

Genetically Modified Organisms

What's a GMO?

A GMO (genetically modified organism) is the result of a laboratory process of taking genes from one species and inserting them into another in an attempt to obtain a desired trait or characteristic, hence they are also known as transgenic organisms. This process may be called either Genetic Engineering (GE) or Genetic Modification (GM); they are one and the same.

But haven't growers been grafting trees, breeding animals, and hybridizing seeds for years?

Genetic engineering is completely different from traditional breeding and carries unique risks.

In traditional breeding it is possible to mate a pig with another pig to get a new variety, but is not possible to mate a pig with a potato or a mouse. Even when species that may seem to be closely related do succeed in breeding, the offspring are usually infertile—a horse, for example, can mate with a donkey, but the offspring (a mule) is sterile.

With genetic engineering, scientists can breach species barriers set up by nature. For example, they have spliced fish genes into tomatoes. The results are plants (or animals) with traits that would be virtually impossible to obtain with natural processes, such as crossbreeding or grafting.

What foods are GM?

Currently commercialized GM crops in the U.S. include soy (89%), cotton (83%), canola (80%), corn (61%), Hawaiian papaya (more than 50%), zucchini and yellow squash (small amount), and tobacco (Quest® brand). There are currently plans to grow GM sugar beets in 2008.

What are other sources of GMOs?

Products derived from the above, including oils from all four, soy protein, soy lecithin, cornstarch, corn syrup and high fructose corn syrup among others. Also:

- meat, eggs, and dairy products from animals that have eaten GM feed (and the majority of the GM corn and soy is used for feed);
- dairy products from cows injected with rbGH (a GM hormone);
- food additives, enzymes, flavorings, and processing agents, including the sweetener aspartame (NutraSweet®) and rennet used to make hard cheeses; and
- honey and bee pollen that may have GM sources of pollen.

The Health Dangers:

What are the potential dangers of eating GM foods?

There are a number of dangers that broadly fall into the categories of potential toxins, allergens, carcinogens, new diseases, antibiotic resistant diseases, and nutritional problems.

[View](#) all 65 health risks of GM foods, excerpted from Jeffrey Smith's comprehensive book Genetic Roulette: The Documented Health Risks of Genetically Engineered Foods. [Other References](#)

Hasn't research shown GM foods to be safe?

No. The only feeding study done with humans showed that GMOs survived inside the stomach of the people eating GMO food. No follow-up studies were done.

Various feeding studies in animals have resulted in potentially pre-cancerous cell growth, damaged immune systems, smaller brains, livers, and testicles, partial atrophy or increased density of the liver, odd shaped cell nuclei and other unexplained anomalies, false pregnancies and higher death rates.

But aren't the plants chemically the same, whether or not they are GM?

Most tests can't determine the differences at the level of the DNA. And, even if they appear to be the same, eyewitness reports from all over North America describe how several types of animals, including cows, pigs, geese, elk, deer, squirrels, and rats, when given a choice, avoid eating GM foods.

Haven't people been eating GM foods without any ill effect?

The biotech industry says that millions have been eating GM foods without ill effect. This is misleading. No one monitors human health impacts of GM foods. If the foods were creating health problems in the US population, it might take years or decades before we identified the cause.

What indications are there that GM foods are causing problems?

Soon after GM soy was introduced to the UK, soy allergies skyrocketed by 50 percent.

In March 2001, the Center for Disease Control reported that food is responsible for twice the number of illnesses in the U.S. compared to estimates just seven years earlier. This increase roughly corresponds to the period when Americans have been eating GM food.

Without follow-up tests, which neither the industry or government are doing, we can't be absolutely sure if genetic engineering was the cause.

What about GM hormones in milk?

Milk from rBGH-treated cows contains an increased amount of the hormone IGF-1, which is one of the highest risk factors associated with breast and prostate cancer, but no one is tracking this in relation to cancer rates.

Why do genetically engineered foods have antibiotic resistant genes in them?

A. The techniques used to transfer genes have a very low success rate, so the genetic engineers attach "marker genes" that are resistant to antibiotics to help them to find out which cells have taken up the new DNA. That way scientist can then douse the experimental GMO in antibiotics and if it lives, they have successfully altered the genes. The marker genes are resistant to antibiotics that are commonly used in human and veterinary medicine. Some scientists believe that eating GE food containing these marker genes could encourage gut bacteria to develop antibiotic resistance.

But is there any documented instance of adverse effects of GMOs on people?

One epidemic was rare, serious, and fast acting, and therefore more easily discovered. Called EMS, it was traced to a GM brand of the food supplement L-tryptophan. In the 1980's, the contaminated brand killed about 100 Americans and caused sickness or disability in about 5,000-10,000 others.

Why are children particularly susceptible to the effects of GM foods?

Children face the greatest risk from the potential dangers of GM foods for the same reasons that they also face the greatest risk from other hazards like pesticides and radiation, these include:

- Young, fast-developing bodies are influenced most.
- Children are more susceptible to allergies.
- Children are more susceptible to problems with milk.
- Children are more susceptible to nutritional problems.
- Children are in danger from antibiotic resistant diseases.

This is an excerpt from the following author who's website is below

Jeffrey M. Smith

Biography:

Jeffrey M. Smith has been involved with genetically modified (GM) foods for nearly a decade. He worked for non-profit and political groups on the issue and in 1998, ran for U.S. Congress to raise public awareness of the health and environmental impacts. To protect children—who are most at risk from the potential health effects of GM foods—Smith proposed legislation to remove the foods from school meals. He also proposed legislation to help protect farmers from cross-pollination by GM crops. Later, he was vice president of marketing for a GMO detection laboratory.

Smith has lectured widely, spoken at conferences, and has been quoted in articles around the world. Prior to working in this field, he was a writer, educator, and public speaker for non-profit groups, advancing the causes of health, environment, and personal development. His book "Seeds of Deception," researched and written after he left the industry, combines Smith's passion for these causes with his extensive knowledge of the risks and cover-ups behind genetically modified foods.

Smith is the founding director of the Institute for Responsible Technology and a member of the Sierra Club Genetic Engineering Committee. He has a master's degree in business administration and lives with his wife in Iowa, surrounded by genetically modified corn and soybeans.

<http://www.geneticroulette.com/>