World Cultivation of Genetically Modified Crops: Opportunities and Risks

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Abstract and figures

The increase in population has exerted tremendous pressure on global food supply with more than one in every seven people suffering from lack of basic food or micronutrient malnourishment. Moreover, anthropogenic activities such as exhaustion of natural resources and global warming further aggravate the problem. Therefore, scientists are studying ways to ensure sustainable and equitable food security along with preservation of environment. With the advent of recombinant DNA technology in 1980s, transgenic crops have been adopted to increase both quality and quantity of food. There has been a remarkable progression in identifying ways to increase plant productivity, discover novel and active metabolites, alternative fuel sources, chemical factories synthesising animal proteins and antibiotics, using transgenic plants. Here, we provide a global pattern of genetically modified crop cultivation and strategies adopted by small and large scale farmers in different countries in order to strike a balance between food security, social and environmental repercussions. Genetically modified (GM) crops are increasingly used to improve plant quality and stress tolerance. Herbicide-tolerant and insect-resistant transgenic crops have been adopted by many countries as a food security measure. There has been a 100-fold production increase since the dawn of the genetically modified crops production. GM crops are now also a source of fuel production. Moreover, scientists are upgrading the ability of crops and plants to store toxic and lethal compounds to remediate soil and water resources. Nevertheless, the fate of GM cr

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