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# What are GMO foods?

Rich Heffern | May. 18, 2009

The term Genetically-Modified foods or GMOs (genetically-modified organisms) refer to crop plants created for human or animal consumption using molecular biology techniques. Such plants have been modified in the laboratory to enhance desired traits such as increased resistance to herbicides or improved nutritional content. The enhancement of desired traits has traditionally been undertaken through breeding, but conventional plant breeding methods can be time consuming and are often inaccurate.

Genetic engineering can create plants with the exact desired trait quickly and accurately. For example, researchers can isolate a gene responsible for drought tolerance and insert that gene into a different plant. The new GM plant will gain drought tolerance as well. Not only can genes be transferred from one plant to another, but genes from non-plant organisms also can be used.

For two informative overviews of some of the techniques involved in creating GM foods, visit **Biotech Basics** [1] (sponsored by Monsanto).

World population has topped six billion people and is predicted to double in the next 50 years. Ensuring an adequate food supply for this booming population will be a major challenge in the years to come. GM foods promise to meet this need by means of their resistance to pests, drought and herbicide tolerance, and their superior nutritional value.

Soybeans and corn are the top two most widely grown crops, with cotton, rapeseed (or canola) and potatoes trailing behind. Globally, GM crop acreage has increased 25 times in just five years, from approximately 4.3 million acres in 1996 to 109 million acres in 2000. Approximately 99 million acres were devoted to GM crops in the United States and Argentina alone.

Environmental activists and public interest groups have raised concerns about GM foods, and criticized agribusiness for pursuing profit without concern for hazards, and the government for failing to exercise adequate regulatory oversight. Their concerns are based on environmental and health considerations.

For example, critics warn that crop plants engineered for herbicide tolerance and weeds will crossbreed, resulting in the transfer of the herbicide resistance genes from the crops into the weeds. These ?superweeds? would then be herbicide tolerant as well. Other introduced genes may cross over into non-modified crops planted next to GM crops.

An example of a health concern: Children in the United States and Europe have developed life-threatening allergies to peanuts and other foods. There is a possibility that introducing a gene into a plant may create a new allergen or cause an allergic reaction in susceptible individuals. A proposal to incorporate a gene from Brazil nuts into soybeans was abandoned because of the fear of causing unexpected allergic reactions.

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[1] http://www.biotechknowledge.com/biotech/bbasics.nsf/index.html?OpenPage