



SAFE BIOTECH FOODS ON OUR PLATES

“Genetic modification of crops is not some kind of witchcraft; rather, it is the progressive harnessing of the forces of nature to the benefit of feeding the human race.”

Dr. Norman E. Borlaug, Nobel Peace Prize Laureate

Today, Americans experience one of the safest and most abundant food supplies in the world’s history. Over the past decade, agricultural biotechnology has played a role in improving plant productivity and crop quality, increasing farmer income, and supporting stewardship of the land, while contributing to a safe food supply. Biotech crops have been cultivated for more than 10 years, and eaten by billions of people, without one single documented health problem. This is a remarkable food safety record, which is consistent with safety conclusions drawn from pre-market scrutiny and testing of biotech crops and foods.

What Testing is Conducted to Ensure Food Safety?

- ❖ **Pre-Market Scrutiny.** Virtually all the foods we eat today have been derived from plants or animals that farmers and livestock producers have “genetically modified” through centuries of conventional breeding techniques and artificial selection in the course of domestication.¹ Centuries of experience have provided farmers and plant breeders with knowledge of the source of some food safety issues, such as disease-causing microbes, or the presence of toxins in foods (typically proteins that behave as poisons) or allergens (proteins that inappropriately stimulate the body’s immune system to mount an excessive reaction). While biotech crops can be just as susceptible to disease-causing microbes, allergens, and toxins, as can conventionally bred crops and hybrids, rigorous pre-market scrutiny of biotech crops at multiple levels help to ensure such potential risks are eliminated.
- ❖ **Strong Regulatory Oversight.** Developing new varieties of plants to use as food is a lengthy process with many steps, each of which incorporates safety assurance and quality control measures. Under U.S. law the responsibility to ensure the safety of all food falls on the shoulders of food producers, and is enforced by the U.S. Food and Drug Administration (FDA) and USDA’s Food Safety and Inspection Service (FSIS). Biotech foods undergo detailed scrutiny by FDA, with evaluations of their

¹ Hancock, J.F. 2004. *Plant Evolution and the Origin of Crop Species*, second edition. CAB International, Wallingford, United Kingdom.

composition and characteristics.² At the conclusion of the consultation process between the food producer and FDA, if no significant differences are found between the “bioengineered” food and its conventional counterpart, the conclusion is reached that it is “substantially equivalent” and no further analysis is required. If differences are found or reasonably suspected, such as the presence of novel toxins or allergens, then appropriate further evaluation and risk management measures are triggered, including mandatory labels to inform consumers.³

In terms of long-term safety evaluations of biotech foods, the U.S. General Accounting Office (GAO) determined that:

Monitoring the long-term health risks of GM foods is generally neither necessary nor feasible, according to scientists and regulatory officials we contacted. In their view, such monitoring is unnecessary because there is no scientific evidence, or even a hypothesis, suggesting that long-term harm (such as increased cancer rates) results from these foods.

While the FDA “consultation” process is “voluntary” in that it is not required by law, it is unimaginable that a food company would expose itself to the potential legal jeopardy they would face if they did not consult with FDA. Consequently, the process is, in a real sense, *de facto* mandatory, and every biotech-derived food currently on the market has been rigorously examined under it.⁴ Biotech companies have long been on record in favor of making the process mandatory under law, and proposals are pending to accomplish this.

- ❖ Worldwide Agreement on Biotech Food Safety. Scientists around the world have reached a remarkable degree of agreement that biotech-derived foods are safe to eat. In fact, some international food safety organizations have even concluded that because of the strict regulatory oversight of biotech foods, they are probably even safer than conventional plants and foods.
 - **American Medical Association**. “Worldwide, many people are eating GM foods with no overt adverse effects on human health reported in the peer-reviewed scientific literature ... there is no scientific justification for special labeling of genetically modified foods, as a class, and that voluntary labeling is without value unless it is accompanied by focused consumer education ... [the AMA] encourages ongoing research developments in food biotechnology.”⁵
 - **American Dietetic Association**. “It is the position of the American Dietetic Association that agricultural and food biotechnology techniques can enhance the quality, safety, nutritional value, and variety of food available for human consumption and increase the efficiency of food production, food processing, food distribution, and environmental and waste management. The ADA

² U.S. Food and Drug Administration. *Guidance on Consultation Procedures: Foods Derived from New Plant Varieties*. <http://www.cfsan.fda.gov/~lrd/consulpr.html>

³ Currently, no biotech food products in the marketplace are derived from known allergens.

⁴ U.S. Food and Drug Administration. *List of Completed Consultations on Bioengineered Foods*. <http://www.cfsan.fda.gov/~lrd/biocon.html>

⁵ American Medical Association, Council on Scientific Affairs. *GM Crops and Foods*. 2000. <http://www.ama-assn.org/ama/pub/article/2036-4030.html>

- encourages the government, food manufacturers, food commodity groups, and qualified food and nutrition professionals to work together to inform consumers about this new technology and encourage availability of these products in the marketplace.”⁶
- **United Nations Food and Agriculture Organization.** “Biotechnology can contribute to meeting the challenges” faced by poor farmers and developing countries. The report also stated that biotech foods currently on the market are safe to eat.⁷
 - **World Health Organization, Food Safety Department.** “GM foods currently available on the international market have undergone risk assessments and are not likely to present risks for human health any more than their conventional counterparts.” The report also found that “the application of modern biotechnology in food and agriculture has the potential to reduce some problems associated with food insecurity.”⁸
 - **National Academy of Sciences’ Institute of Medicine.** Biotech crops do not pose any more health risks than do crops created by other techniques.⁹
 - **National Academy of Sciences, National Research Council.** “The committee is not aware of any evidence that foods on the market are unsafe to eat as a result of genetic modification.”¹⁰
 - **International Council for Science.** “Currently available genetically modified foods are safe to eat. Food safety assessment by national regulatory agencies in several countries have deemed currently available GM foods to be as safe to eat as their conventional counterparts and suitable for human consumption.”¹¹
 - **British Medical Association.** “The potential for GM foods to cause harmful health effects is very small and many of the concerns expressed apply with equal vigor to conventionally derived foods.”¹²
 - **Agence France de Securite Sanitaire des Aliments (French Food Agency).** Found that there are no problems, either in terms of allergic reaction or toxicity, that have ever been traced to biotech crops.¹³

⁶ American Dietetic Association, *Journal of the American Dietetic Association*, February 2006.

<http://download.journals.elsevierhealth.com/pdfs/journals/0002-8223/PIIS0002822305021097.pdf>

⁷ United Nations Food and Agriculture Organization. *The State of Food and Agriculture 2003-2004: Agricultural Biotechnology — Meeting the Needs of the Poor*. April 2004.

<http://www.fao.org/newsroom/en/news/2004/41714/index.html>

⁸ World Health Organization, Food Safety Department. *Modern Food Biotechnology, Human Health and Development: An Evidence-Based Study*. June 2005.

http://www.who.int/foodsafety/publications/biotech/biotech_en.pdf

⁹ National Academy of Sciences’ Institute of Medicine. *Safety of Genetically Modified Foods: Approaches to Assessing Unintended Health Effects*. July 2004.

http://books.nap.edu/catalog/10977.html?onpi_newsdoc07272004

¹⁰ National Academy of Sciences, National Research Council. *Genetically Modified Pest-Protected Plants: Science and Regulation*. 2000. <http://www.nap.edu/books/0309069300/html>

¹¹ International Council for Science. *New Genetics, Food and Agriculture: Scientific Discoveries — Societal Dilemmas*. http://www.icsu.org/1_icsuinscience/INIT_GMOrep_1.html

¹² British Medical Association. *Genetically Modified Foods and Health: A Second Interim Statement*. March 2004. [http://www.bma.org.uk/ap.nsf/Content/GMFoods/\\$file/GM.pdf](http://www.bma.org.uk/ap.nsf/Content/GMFoods/$file/GM.pdf)

¹³ Agence France de Securite Sanitaire des Aliments. July 2004.

<http://www.afssa.fr/Object.asp?IdObj=24912&Pge=0&CCH=040818145925:26:4&cwSID=A74571E02C5C4B34A9F1B04E08CDC51C&AID=0>

Additional Resources

- ❖ Fedoroff, Nina and N.M. Brown. *Mendel in the Kitchen: A Scientist's View of Genetically Modified Foods*. Joseph Henry Press, Washington, D.C., 2001.
- ❖ Hancock, J.F. *Plant Evolution and the Origin of Crop Species*, second edition. CAB International, Wallingford, UK, 2004.
- ❖ McHughen, Alan. *Pandora's Picnic Basket: The Potential and Hazards of Genetically Modified Foods*. Oxford, New York, 2000.
- ❖ Miller, Henry I. and Gregory Conko. *The Frankenfood Myth: How Protest and Politics Threaten the Biotech Revolution*. Praeger, Westport, Connecticut, 2004.
- ❖ Thomas, John A. and Roy L. Fuchs (eds). *Biotechnology and Safety Assessment*, third edition. Academic Press, New York, 2002.
- ❖ Zohary, Daniel and Maria Hopf. *Domestication of Plants in the Old World*. Oxford, New York, 2004.