

# How Safe Is the Food You Eat?

Some European countries have effectively banned new genetically modified food, yet in America, 70 to 75 percent of processed foods contain biotech ingredients. Beth Howard asks: How dangerous are they?

Photographed by Andrew Bettles

**I**t sounds innocent enough: Inserting a fish gene into a tomato to help it withstand frost, or arming corn with a bacteria gene that makes it resistant to pests. The wonders of genetically modified (GM) foods created in laboratories or growing on U.S. farmland promise to feed the hungry and produce heartier, healthier crops that require less pesticide and thereby help preserve the environment. So what is wrong with this picture? Plenty, says a growing chorus of experts. The British public and others in Europe have turned up their noses at GM foods, and the Indian and Zambian governments have rejected food aid suspected to contain GM ingredients. More and more Americans are now asking, "Is it safe?"

## What are GM foods?

In 1994, the Food and Drug Administration (FDA) allowed the sale of the first GM food, the unpopular Flavr Savr tomato (no longer available). Two years later came the current generation of GM foods—created when one or more genes for desirable traits (such as pest resistance) are inserted from one species into the same or another species. Since then, an increasing amount of GM foods, particularly soybeans and corn, have been creeping into America's cupboards. According to the United States Department of Agriculture (USDA), 81 percent of U.S. soybeans are gene-altered to tolerate herbicides. And 40 percent of the nation's corn is a GM variety that is insect- or herbicide-resistant or both—much of which is created with a bacteria gene called Bt that causes corn to produce a toxin that kills certain pests.

GM derivatives now reside in thousands of processed products, which typically come in cans, jars or plastic wrapping. Indeed, just about any packaged good that contains more than

one ingredient is likely to have some GM-derived food. "We estimate that 70 to 75 percent of processed foods contain biotech ingredients," says Stephanie Childs, spokeswoman for the Grocery Manufacturers of America. There's a good chance your crackers (soybean or corn oil), canned soup (modified corn starch) and cereal (corn syrup and corn starch) contain some GM-derived elements, as do cake mixes, frozen dinners, candy bars, sodas, bread, pasta sauce, margarine and ice cream. By contrast, the vast majority of whole and fresh foods, like fruits and veggies, have *not* been genetically modified.

## What's wrong with eating GM foods?

GM foods don't glow in the dark or give off dangerous radiation, so how bad can they be? "These foods have been tested more than other foods we normally consume," says David Lineback, Ph.D., director of the Joint Institute for Food Safety and Applied Nutrition (JIFSAN), a cooperative educational and research venture between the FDA and the University of Maryland. A 2000 report by the National Academy of Sciences backs him up. "Our panel wasn't able to document a single incident where ingestion of [any] genetically modified plant had adverse effects," reports the study's committee chair, Perry Adkisson, Ph.D., distinguished professor emeritus at Texas A&M University.

But also in 2000, alarm bells went off when a GM Bt corn called StarLink, approved only for use in animal feed, mysteriously turned up in hundreds of food products for people, including Taco Bell-brand corn shells. It was alleged to have triggered allergic reactions in dozens of consumers, though the Centers for Disease Control and Prevention eventually concluded that there wasn't enough evidence to link those cases with the GM corn. (Before the StarLink scandal, GM animal feed wasn't ►



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generally thought to cause a problem for people who eat meat or drink milk, because the modified genes would have already been broken down by the animals during digestion. Now, however, all GM Bt corn crops must be approved for both human and animal consumption.)

The StarLink products were recalled, but the episode troubled scientists. "StarLink showed that the regulatory system isn't very effective," says Jane Rissler, Ph.D., a senior staff scientist in the Food and Environment Program of the Union of Concerned Scientists. "This kind of mixing shouldn't have happened. Suppose it had been a more serious problem?" (To date, authorities say there have been no other allergic reactions linked to GM foods. But the risk of them occurring on a grand scale concerns experts.)

## What are the dangers?

Critics are also apprehensive about the more radical gene tinkering in the works. Will the new genes foster resistance to antibiotics or create cancer-causing toxins? "We must consider the possibility of unexpected changes in plants," says Doug Gurian-Sherman, Ph.D., science director of the Biotechnology Project of the Center for Science in the Public Interest (CSPI). Plants naturally produce toxic compounds. In the edible parts of most crops, they are produced at low levels or not at all, but sometimes, years of conventional breeding have eliminated or turned off the genes responsible for that mechanism. Genetic engineering may inadvertently turn them back on.

Another concern: dangerous new allergens. "Modifying the genes could introduce a new allergenic substance into the food supply," says Rissler. "If you take these risks and magnify them, thousands of people could be affected," adds Gurian-Sherman.

## Do GM foods have safety standards?

While foods now being consumed seem safe, critics argue that there haven't been any long-term tests. Counters Jim Maryanski, Ph.D., biotechnology coordinator for the FDA's Center for Food Safety and Applied Nutrition: "All these products have had extensive testing. GM foods are as safe as other foods." But critics have their doubts. For one, as with any food, the FDA doesn't test GM samples for safety; it reviews summaries of the data provided by the companies and sources that develop the foods. "The U.S. doesn't put a stamp of approval on the products," says Doreen Stabinsky, Ph.D., a science advisor with Greenpeace. "That's a pretty scary situation." Using the Freedom of Information Act to access FDA documents, CSPI discovered that companies often provide what it claims is inadequate and/or inconsistent data for their products' safety and sometimes refused FDA requests for additional information.

What's more, a recent report from the independent think tank the Pew Initiative on Food and Biotechnology questions the government's job of overseeing GM crops after they are put on the market. Case in point: One in five farmers doesn't comply with a basic standard governing Bt-corn cultivation that

stipulates at least 20 percent of cropland be planted with non-GM seeds. This figure is worrisome, because overuse of GM seeds may cause insects to develop immunity to the Bt toxin, meaning more cornfields may become vulnerable to the crop's pests.

Even those bullish on biotech say we should pay more attention to its unknown impact on the environment. A study of laboratory fish engineered with extra growth hormone points out the potential for harm. According to the study at Purdue University in Indiana, the gene-altered fish matured faster than their wild counterparts and had a mating advantage by developing earlier, being bigger, or both. If released into the wild, they could conceivably drive natural populations to extinction, highlighting concerns about what might occur with salmon genetically engineered today.

## Will I know if I'm eating GM foods?

Considering the possible consequences, opponents of genetically engineered food contend that Americans should at least have a choice in the matter. In fact, most polls show the public favors labeling all foods containing GM ingredients as such, yet the FDA does not require it. But growing opposition to GM foods around the world may mean change. In Britain, anti-GM forces have ensured that virtually no GM food is for sale. For the past five years a group of European Union member nations have blocked the approval, and effectively the import, of new GM food and crop products in France, Italy, Austria, Germany, Luxembourg and Denmark. In July, the European parliament and council mandated stricter labeling and traceability requirements of GM imports. Washington, D.C., holds that this demand is too expensive and difficult for America and its farmers.

"What do Europeans see that we don't?" asks Stabinsky. "A nightmare waiting to happen. It's just a matter of time." ■

## What you can do to avoid GM foods

**Read the labels.** Manufacturers aren't required to label GM foods, but if a product includes soy, corn, canola or cotton, it is probably a GM or GM-derived food. Look for ingredients such as corn oil, corn starch, corn syrup, soy protein, lecithin or canola oil.

**Stick to fresh produce.** Most fresh fruits and vegetables are not GM. However, you're probably getting a GM product when you buy Hawaiian-grown papayas, and there's a minute chance you're getting them with yellow crook-neck squash or sweet corn. To be certain of avoiding GM, buy organic squash and corn and choose papayas from Mexico, which doesn't grow the GM variety.

**Eat organic.** If you don't want to take any chances, buy only organic produce, which supermarkets now label as such. Check out your local health-food store. Many natural-food companies—including Hain Celestial, Health Valley, Nature's Path, Muir Glen—process foods without GM ingredients and often carry a non-GM label. Also, Greenpeace has compiled a list of non-GM foods, which can be found online at [truefoodnow.org](http://truefoodnow.org).

