

## **Eating genetically modified food is gambling with your health**

By Jeffrey M. Smith, author of *Seeds of Deception: Exposing Corporate and Government Lies about the Safety of Genetically Engineered Foods*, ([www.seedsofdeception.com](http://www.seedsofdeception.com))

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Genetically modified foods are those which have foreign genes inserted into their DNA. While scientists originally assumed that the inserted genes would only add a particular desired trait to the crop, new evidence suggests that the host's normal natural genes can get switched off, turned on permanently, damaged, or altered in the process. And that's just some of the many ways that GM foods may create unpredicted and potentially dangerous side effects.

A January 2001 report from an expert panel of the Royal Society of Canada said it was "scientifically unjustifiable" to presume that GM foods are safe, and that the "default prediction" for any GM foods is the creation of unintended side effects. They called for safety testing, looking for short- and long-term human toxicity, allergenicity, and other health effects.<sup>1</sup>

Unfortunately, there have only been about a dozen peer-reviewed animal feeding safety studies. The most in-depth one showed evidence of damaged immune systems, digestive problems, and excessive cell growth in rats fed an experimental GM potato. Rats also had smaller brains, livers, and testicles. The scientists identified the *process* of genetic modification as the probable cause—the same process used in creating most GM food on the market.<sup>2</sup> When the scientist went public with his findings, he was fired from his job after 35 years, and silenced with threats of a lawsuit. Unfortunately, no published study has yet tested the GM food on the market to see if they create these same damaging effects in laboratory animals or humans.

Rats fed the genetically modified FlavrSavr tomato developed stomach lesions. Seven of forty rats died within two weeks. The crop was approved, but has since been taken off the market.

The only human feeding trial ever conducted confirmed that the transgenes from soy burgers and a soy milkshake transferred to the bacteria inside the digestive tract after only one meal, making the bacteria resistant to herbicide.<sup>3</sup> (The biotech industry had previously said that such a transfer was impossible.) The World Health Organization, the British and American Medical Associations, and several other groups have expressed concern that if the "antibiotic resistant marker genes" used in GM foods got transferred to bacteria, it could create *super-diseases* that cannot be treated with antibiotics.<sup>4</sup>

Likewise, if the gene engineered in corn to create the Bt pesticide were to jump to bacteria, it might be transforming our gut bacteria into living pesticide factories. Would this be harmful? Mice fed the Bt pesticide developed immune responses equal to that created by cholera toxin. Mice also had an adjuvant response, which can increase their susceptibility to allergies. Some developed abnormal cell growth in their small intestines. Farm workers exposed to Bt developed skin reactions and antibody responses in blood tests. Thirty-nine Philipinos living next to a Bt cornfield developed skin, intestinal, and respiratory reactions while the corn was pollinating. Preliminary tests of their blood showed an immune response to Bt.

If the promoter, inserted into DNA to keep the foreign gene permanently turned on, were to transfer to human gut bacteria or internal organs, the results may be far more dangerous. Promoters can unintentionally switch on other naturally occurring genes in the DNA, causing them to pump out potentially toxic or allergenic proteins. They may also create a "hotspot," a

point of genetic instability that can wreak havoc on DNA structure and function. Some scientists believe that promoters might switch on dormant viruses that have become embedded within the DNA, or might even generate uncontrolled cell growth that could theoretically lead to cancer. (Evidence of cell growth was discovered in three of the published animal feeding studies on GM foods.) On February 22, the Norwegian Institute for Gene Ecology announced the sobering news that intact promoters were found in rat tissue two hours, six hours, and three days after rats were fed a single meal with GM material. They also verified that the promoter does work inside human DNA, in vitro.

In the 1980's a deadly epidemic was traced to the food supplement L-tryptophan, created from genetically modified bacteria. About 100 Americans died and an estimated 5-10,000 fell sick—some were permanently disabled. Biotech proponents successfully diverted the blame away from genetic engineering by attributing the disease to changes in the filtration system at the factory. It is now known, however, that hundreds had contracted the disease from genetically modified versions of L-tryptophan created during the four years prior to the change in the filter.

The disease created by the contaminated L-tryptophan was acute, rare, and came on quickly. If all three of these characteristics had not been present, it is unlikely that doctors would have identified the supplement as the cause; it might still be on the market. This begs the question, Are there other genetically modified products on the market creating serious health problems that are not being traced?

According to a March 2001 report, the Center for Disease Control says 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 lots of newly introduced GM foods. Could that be contributing to the 5,000 deaths, 325,000 hospitalizations, and 76 million illnesses related to food each year? It's hard to say since there is no monitoring in place.

In the UK—one of the few places that do annual evaluations of allergy statistics—soy allergies skyrocketed by 50% just after GM soy was imported for the first time from the United States.<sup>5</sup> This might have resulted from the increased amount of the most common soy allergen, trypsin inhibitor, in the genetically modified Roundup Ready® soy<sup>6</sup> or perhaps from the protein in that soy that has never before been part of the human food supply.

Rats fed GM soy showed odd shaped cell nuclei in their livers. Rats fed GM canola had livers that were 15% heavier, and rats fed GM corn had several unexplained anomalies. Pigs fed GM corn on more than twenty farms in the Midwest developed false pregnancies and other reproductive problems. Twelve cows fed GM corn mysteriously died in Germany. And 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.

Milk and dairy products from cows treated with the genetically engineered bovine growth hormone (bGH) milk contain an increased amount of the hormone IGF-1, which is one of the highest risk factors associated with breast<sup>7</sup> and prostate cancer.<sup>8</sup>

One of the most dangerous aspects of genetic engineering is the closed thinking and consistent effort to silence those with contrary evidence or concerns. Just before stepping down from office, former Secretary of Agriculture Dan Glickman admitted the following:

“What I saw generically on the pro-biotech side was the attitude that the technology was good, and that it was almost immoral to say that it wasn't good, because it was going to solve

the problems of the human race and feed the hungry and clothe the naked. . . . And there was a lot of money that had been invested in this, and if you're against it, you're Luddites, you're stupid. That, frankly, was the side our government was on. . . . You felt like you were almost an alien, disloyal, by trying to present an open-minded view"<sup>9</sup>

Contrast this with the warning by the editors of *Nature Biotechnology*: "The risks in biotechnology are undeniable, and they stem from the unknowable in science and commerce. It is prudent to recognize and address those risks, not compound them by overly optimistic or foolhardy behavior."<sup>10</sup>

In spite of such warnings and the mounting evidence of potential dangers, the United States Food and Drug Administration claims that GM foods are no different and do not require safety testing. A manufacturer can introduce a GM food without even informing the government or consumers. Internal FDA documents made public from a lawsuit, however, reveal that agency scientists warned that GM foods might create toxins, allergies, nutritional problems, and new diseases that might be difficult to identify. They insisted that each GM variety should be subjected to long-term safety tests before being allowed on the market. How could the agency ignore their own scientists and put such a dangerous industry-friendly policy in place? One hint was that a former attorney to the biotech giant Monsanto was in charge of FDA policy making. Another hint comes from a memo by former FDA Commissioner David Kessler, who described the agency's policy as "consistent with the general biotechnology policy established by the Office of the President." He said, "It also responds to White House interest in assuring the safe, speedy development of the U.S. biotechnology industry."<sup>11</sup>

Thus, the biotech companies themselves determine if their own foods are safe. While they voluntarily submit studies, according to the Center for Science in the Public Interest, they contain "technical shortcomings in the safety data . . . as well as some obvious errors that the FDA failed to detect."<sup>12</sup> There are also a handful of published industry-sponsored studies. But many scientists describe these as "designed to avoid finding any problems."<sup>13, 14</sup> With soybean research, for example, serious nutritional differences between GM and natural soy were omitted from a published paper. Feeding studies masked any problems by using mature animals instead of young ones and by diluting their GM soy 10 to 1 with non-GM protein. A laboratory was instructed to use an obsolete and less precise method to detect phytoestrogens. Milk was pasteurized 120 times longer than normal and corn was heated four and a half times longer. GM corn would not pass the FAO/WHO recommended tests designed to prevent allergenic GM crops from getting on the market.

Many of the key assumptions used as the basis for industry and government safety claims have been proven wrong or remain untested. Although they continue to promote the myth that GM foods are needed to feed the world, according to United Nations food production statistics, this is not true.<sup>15</sup> Furthermore, GM crops *increase* reliance on agricultural chemicals<sup>16</sup> and actually *reduce* average yields<sup>17</sup>. And the economic impact from growing GM crops has been a disaster. A close examination of the data provides a compelling case why these foods should never have been approved, and why eating them is gambling with your health.

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<sup>1</sup> "Expert Panel on the Future of Food Biotechnology," January, 2001:  
<http://www.rsc.ca/foodbiotechnology/GMreportEN.pdf>

<sup>2</sup> John Vidal, "GM genes found in human gut," *The Guardian*, July 17, 2002:  
<http://www.guardian.co.uk/gmdebate/Story/0,2763,756666,00.html>

<sup>3</sup> "The Impact of Genetic Modification on Agriculture, Food and Health," *BRITISH MEDICAL ASSOCIATION, Board of Science and Education, May 1999*.

<sup>4</sup> Stephen R. Padgett and others, "The Composition of Glyphosate-Tolerant Soybean Seeds Is Equivalent to That of Conventional Soybeans," *The Journal of Nutrition*, vol. 126, no. 4, April 1996 (Also see data taken from the journal archives, as it had been omitted from the published study.)

<sup>5</sup> Mark Townsend, "Why soya is a hidden destroyer," *Daily Express*, March 12, 1999.

<sup>6</sup> Stephen R. Padgett and others, "The Composition of Glyphosate-Tolerant Soybean Seeds Is Equivalent to That of Conventional Soybeans," *The Journal of Nutrition*, vol. 126, no. 4, April 1996 (Also see data taken from the journal archives, as it had been omitted from the published study.)

<sup>7</sup> S. E. Hankinson, and others, "Circulating concentrations of insulin-like growth factor 1 and risk of breast cancer," *Lancet*, vol. 351, no. 9113, 1998, pp. 1393-1396.

<sup>8</sup> June M. Chan and others, "Plasma Insulin-Like Growth Factor-1 [IGF-1] and Prostate Cancer Risk: A Prospective Study," *Science*, vol. 279, January 23, 1998, pp. 563-566.

<sup>9</sup> Bill Lambrecht, *Dinner at the New Gene Café*, p. 139.

<sup>10</sup> "Expert Panel on the Future of Food Biotechnology," January, 2001:  
<http://www.rsc.ca/foodbiotechnology/GmreportEN.pdf>

<sup>11</sup> David Kessler, "FDA Proposed Statement of Policy Clarifying the Regulation of Food Derived from Genetically Modified Plants—DECISION," March 20, 1992, [www.biointegrity.org](http://www.biointegrity.org).

<sup>12</sup> "Plugging The Holes in Biotech Food Safety," Center for Science in the Public Interest, Press Release, January 7 2003.

<sup>13</sup> Sheldon Rampton and John Stauber, *Trust Us We're Experts*, Jeremy P. Tarcher/ Putnam, New York, 2001, p154

<sup>14</sup> Jeffrey M. Smith, *Seeds of Deception*, Yes! Books, Fairfield, IA, 2003, pp. 34-38.

<sup>15</sup> "Expert Panel on the Future of Food Biotechnology," January, 2001:  
<http://www.rsc.ca/foodbiotechnology/GMreportEN.pdf>

<sup>16</sup> Charles Benbrook, "Impacts of Genetically Engineered Crops on Pesticide Use: The First Eight Years," *BioTech InfoNet Technical Paper Number 6*, November 2003, [http://www.biotech-info.net/Technical\\_Paper\\_6.pdf](http://www.biotech-info.net/Technical_Paper_6.pdf).

<sup>17</sup> Charles Benbrook, "Evidence of the Magnitude and Consequences of the Roundup Ready Soybean Yield Drag from University-Based Varietal Trials in 1998," *Ag BioTech InfoNet Technical Paper Number 1*, July 13, 1999:  
[http://www.biotech-info.net/RR\\_yield\\_drag\\_98.pdf](http://www.biotech-info.net/RR_yield_drag_98.pdf)