has not been renewed.

BENEFITS FROM BIOTECH CROPS IN CHINA

The economic benefit to China from biotech cotton for the period 1997 to 2016 was US\$19.64 billion and US\$990 million for 2016 alone.

A 15-year study from 1999 to 2012 by Qiao et al. (2017) further explained the sustainability of Bt crops in the long run. Using data collected during 1999-2012, results revealed that pesticide use against bollworms has not increased significantly over time. This indicates that the buildup of pest resistance is not a concern at the moment due to the existence of natural refuge areas. There was no outbreak of secondary pests during Bt adoption, and that both Bt and non-Bt adopters benefit from the widespread adoption of the technology, suppressing the density of the pest population regionally. The benefit of Bt cotton adoption continues 15 years after its introduction, albeit with evidence of a decline in the comparative advantage over non-Bt cotton in late adoption since pesticide use categorized were for controlling bollworms and secondary pests.



Bt technology adoption also has an impact on the health of Chinese farmers. A study by the Beijing Institute of Technology conducted in 2016 revealed that adoption of biotech crops in China could improve the health of Chinese farmers. The results indicated that biotech crops not only increased glyphosate use, but also reduced the use of non-glyphosate herbicides, while adoption of insect resistant biotech crops significantly reduced insecticide use.

The report also revealed that none of the examined health indicator was associated with glyphosate, while the use of non-glyphosate herbicides was found to induce renal dysfunction, inflammation, and severe nerve damage. This study indicates that adoption of biotech crops will cause the replacement of other herbicides with glyphosate, which may actually benefit farmers' health in China and around the world (Crop Biotech Update, October 19, 2016).

SOURCE

ISAAA. 2017. Global Status of Commercialized Biotech/GM Crops in 2017: Biotech Crop Adoption Surges as Economic Benefits Accumulate in 22 Years. *ISAAA Brief No. 53*. ISAAA: Ithaca, New York.

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