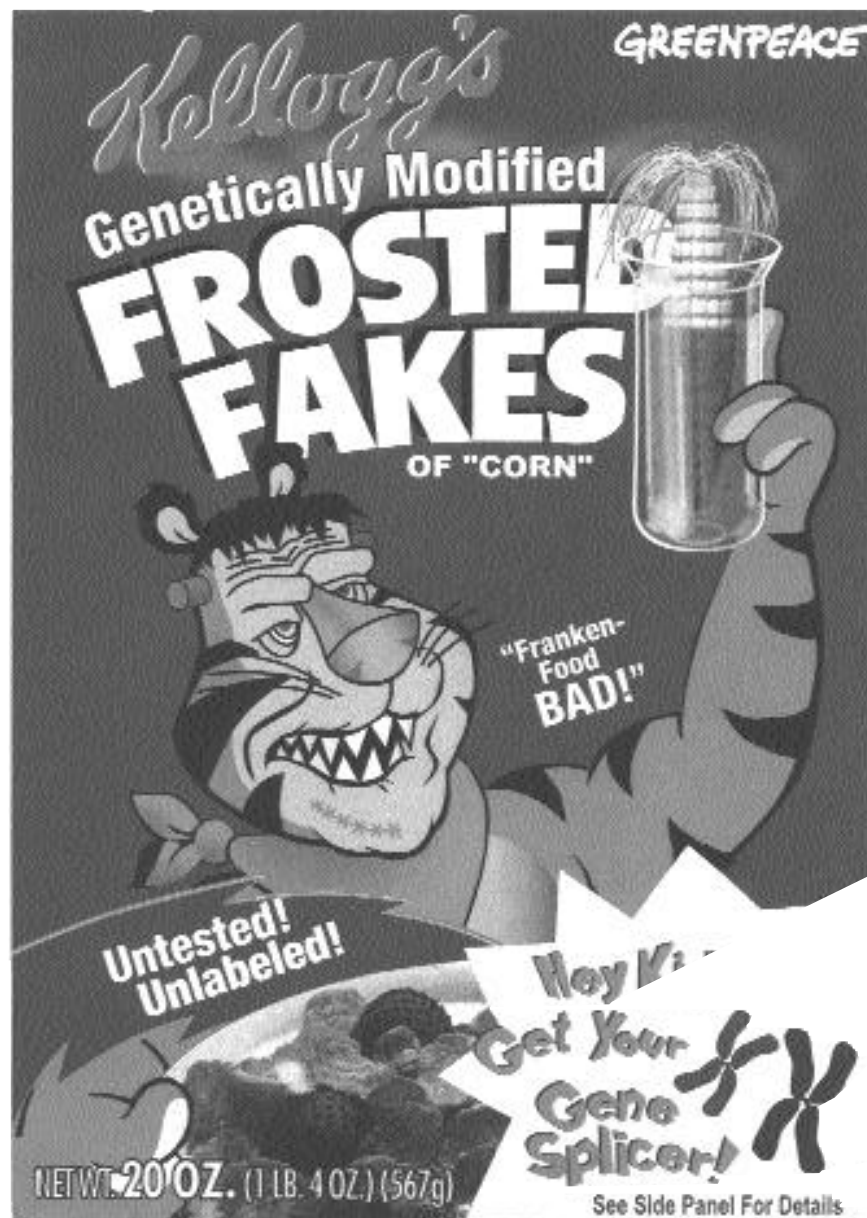


Everything You Ever Wanted To Know About Genetically Engineered Food



The simple ABCs of genetic engineering

Some biology basics

Plants and animals are made up of millions of cells. Each cell has a nucleus, and inside every nucleus are strings of DNA (deoxyribonucleic acid, if you want to get technical). DNA contains complete information regarding the function and structure of organisms ranging from plants and animals to bacterium.

A gene represents the blueprint of an animal or plant. Genes determine an organism's growth, size and other characteristics. Genes are made up of sequences of DNA. As you remember from basic biology, genes are the units by which species transfer inheritable characteristics from one generation to the next.

Genetic engineering is the process of artificially tampering with these blueprints. Through genetic engineering, scientists insert the gene of one organism into another in an effort to replicate characteristics in the receiving organism.

So, for example, genetic engineers have injected tomatoes with the antifreeze gene of a flounder in an effort to give the tomato a longer growing season. Genetic engineers also plan to use the technology to improve nutrition and even plan to develop medical benefits. Some biotechnology companies also are developing crops that can withstand increased amounts of pesticides, often pesticides sold by those very same companies.

"We are living today in a very delicate time, one that is reminiscent of the birth of the nuclear era, when mankind stood at the threshold of a new technology," says Dr. John Fagan, a molecular biologist and former genetic engineer. "No one knew that nuclear power would bring us to the brink of annihilation or fill our planet with highly toxic radioactive waste. We were so excited by the power of a new discovery that we leapt ahead blindly, and without caution. Today the situation with genetic engineering is perhaps even more grave because this technology acts on the very blueprint of life itself."



Biotech corporations: Big promises, but can they deliver?

Biotech corporations make bold claims about the ability of genetically engineered foods to change the world—promises ranging from feeding the world's hungry to saving the environment. Here's a look at some industry promises, and some facts that put these assurances in dispute.

Promises & Realities

Promise: Biotech will feed the world's poor.

Reality: Biotech companies are much more interested in the corporate bottom line than in helping the poor.

Consider the case of the "terminator seed" technology, pursued by Monsanto, one of the largest biotech companies. The terminator seed is a genetic engineering technology that sterilizes seeds produced by crops. The technology would force farmers to purchase seeds every year from companies who sell the seeds.

Analysts worry that under terminator technology, many staples for the world's poorest people, including wheat, rice and soybeans, would be under the control of international agribusinesses. Up to 1.4 billion farming families worldwide may be forced to buy into the terminator technology.

Monsanto recently announced that, because of public opposition, it would not commercialize the terminator. However, the company said it will continue to pursue several related gene technologies, and could change its mind about the terminator in the future.

If the multinationals really want to help feed the poor, would they come up with technologies so pernicious?

Promise: Biotech will save the environment.

Reality: Biotech is a risky experiment that may have vast environmental repercussions.

The companies behind genetic engineering don't have a great environmental track record. Some of these companies were behind the development of risky chemicals such as DDT and Agent Orange. As we've learned over the past few decades, the development of deadly pesticides has had disastrous implications for wildlife and human development.

U.S. farmers already have planted millions of acres of GE corn. Three years after GE corn was launched on a massive commercial scale, Cornell University scientists discovered that the mutated corn may be deadly to Monarch butterflies. What other surprises may be in store?

Promise: GE crops require fewer pesticides.

Reality: Biotech companies are using GE technologies to sell higher quantities of the pesticides they manufacture.

Many of the companies behind biotech, in fact, such as Monsanto, DuPont and Novartis, also manufacture toxic pesticides. One of the most popular categories of GE foods are crops that are resistant to pesticides, meaning that more pesticides can be applied. Monsanto, for example, has created the Roundup Ready soybean, which is engineered to withstand higher doses of Monsanto's Roundup pesticide.

Pesticidal potatoes, terminator seeds and genetically mutated trees, oh my!

The world of biotechnology is filled with harrowing tales of strange, new “Frankenfoods.” If it’s bizarre, genetic engineers can create it! Here are just a few of their frightening creations:

1. Pesticidal potatoes

For years, many chemical companies made a lot of money by selling pesticides to spray on crops. These days, the game is changing: Genetic engineers have created potatoes that actually can produce **their own** pesticides.

The New Leaf Superior, marketed by the Monsanto corporation since 1995, is engineered to produce the insecticide Bt, or *Bacillus thuringiensis*, in each one of its cells. Bt kills the Colorado potato beetle, one of the biggest threats to healthy potatoes. Unfortunately, the pesticidal potatoes are not labeled, so unless you consume only organic potatoes, there’s no way to be sure that you’re not eating the pesticidal variety. And some scientists say that the long-term effects of eating these potatoes is unknown.

In 1998, the *New York Times* reported that regulation of the pesticidal potato has fallen through the cracks of the U.S. government. The Food and Drug Administration told the *Times* it does not regulate the potato because it does not have the authority to regulate pesticides; that responsibility, said the FDA, lies with the Environmental Protection Agency. But the EPA said labeling pesticidal potatoes is FDA’s job, because potatoes are a food. The FDA responded that the Food, Drug and Cosmetic Act forbids the food agency from including information about pesticides on foods. And so it goes.

Meanwhile, Phil Angell, Monsanto’s director of corporate communications, told the *Times* that “Monsanto should not have to vouchsafe the safety of biotech food. Our interest is selling as much of it as possible. Assuring its safety is the FDA’s job.”

2. Terminator seeds

Monsanto also has developed a new seed technology that has many environmentalists and Third World leaders crying foul.

The “terminator seed,” still in developmental stages, is designed to produce sterile crops that don’t produce seeds. Under the new technology, Monsanto would force farmers to buy seeds from the giant agribusiness every year. Historically, farmers have saved some seeds from one growing season for use in the next.

Environmentalists worry what will happen when the terminator is unleashed on the environment. They fear that terminator technology could migrate from one farm to another, or from a farm to wild plants. And activists in developing nations, who say that up to 1.4 billion farming families worldwide may be forced to buy the seed, say the technology would put too much power in the hands of a few international agribusinesses.

Responding to the intense criticisms, Monsanto announced in 1999 that it would not commercialize the terminator seed. However, the company continues to research several related technologies, and could change its mind about the terminator down the road.

3. Genetically mutated trees

Genetic engineering is a field that extends into many areas beyond food. One of the more frightening possibilities to arise so far is the genetically mutated forest.

Scientists say that plans for “terminator” trees —engineered never to flower—could create a “silent spring” in the forests. While these trees would grow faster than traditional trees, they would be lifeless by comparison. Gone would be the bees, butterflies, moths, birds and squirrels that depend on pollen, seed and nectar of normally reproducing trees.

“If you replace vast tracts of natural forest with flowerless trees, there will be a serious effect on the richness and abundance of insects,” says George McGavin, curator of entomology at Oxford University Museum. “If you put insect resistance in the leaves as well you will end up with nothing but booklice and earwigs. We are talking about vast tracts of land covered with plants that do not support animal life as a sterile means of culturing wood tissue. That is a pretty unattractive vision of the future and one I want no part of.”

4. Glow-in-the-dark potatoes

Edinburgh scientists have mixed jellyfish genes with potatoes, resulting in spuds that glow when they need watering. The potatoes are not intended for consumption; only a few would be planted per hectare for water monitoring purposes. But ecologists wonder what would happen if the potatoes got mixed in with the regular batch.



Meteoric growth: GE foods now are almost everywhere you look

If you want to avoid eating genetically engineered foods, all we can say is *good luck*. In just a few short years, GE foods have swept into the marketplace, affecting almost all of the foods we eat. In fact, the only way you can be sure to avoid eating genetically mutated foods is to buy organic, or to grow your own.

The basic facts:

The first large-scale commercial harvest of genetically engineered crops in the United States was in 1996. **By 1999, more than one-fourth of American crops were genetically engineered**, including:

- 35 percent of all corn
- 55 percent of all soybeans
- nearly half of all cotton.

So far, at least **50 GE crops have been approved** by the USDA, including potatoes, tomatoes, melons and beets. GE rice, wheat, cucumbers, strawberries, apples, sugarcane and walnuts are being grown on test sites.

Some experts estimate that **GE ingredients can be found in as many as two-thirds of all items on supermarket shelves**. Even if you shop at the local health food store, you may be eating some genetically engineered foods.

Some common foods that frequently contain GE ingredients:

- tortilla chips
- drink mixes
- taco shells
- veggie burgers
- muffin mix
- baby formulas

Watch out for any foods that contain soybean or corn derivatives.

Soy finds its way into about 60 percent of processed foods. GE ingredients include soy oil, soy flour, lecithin, and soy protein isolates and concentrates. Corn products commonly found in processed foods include corn oil, corn starch, corn flour and corn syrup.

Animal products are another high-risk category. Genetically modified organisms may be present in meat, poultry, seafood, milk, cheese, yogurt and whey. Most of the corn and soybeans grown in the United States are fed to farm animals. Also, dairy products may come from cows that have been treated with bovine growth hormone (BGH).

Allergic reactions and other possible health risks

By now, millions of acres of genetically engineered crops have been planted, and nearly two-thirds of the products on our supermarket shelves contain GE ingredients. But GE foods remain poorly studied; scientists simply can't say with any authority that they are absolutely safe for human consumption. In fact, many questions persist.

Essentially, we've been subjected to a massive experiment on human health. What will the results of this experiment be? Stay tuned.

1. Very few studies have been conducted to determine whether genetically engineered foods are harmful to human health.

Genetic engineering is a young, and in many ways poorly understood, technology. Many scientists believe that genetically engineered foods have been rushed much too quickly to market — to boost multinationals' profit margins —

before adequate testing has been completed to ensure public health.

According to the *Washington Post*, the “dearth of studies is the legacy of a U.S. policy that considers gene-altered plants and food to be fundamentally the same as conventional ones, a policy some Americans are starting to question. . . . And it is the legacy of broken promises by the Food and Drug Administration and the Environmental Protection Agency. . . .”

2. Genetic engineering may trigger allergies in people.

Genetic engineering may involve the transfer of new and unidentified proteins from one food into another, with the potential of causing allergic reactions. And allergies aren't simply a matter of slight discomfort; they can potentially result in life-threatening anaphylactic shock.

Without labeling, people with allergies won't know whether they are eating foods that contain genes from other foods to which they are allergic. In 1996, scientists were stunned to learn that soybeans engineered to include protein-rich genes from the Brazil nut contained the allergenic properties of the Brazil nut. Animal studies had not revealed the allergenic nature of the new soybean. The manufacturer halted the release of the soybean barely in time.

3. Genetic engineering may create toxins harmful to human health.

Scientists say genetic engineering may produce new toxins, with potentially devastating results for humans. In at least one case, disaster already has happened. In 1989, a genetically engineered version of tryptophan, a dietary supplement, produced toxic contaminants. Before it was recalled by the Food and Drug Administration, the mutated tryptophan wreaked havoc. Thirty-seven Americans died, 1,500 were permanently disabled, and 5,000 became ill with a blood disorder, eosinophilia myalgia syndrome.

4. Genetic engineering may lead to antibiotic resistance.

Genetic engineers use antibiotic “markers” in almost every genetically modified organism to indicate that the organism has been successfully engineered. Scientists believe these antibiotic markers may contribute to the decreasing effectiveness of antibiotics against diseases.



Threats to the environment

When biotech corporations boast that genetic engineering can do wonders for the environment, we would do well to consider the source. After all, some of these companies were behind the development of such deadly pesticides as DDT. These pesticides, it was promised, would help the environment; instead, they turned into environmental disasters.

Environmentalists have many concerns about GE foods. Here are a few:

1. The plight of the Monarch butterfly

Cornell University researchers have found that GE corn may be deadly to the Monarch butterfly. In laboratory tests in the spring of 1999, the scientists found that nearly half of the Monarch caterpillars that ate milkweed leaves dusted with GE corn pollen died within four days. The surviving Monarchs that ate the genetically mutated corn pollen were much smaller and had smaller appetites than the control Monarchs, which ate normal corn pollen or no pollen at all.

Already, GE corn is being grown on 20 million acres of American farmland, right in the heart of Monarch's migratory route between Mexico and Canada. And scientists worry that there may be additional surprising scientific discoveries down the road.

2. Increased pesticide pollution

Many of the new GE crops, such as Roundup Ready soybeans, are designed to allow farmers to spray heavier doses of pesticides on their land. These pesticides inevitably will find their way into our water and food supply, endangering humans and wildlife.

New Scientist magazine reports that many farmers that have converted to GE production use as many pesticides as their conventional counterparts, while some GE farmers now use more pesticides. And one of Britain's leading safety experts, Malcolm Kane (former head of food safety at the supermarket chain Sainsbury's), has revealed that the limits on pesticide residues in soy had been increased 200-fold to help the GE industry.

3. Genetic contamination of the environment

When Scottish Parliament member Robin Harper learned that Scottish scientists were experimenting with genetically modified salmon that grow at four times the normal rate, he was horrified, and called for a ban on all genetic engineering experiments.

"We should be extremely concerned about genetically modified fish because of the danger that they could escape into the wild," he said. "It's a similar, if not even more dangerous threat, to that we are facing with GM plants. If a GM fish escaped or was released accidentally into the wild it could never be recaptured. This fish could breed with wild populations and devastate the existing natural balance with its modified behavior.

Like Harper, many scientists are concerned about the widespread release of genetically modified organisms (GMOs) into the environment. In the United States, millions of acres of land have been planted with GE crops. Scientists fear that GMOs will be spread, by bird, insect or wind, to non-GE crops—and to the wilderness. And unlike other kinds of waste, genetic contamination cannot be cleaned up, or contained.

4. Herbicide resistance and fears of the rise of superweeds

Some scientists fear that the extensive planting of genetically engineered crops will lead to a new class of "superweeds" that are resistant to pesticides. The largest class of genetic engineered foods is pesticide-resistant crops, such as Roundup Ready soybeans. The problem is that newly created transgenes may be spread unintentionally from target crops to related weed species. The weeds then also pick up resistance to the pesticide.

5. Risks to biodiversity

The terminator tree farms described on page 3 highlight a growing concern among scientists: the threat genetically engineered crops pose to biodiversity. Scientists estimate that the world has lost 95 percent of the genetic diversity present in agriculture 100 years ago. GE crops are developed from the same monoculture varieties that giant agribusinesses have planted in the latter half of this century, and will only exacerbate the problem.

Moreover, pesticide-resistant crops will allow the application of increasing amounts of powerful pesticides. These pesticides often kill more than the targeted weeds; they frequently kill beneficial plants outside their intended range.

6. The problem of unintended consequences

Biotech firms assure us there's nothing to worry about. Genetically engineered foods, they say, will save the environment.

But it's a story we've heard before. In the mid-1900s, giant agribusinesses took the technology that developed biological and chemical weapons for two world wars and used it to develop pesticides and herbicides. They promised a wondrous new agricultural era of bigger yields and bug-free produce. It was only decades afterwards that scientists began to realize the scope of the environmental devastation wrought by the explosive growth of the pesticide industry.

The discovery that genetically engineered corn might be deadly to Monarch butterflies came as a shock to biotech advocates. If biotech companies continue with their massive experiment, what will our scientists tell us 50 years from now?



Find Out

...More in Related Books

Against the Grain, by Marc Lappe and Britt Bailey . Common Courage Press. Call (207) 525-3068

Beyond Evolution, by Dr. Michael W. Fox . Lyons Press, Call 212-620-9580, ext. 33

Biopiracy: The Plunder of Nature and Knowledge. Vandana Shiva Boston: South End Press.

The Ecological Risks of Engineered Crops. Jane Rissler and Margaret Mellon. Cambridge: MIT Press.

Genetic Engineering. Food and our Environment, by Luke Anderson, Chelsea Green Publishing Company, White River Junction, Vermont, U.S.A. Call (800) 639-4099

Genetically Engineered Foods - Are They Safe? You Decide, by Laura and Robin Ticciati, Ph.D. Keats Publishing
Genetically Engineered Food: Changing the Nature of Nature.

by Martin Teitel, Ph.D., and Kimberly Wilson. Park Street Press, Inner Traditions

Hazard Identification of Agriculture Biotechnology: Finding Relevant Questions, by Ad van Dommelen, International Books.

Unnatural Harvest: How Corporate Science is Secretly Altering Our Food, by Ingeborg Boyens. Doubleday books.



...More in related WWWeb Sites

Ag BioTech InfoNet, www.biotech-info.net

Council for Responsible Genetics, www.gene-watch.org

Center for Food Safety, www.centerforfoodsafety.org

CropChoice for farmers, www.cropchoice.com

Edmonds Institute, www.edmonds-institute.org

Fight Frankenfood, <http://fightfrankenfood.com>

Mothers & Others, www.mothers.org

Mothers for Natural Law, www.safe-food.org

NERAGE: <http://www.bckweb.com/nerag>

New York Greens, nys.greens.org/ge

Organic Consumers Association, www.purefood.org

Prince of Wales, www.princeofwales.gov.uk

Rural Advancement Federation, Int., www.rafi.org

SAGE: www.sage-intl.org

The Campaign, www.thecampaign.org

Turning Point Project, www.turnpoint.org

Union of Concerned Scientists, www.ucsusa.org

...More in Related Video Tapes

"Guideposts for a Sustainable Future: Tools for Environmental Recovery" by Mike Nickerson w/George Mully; 613-269-3500.

"Risky Business: Biotechnology and Agriculture" by Mark Dworkin and Melissa Young. 1-800-543-3764.

"The Right to Know" by Steve Wilson and Jane Achre, 25400 U.S. 19 North Suite 192, Clearwater, FL 33763. \$4 donation for video tape and duplication cost only. 1-800-355-3237.

Help Out

Grassroots Organizations

Local

Albany Environmental Advocates, 353 Hamilton St., Albany, NY 12210. Call 518-462-5526 for Jamie Contois (ext. 242) or Audrey Their (ext.236) <jcontois@envadvocates.org>

Brooklyn Brooklyn Biotechnology Action Network. Contact: Trish Doherty. Call 212-946-1619.

Ithaca Ithaca Safe Food Campaign, PO Box 634, Ithaca, NY 14851. Contact: Tony Del Plato. <tdelplat@twcny.rr.com>

Lower Hudson Valley New York Biotech Action Network. Contact: Andy Zimmerman, 914-478-8639.

Mid-Hudson Valley Contact: Mike Montella, 914-658-8904 <bootmedia@netstep.net>

Rochester The Rochester Fishberries, Rochester, NY. Call 716-461-1071. <fishberries@hotmail.com>

Syracuse Root Media, 205 Basset St., Syracuse, NY 13210. Contact: Adrienne, 315-423-4783. <ace@rootmedia.org>

Regional

Western/Central New York: Ground Score, PO Box 191, Retsof, NY 14539. Contact: Eric Bradshaw, 716-271-3003.

New York State: NYS Greens, Dunleamark@aol.com, 156 Big Toad Way, Poestenkill NY 12140. Contact: Mark Dunlea, 518 286-3411

Northeastern United States: N.E.R.A.G.E.. Institute for Social Ecology, Biotechnology Project, Northeast Resistance Against Genetic Engineering, 1118 Maple Hill Road, Plainfield, VT 05667 (802) 454-9957 <nerage@sover.net>

National

Alliance for Bio-Integrity, 406 W. Depot Ave., Fairfield, Iowa 52556, Tel. (515) 472-5554. www.biointegrity.org

BioDemocracy, 6114 Hwy 61, Little Marais, MN 55614, Tel. 1-800-REAL-FOOD, Fax: (218) 226-4157

The Center for Food Safety, 666 Pennsylvania Ave, SE, Suite 302, Washington DC 20003, Tel. (202)547-9359 Fax: (202)547-9429

Greenpeace, 702 H Street NW, Washington, DC 20001 1-800-326-0959. www.greenpeaceusa.org

Mothers & Others: 40 West 20th, Street, New York, NY 10011.

Mothers for Natural Law, The Natural Law Party, P. O. Box 1900, Fairfield, Iowa 52556. Tel. 515-472-2040, Fax 515-472-201,

<mothers@natural-law.org>

Organic Consumers Association, 3547 Haines Rd., Duluth, MN 55811. Tel. (218) 726-1443, Fax (218) 726-1446

The Campaign to Label Genetically Engineered Foods, P.O. Box 55699 Seattle, WA 98155. Tel. (425) 771-4049, Fax: (603) 825-5841, www.thecampaign.org <label@thecampaign.org>

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The GE Food Information Campaign is intended to educate the public on the issues surrounding genetically engineered food. "Frosted Fakes" cereal box by Greenpeace. Used with permission. Pages 2-5 and 7-8 are part of The Campaign's Take Action Packet. Contact Info for The Campaign appears above. The back page "coupons" produced by the Bay Area Resistance Against Genetic Engineering (BayRAGE), The Long Haul, 3124 Shattcuk Ave., Berkeley, CA 94705. Used with permission. -Thanks to all.

Organic foods at risk

One of the best (and only) ways to avoid genetically engineered foods in the United States is to eat organically grown food. Organic foods are regarded by many people as more nutritious and delicious than their non-organic counterparts. Unfortunately, GE foods are creating a number of problems for organic growers.

1. Genetically engineered crops may contaminate organic fields.

Organic growers have warned for a long time that it is impossible to avoid seed and pollen pollution from genetically engineered crops. After all, wind carries seeds, and bees can carry contaminated pollen to fields three miles away.

In 1999, their fears were confirmed when Terra Prima, a Wisconsin organic chips exporter, was forced to destroy 87,000 bags of chips at a cost of \$147,000. A European importer discovered that they were contaminated with genetically engineered corn.

"Organic agriculture and genetically modified farming have both been growing rapidly. The collision of the two is inevitable," says Katherine DiMatteo, head of the Organic Trade Association. "We will probably as an industry begin lobbying for more regulations because this problem is developing so rapidly."

2. GE crops threaten one of organic farmers' most important tools.

Organic farmers do everything they can to eliminate pesticide use. But sometimes they use Bt (*Bacillus thuringiensis*) as a last resort. Bt is a naturally occurring pesticide that is considered to be less harmful than most manmade pesticides.

Biotech companies have created genetically engineered potatoes and corn that produce Bt in every cell. Now millions of acres of these crops have been planted. Scientists fear that the pesticide will lose its effectiveness through overuse, and that pests will develop resistance to it. Organic growers will have lost one of their weapons of last resort.

3. Biotech companies have shown a desire to tap into organic markets.

Organic activists remember 1998 as the year commercial interests attempted to squeeze genetically engineered foods, irradiated foods and foods grown in toxic sewage sludge into the definition of "organic." The U.S. government proposed including these kinds of foods in a new "organic standard." It was only after hundreds of thousands of Americans—one of the biggest activist efforts in years—wrote letters and petitioned the government to keep organic foods pure that officials dropped GE, irradiated and sewage sludge foods from the definition.

Many activists believe that biotech companies wanted to be included in the organic definition so they could tap into a burgeoning market that is growing at 20 percent per year.

Isn't the government supposed to protect us?

You might think that the U.S. government would do everything in its power to ensure that genetically engineered foods are safe for consumers and the environment. After all, the government is supposed to protect its citizens. However, this thought would be naive.

In the case of biotechnology, the U.S. government is acting more on behalf of wealthy and powerful special interests than for the common citizen. Here's what is going on:

The U.S. Department of Agriculture has acted like a cheerleader supporting Frankenfoods.

The USDA, under the Federal Plant Pest Act (FPPA), has the responsibility of overseeing genetically engineered crops. Companies that want to commercialize crops must petition the USDA. But many critics believe that USDA's oversight is insufficient, and that risky GE crops are going to market without sufficiently rigorous safety testing.

Agriculture Secretary Dan Glickman, in fact, has come across as one of biotech's biggest fans... instead of an unbiased protector of the people. For example, he has called the European Union's resistance to GE foods "culturally biased" and "scientifically unfounded," and has urged the EU to recognize the legitimacy of the "Second Green Revolution." In a June 1997 speech, he argued that the world must accept the American view that genetic engineering is safe and a critical piece in preventing world hunger.

The FDA ignored warnings about the safety of GE foods from their own scientists.

The FDA has consistently maintained that GE foods are safe, even though many scientists disagree. In June 1999, the Alliance for Bio-Integrity—one of the parties in a lawsuit against the FDA to force the agency to label GE foods—received internal FDA documents that show that some of the FDA's own scientists have doubts about the safety of GE foods.

According to the Alliance, "so strong was the FDA's motivation to promote the biotech industry that it not only disregarded the warnings of its own scientists about the unique risks of gene-spliced foods, it dismissed them and took a public position that was the opposite."



Up in arms: The world reacts to “Frankenfoods”

Genetic engineering has run into a major hurdle around much of the globe: strong public opposition. European citizens routinely tear up GE crops. European supermarkets remove genetically engineered foods from their shelves. Third World farmers rally against GE technology. And people in many countries around the world have successfully lobbied for labeling of GE foods. The response in the United States has been more subdued. But efforts here are picking up steam.

A quick look at some of the global opposition to genetically engineered foods:

GM crops uprooted in Europe, and now America

In what some claim are acts of nonviolent civil disobedience and others call vandalism, protesters have torn up dozens of GE plots in England and other European nations to protest the rise of biotechnology. In Britain, activists ripped several acres of genetically modified rape seed from a farm, and set up a flagpole and 20-foot scaffolding tripods to continue their protest. In France, protesters destroyed a small parcel of genetically mutated rape seed in southwest France.

United States farmlands have also begun to feel the wrath of GE opponents. In Vermont, for example, people cut down a 50-square-foot section of corn plants, and left three large, brightly colored cutouts of Monarch butterflies in their place (Cornell University laboratory tests last year showed that GE corn may be deadly to the Monarchs). Several similar incidents have occurred around the country.

Third World countries speak out against GE foods

In the spring of 1999, 500 farmers from India and other south Asian nations caravanned to Europe on a one-month tour to protest globalization, corporate rule and GE foods. At a protest in Britain, they said farmers in the developing world neither want nor need GE technology. Third World farmers have been particularly outspoken against “terminator” seed technology, which would force millions of farmers to buy seed from biotechnology corporations year after year.

European Supermarkets race to eliminate GE foods from their shelves

Throughout the first half of 1999, supermarket chains throughout Europe raced to remove all GE ingredients from their stores. Most major chains in Britain, and many of the biggest chains throughout the rest of Western Europe, no longer sell GE goods. In Britain, restaurants and pubs must now indicate any items on their menu that are made with GE ingredients (failure to comply can bring fines of up to \$8,000).

Gerber declares it will keep its baby food GE free

The U.S. baby-food giant, Gerber, shocked food analysts and activists in August 1999 when it announced that it would no longer use genetically engineered ingredients in its baby foods. Gerber also announced that it would replace GE corn with organic corn.

The announcement was all the more surprising considering that Gerber is owned by Novartis, one of the world’s largest companies involved in GE food until it announced in September 1999 that it was getting out of the business.

The move, which means Gerber is abandoning some of its long-standing corn and soy bean suppliers, will increase costs for the company—both in broken contracts and the purchase of more expensive organic ingredients. But given the emotive nature of baby food, Gerber decided the move was worth it.

Al Piergallini, president of Novartis’s U.S. consumer health operation, said: “I have got to listen to my customers. So, if there’s an issue, or even an inkling of an issue, I am going to make amends. We have to act preemptively.”

Americans increasingly call for labeling

In the summer of 1999, Mothers for Natural Law and other groups submitted petitions to Congress with 500,000 signatures calling for labeling of genetically engineered foods. The Campaign to Label Genetically Engineered Foods has encouraged thousands more to write letters to members of Congress as well as other government officials. Surveys show that while a majority of Americans aren’t aware of the issue, when they are informed, they strongly support labeling.



Support the New York State Moratorium on Genetically Modified Crops!

The moratorium would make New York farmland a GE/GMO-Free zone for the next five years. We need at least this much time for independent, scientific study of genetically modified foods.

Call your State Senator (518) 455-2800 and ask them to support S. 6899, sponsored by Senator LaValle. Call your Assembly member (518) 455-4100 and ask them to support A. 9871, sponsored by Assembly member McEneny.

Write a Letter: (sample letter appears on the right) The address for all State Legislators is: LOB, Albany NY. The zip is 12247 for the State Senate and 12248 for Assembly. You can also write to Senate Majority Leader Joseph Bruno and Assembly Speaker Sheldon Silver. The address for Governor Pataki is State Capitol, Albany NY 12224.

Support the National Genetically Engineered Food Right to Know Act!

The GE Food Right to Know Act would finally require labeling of GE Food. If passed, we would have the knowledge to make the choices we need to make to protect ourselves and our children from the potentially disastrous effects of GE food.

Call your U.S. Senator at (202) 224-3121 and urge them to vote for S. 2080, sponsored by Senator Boxer Call your U.S. Representative also at (202) 224-3121 and urge them to vote for H.R. 3377, sponsored by Representative Kucinich.

Call the Companies Using GMOs in Food and Tell them to Stop!

General Mills	1-800-328-1144
Healthy Choice	1-800-323-9980
Kelloggs	1-800-962-1413
Kraft	1-800-543-5335
Nabisco	1-800-862-2638
Nestle	1-800-452-1971
Proctor & Gamble	1-800-595-1407
Quaker Oats	1-800-367-6287

Sample Letter on the NYS Moratorium on Genetically Modified Crops (by the NYS Greens)

Your address
Dear Senator _____

I am writing to urge your sponsorship of the legislation (A9871 McEneny / S.6899 LaValle) to enact a five year moratorium on the planting or growing of genetically modified crops for five years (from January 1, 2001). Genetically modified crops are produced from plant varieties created using techniques that alter the molecular or cell biology of an organism by means that are not possible under natural conditions or processes.

A moratorium would give the government and researchers time to evaluate the potential risks to human health and the environment. Potential hazards include: the development of insect and weed resistance to pesticides (e.g., superweeds); injury or death of non-target species; crop loss from seeds that do not yield as expected or that produce crops with unexpected characteristics; and allergenicity, toxicity, or decreased nutritional value of genetically modified crops.

Dramatic increases in the planting and consumption of such crops over the past several years have far outpaced our understanding of their immediate and long-term effects. Nationwide, one-fourth of US cropland contains genetically modified crops, including more than 35% of all corn. More than 50 genetically engineered crops have been approved by the USDA, including potatoes, tomatoes, melons and beets. USDA does not presently require any health or safety tests before genetically engineered crops are marketed, leaving it to biotech firms to decide whether they are safe.

Foods produced from GE crops are increasingly being rejected by distributors, processors, retailers and consumers alike in both domestic (e.g., Frito Lay; Gerber and Heinz baby food) and international markets (e.g., European Union). The growth of genetically modified crops in New York State thus places all state farmers at risk in the marketplace: both those who intentionally plant genetically modified crops, and those whose conventional crops can be unintentionally contaminated by GM crops. The pollen from corn, one of the most frequently genetically modified crops, can be carried by the wind for many miles (one study found traces 93 miles away). U.S. corn exports to Europe have virtually stopped due to the GMO issue, a loss of over \$300 million. Such cross-pollination is also a major problem for organic farmers.

A moratorium on the planting and growing of genetically modified crops in New York State will enhance the value and protect the reputation of New York State's agricultural products, conferring a significant marketing advantage while preserving the state's ecological health. The legislation requires the state Department of Agriculture and Markets to prepare a marketing plan that uses the moratorium as a promotional tool for New York State agricultural products.

I am also urging you to help pass the legislation (A2668 / S5782) to require milk with the recombinant bovine growth hormone (rBGH) to be labeled as such.

Please let me know your position on this legislation.

Sincerely,

Recent Victories

March: Biodevastation 2000 in Boston, MA was the largest protest against genetic engineering / biotechnology in the Western world.

April: The Wall Street Journal reported that McDonald's has told its suppliers not to grow genetically engineered potatoes.

May: Genuardi's, the second largest supermarket chain in Pennsylvania announced the removal of genetically engineered ingredients from its house brands and called for labeling of all genetically engineered foods.

1999-2000: Gerber, Heinz, Iams, Whole Foods, Wild Oats, Seagram's, Frito-Lay, and several smaller food companies announced at least a partial phase-out of transgenic ingredients, and/or genetically modified organisms.

Are You Drinking Monsanto's Growth Hormones in Your Milk?

Monsanto's virtually untested growth hormone for cows (synthetic BGH) ends up in much of America's milk these days. Are you drinking it now?

from Ground Score, Vol2, Issue 3, Spring 2000

Monsanto's version of the Bovine Growth Hormone (BGH), Posilac, is injected into cows to stimulate the production of another hormone called IGF-1, speeding up the cow's metabolism to ultimately increase milk production up to 30 percent.

Banned in Canada, New Zealand, and most of Europe, Posilac has been linked to udder infections in cows and to colon and breast cancer in humans.

Scientists suggest the extra IGF-1 hormones produced may cause breast and colon cancers, but the FDA sticks to the statement it made when it approved Posilac in 1993, "The public can be confident that milk and meat from BGH-treated cows is safe to consume."

Independent research on Posilac showed hundreds of cows suffering from mastitis, an infection of the cow's udders. The Posilac label plainly states, "...use of Posilac is associated with increased frequency of the use of medication in cows for mastitis..." If left untreated, the infection can get into the cow's milk. Dairy farmers trying to cure mastitis with antibiotics are adding *that* to the milk. Down the road, this can make milk drinkers resistant to antibiotics.

The same St. Louis-based corporation that gave the U.S. Agent Orange; Monsanto, is the world's largest agrochemical, second-largest seed, and fourth-largest pharmaceutical firm in the world. In early 2000, Monsanto became a division of an even larger company,

Right after Monsanto started marketing Posilac,

several dairies that *didn't* use it began to label their products as BGH free. Monsanto filed lawsuits against two smaller dairies and eventually forced them to stop labeling their products to indicate use, or non-use of BGH. The company then sent follow-up letters to other dairies with news of the successful lawsuits. This stopped most dairies from labeling their products one way or the other.

Labeling of milk containing BGH is *not* required by the FDA. And since the vast majority of milk in the U.S. is co-mingled in tanks with other milk from other cows, the public has no way to tell which carton of milk has growth hormones in them and which do not. In fact, the majority of grocery store shoppers are getting hormones in every jug of milk they buy.

CBC television in Canada quoted a Canadian health official as saying Monsanto offered her \$1-2 million if her government committee would recommend the hormone's approval in Canada without further data or studies of the drug. Monsanto said that was a "blatant untruth", but the Canadian Broadcasting Company stands by its story.

Dr. Samuel Epstein, a scientist at the University of Illinois School of Public Health said about BGH in milk, "...there are highly suggestive if not persuasive lines of evidence showing that consumption of this milk poses risks of breast and colon cancer."

Dr. Epstein holds three medical degrees, has written eight books, and is a frequent advisor to Congress about environmental causes of cancer. He, like Dr. William von

Meyer say there is a growing body of scientific evidence of a link between IGF-1 and human cancers. Dr. von Meyer has over 30 years experience in the study of chemical products and their effects on humans.

Interviews with Dr. Epstein and Dr. von Meyer were recorded on videotape by two Florida reporters in a investigative news series killed by Fox news under pressure from Monsanto. After 72 "unacceptable" re-writes of the script, the reporters, Steve Wilson and Jane Akre, were fired. They are currently suing Fox Television. The original, rejected, news script (5-part series), including interviews with leading scientists, the FDA, dairy farmers and grocery store chain executives appears on the web at www.foxbghsuit.com. Footage from the news series is being sold on video for a four dollar fee -to cover the cost of the tape. Wilson and Achre are refrained from making money on the video. Call 1-800-355-3237



Petition To Wegmans & Tops Grocery Stores for Notification of Genetically Engineered Food

We, the undersigned, are requesting identification in your stores, of which foods and food products are genetically engineered and which are not.

We believe genetic engineering of food and food products pose a threat to human health, a threat to the environment and a threat to sustainable agriculture. Genetically engineered foods increase risk of food allergies, increase human resistance to many antibiotics, lowers the nutritional value of food and fosters the creation of new viruses.

In addition, the Bovine Growth Hormone found in milk and milk products may increase cancer risk. Genetically engineered agriculture destroys the ability of crops to reproduce, kills beneficial insects, damages soil fertility, and creates weeds and pests that are immune to pesticides.

Please identify which foods and food products in your stores are genetically engineered and which are not, so that we may avoid the foods and food products we find harmful.

Name (print)_____ Signature_____

Address_____ City_____ State_____ Zip_____

Name (print)_____ Signature_____

Address_____ City_____ State_____ Zip_____

Name (print)_____ Signature_____

Address_____ City_____ State_____ Zip_____

Name (print)_____ Signature_____

Address_____ City_____ State_____ Zip_____

Name (print)_____ Signature_____

Address_____ City_____ State_____ Zip_____

Name (print)_____ Signature_____

Address_____ City_____ State_____ Zip_____

Send Petition to: Ground Score, PO Box 191, Retsof, NY 14539

VALUE

YOUR FAMILY'S HEALTH...

Avoid Frankenfoods.

Genetically engineered (GE) foods are at a store near you! GE technology is the radical departure from traditional plant and animal breeding that can combine genes from vastly different organisms to make a novel organism.

81% **60%**

of people want labeling of
genetically engineered foods.

— *Time Magazine*, January 1999

— *Mothers for Natural Law*

10%

of cows are given BGH.

— *Union of Concerned Scientists*

IGF-1, a hormone that has been linked to breast, prostate, and other cancers in humans. Who created BGH? Monsanto, the company that brought us Agent Orange and PCBs. Now they're trying to keep us unaware of what's in our milk: Monsanto sued dairies that labeled their milk "BGH-free." A documentary film revealing improper FDA testing of BGH was pulled from broadcast when Monsanto sent a letter threatening "dire consequences" to the Fox TV station slated to air the documentary.

Studies link BGH milk and increased cancer risk

Kraft, McDonalds, Nestlé, Dannon, Häagen Dazs, and Nabisco are just a few of the companies reported to be using dairy products from BGH (recombinant Bovine Growth Hormone)—treated cows. Though this hormone has been rejected by nearly every country except the U.S., cows here are given BGH to increase milk production. Those treated with BGH are prone to infertility and infection of the udder. The milk you drink from treated cows contains higher levels of



50%

of U.S. soy crops are
Roundup Ready.

— *Chemical & Engineering News*
11/1/99

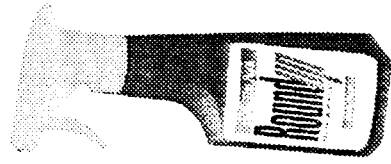
nutritious soybean. Despite claims that Roundup is safe, it is known to have serious health and environmental consequences. This type of herbicide is one of the most common causes of pesticide-related illness among agricultural workers.

There are a lot of unanswered questions about the safety of genetically engineered foods. Consumer groups believe that GE foods should be labeled as such, if they are allowed to be sold at all.

Ready for the Last Roundup?

By the year 2000, Monsanto aims to have 100% of U.S. soybean crops planted in Roundup Ready Soy, a genetically engineered soybean resistant to Monsanto's own best-selling chemical herbicide, Roundup. Farmers will now be able to increase their use of the chemical without killing their Roundup Ready crop.

What do you as a consumer get from Roundup Ready Soy? *More poisons in your food, in the soil and water, and a less*



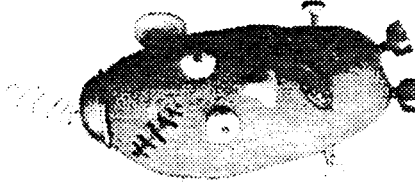
98 million
acres of farmland are
planted in GE crops.

— *Chemical & Engineering News*
11/1/99

FDA: Let Them Eat Pesticide!

You can't wash the pesticides off of these potatoes. Some crops are now being engineered to contain pesticides within every cell of the plant. Companies are currently experimenting with a toxic bacterium called *B.t.* (*Bacillus thuringiensis*). Foods genetically engineered with *B.t.* are virtually unregulated. The FDA claims that *B.t. potato* is a pesticide rather than a food, thus outside of their jurisdiction.

Though a bacterium, *B.t.* is also a toxin, and its long term effects on human health are unknown. More than 20 distinguished scientists have recognized the validity of a recent study which linked genetically modified potatoes to immune deficiency and abnormal growth in mice. Crops modified to contain *B.t.* have been found to kill beneficial insects and Monarch butterflies. Furthermore, organic farmers are concerned that *B.t.* crops will create "superbugs" insects resistant to natural controls.



FREE Are Tomatoes Vegetarian?

By looking at these tomatoes you have no way of knowing that they may contain the DNA of flounder or North Atlantic shellfish. In an attempt to bring us tomatoes that can grow even in cold climates, scientists have added cold tolerant genes from organisms living in the coldest ocean waters. With this "new and improved" tomato, agribusiness companies are putting the public at risk of possibly fatal allergic reactions to the fish proteins inserted in the genetically engineered tomato.

In this new world of bizarre hybrids, vegetarians and followers of religious dietary restrictions face the prospect of unwittingly eating fruits and vegetables that contain genetic material from animals. Genetic technology's break down of our fundamental natural barriers not only threatens us with health risks, it also poses complex ethical questions.

