

Genetically modified crops- issues and challenges

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Biotecnology provides new opportunities for achieving productivity gains in agriculture. Agricultural biotechnology is a precise science that enables us to find the most beneficial traits, in terms of added nutrition, increased safety or greater ability to fight pests or diseases, and incorporate them into various organisms. Biotechnology is providing practical answers to some of the greatest challenges we face at the dawn of a new millennium, such as hunger and malnutrition, as well as more effective ways to prevent diseases and treat serious illnesses. The global debate over how agriculture and food system can better meet people's need is passionate and often muddled. Some think bio-technology is the ultimate answer. But, is bio-technology going to solve world's food problem? This paper aims to discuss the various negative issues that GMOs could have on environment and on farmers.

Biotechnology is any technological application that uses biological systems (living organisms, or derivatives thereof), to make or modify products or processes for specific use. There is a universal recognition and realization that biotechnology can contribute significantly to the social and economic development of developing countries. This is particularly so in the areas of agriculture, health, environment as well as industry. Biotechnology is an accessible and exciting new development that is already improving the way we live. Discoveries in biotechnology allow some key crops to have their own protection against insects and disease, allowing these crops to be grown using less chemical pesticides.

Agriculture and biotechnology:

The potential benefits of GM in agriculture comprise increase in crop yields, improvement of nutritional content and storage characteristics of staple food (Bhagavan and Virgin, 2003). Crops resistant to pests, insects, diseases, and crops which can tolerate abiotic stress, are also being developed using GM technology.

With regard to agricultural biotechnology, three forms of its application are now benefiting poor farmers, they are, tissue culture, based primarily on advances in plant cellular biology. Marker-aided selection, based on our ability to analyze plant and plant-pathogen DNA and detect the presence or absence of particular DNA sequences, and Genetic engineering, based on recombinant-DNA technology and the ability to incorporate new genes into plant chromosomes.

What are genetically modified (GM) foods? :

Although "biotechnology" and "genetic modification" commonly are used interchangeably, GM is a special set of technologies that alter the genetic makeup of organisms such as animals, plants, or bacteria. Biotechnology, a more general term, refers to using organisms or their components, such as enzymes, to make products that include wine, cheese, beer, and yogurt.

Isolation of genes from variety of sources and formation of new gene combinations is called recombinant DNA technology, and the resulting organism is said to be "genetically modified," "genetically engineered," or "transgenic." GM products (current or those in development) include medicines and vaccines, foods and food ingredients and feeds. .

Potential risks of GMO:

GM crops are to some an answer to world hunger. To others, these crops are a health risk and an environmental threat because some GM crops have proven to be genetically unstable, do not do what they were designed to do ,are a risk to human health, particularly children. They cause animals who eat them to become immune to antibiotics; they spread and destroy natural crops (Laura, 2002).

There is also a concern that GM crops themselves might become weeds, a major ecological risk is that large scale releases of GM crops may promote transfer of transgenes from crops to other plants, which then could become weeds but also unleash unpredictable ecological effects (Darmancy, 1994). These are some of the risks associated with GM crops, there are many other risks also. Scientists generally agree that the transgenic crops currently being grown and the foods derived from them

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