

## Crop biotechnology has immensely benefited farmers globally, says report

<https://www.biovoicenews.com/crop-biotechnology-has-immensely-benefited-farmers-globally-says-report/>

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**New Delhi:** Crop biotechnology has continued to provide substantial economic and environmental benefits, allowing farmers to grow more, with fewer resources, mentioned the research paper by the PG Economics, UK.

According to the paper authored by Mr Graham Brooks and Mr Peter Barfoot, the global economic benefits of GM crops reach \$150 billion. It mentions that the insect resistant (IR) technology used in cotton and corn has consistently delivered yield gains from reduced pest damage. The average yield gains over the 1996-2014 period across all users of this technology has been +13.1% for insect resistant corn and +17.3% for insect resistant cotton relative to conventional production systems.

The herbicide tolerant (HT) technology used has also contributed to increased production; improving weed control and providing higher yields in some countries and helping farmers in Argentina grow 'second crop' soybeans after wheat in the same growing season, says the research paper released

### **Few important highlights of the report are:**

? Crop biotechnology helps farmers earn more secure incomes due mainly to improved control of pests and weeds. The net farm level economic benefit in 2014 was \$17.7 billion, equal to an average increase in income of \$101/hectare. For the 19 years (1996-2014), the global farm income gain has been \$150.3 billion.

? The total farm income benefit of \$150.3 billion was divided almost equally between farmers in developing (51%) and developed countries (49%).

? By facilitating the adoption of no tillage production systems this effectively shortens the time between planting and harvest of a crop. The highest yield gains continue to be for farmers in developing countries, many of which are resource-poor and farm small plots of land.

? Crop biotechnology continues to be a good investment for millions of farmers. The cost farmers paid for accessing crop biotechnology in 2014 (\$6.9 billion<sup>34</sup> payable to the seed supply chain) was equal to 28% of the total gains (a total of \$24.6 billion). Globally, farmers received an average of \$3.59 for each dollar invested in GM crop seeds;

? Farmers in developing countries received \$4.42 for each dollar invested in GM crop seeds in 2014 (the cost is equal to 23% of total technology gains), while farmers in developed countries received \$3.14 for each dollar invested in GM crop seed (the cost is equal to 32% of the total technology gains).

? The higher level of technology gains realised by farmers in developing countries relative to farmers in developed countries reflects weaker provision of intellectual property rights coupled with higher average levels of benefits in developing countries;

? Between 1996 and 2014, crop biotechnology was responsible for additional global production of 158.4 million tonnes of soybeans and 321.8 million tonnes of corn. The technology has also contributed an extra 24.7 million tonnes of cotton lint and 9.2 million tonnes of canola.

? GM crops are allowing farmers to grow more without using additional land. If crop biotechnology had not been available to the (18 million) farmers using the technology in 2014, maintaining global production levels at the 2014 levels would have required additional plantings of 7.5 million ha of soybeans, 8.9 million ha of corn, 3.7 million ha of cotton and 0.6 million ha of canola. This total area requirement is equivalent to 12% of the arable land in the US, or 33% of the arable land in Brazil or 14% of the cropping area in China.

? Crop biotechnology has contributed to significantly reducing the release of greenhouse gas emissions from agricultural practices. This results from less fuel use and additional soil carbon storage from reduced tillage with GM crops. In 2014, this was equivalent to removing 22.4 billion kg of carbon dioxide from the atmosphere or equal to removing 10 million cars from the road for one year.