

Genetically Engineered Corn May Cause Food Allergies

By Jeffrey M. Smith

The biotech industry is fond of bragging about their genetically modified (GM) crops that “resist pests.” This conjures up images of insects staying away from GM fields. But *resisting pests* is a euphemism for *contains its own pesticide*. When bugs take a bite of the GM plant, the toxin from the plant splits open their stomach and kills them.

The idea that we consume that same toxic pesticide in every bite is hardly appetizing. But the biotech companies insist that the pesticide, called Bt-toxin, has a history of safe use. Organic farmers, for example, have used solutions containing the natural form of Bt-toxin—produced from *Bacillus thuringiensis* bacteria—as a method of natural insect control. Genetic engineers simply remove the gene that produces the Bt in bacteria and insert it into the DNA of corn and cotton plants. Moreover, they claim that Bt-toxin is quickly destroyed in our stomach; and even if it survived, it won’t cause reactions in humans or mammals. Studies show otherwise.

Bt spray is dangerous, the GM version is worse

Mice fed natural Bt-toxin showed significant immune responses and caused them to become sensitive to other formerly harmless compounds. This suggests that Bt-toxin might make a person allergic to a wide range of substances.^{1,2,3}

Farm workers and others have also had reactions to natural Bt-toxin,^{4,5,6,7,8} and authorities acknowledge that “People with compromised immune systems or preexisting allergies may be particularly susceptible to the effects of Bt.”⁹ In fact, when natural Bt was sprayed over areas around Vancouver and Washington State to fight gypsy moths, about 500 people reported reactions—mostly allergy or flu-like symptoms. Six people had to go to the emergency room.^{10,11} Now, thousands of agricultural workers in India exposed to GM Bt cotton varieties are reporting those exact symptoms; they *don’t* react to natural cotton.¹²

The Bt-toxin produced in the GM plants is probably more dangerous than in its natural spray form. In the plants, the toxin is about 3,000-5,000 times more concentrated than the spray, it doesn’t wash off the plants like the spray does,^{13,14} and it is *designed* to be more toxic than the natural version.¹⁵ In fact, the GM toxin has properties of known allergens and fails all three GM allergy tests recommended by the World Health Organization (WHO) and others.¹⁶

GM pollen may cause allergies

Bt-toxin is produced in GM corn and can be eaten intact. It is also in pollen, which can be inhaled. In 2003, during the time when an adjacent Bt cornfield was pollinating, virtually an entire Filipino village of about 100 people was stricken by a disease. The symptoms included headaches, dizziness, extreme stomach pain, vomiting, chest pains, fever, and allergies, as well as respiratory, intestinal, and skin reactions. The symptoms appeared first in those living closest to the field, and then progressed to others by proximity. When the same corn was planted in four other villages the following year, the symptoms returned in all four areas—only during the time of pollination.

The potential dangers of breathing GM pollen had been identified in a letter to the FDA in 1998 by a UK government committee. They had even warned that genes from inhaled pollen might transfer into the DNA of bacteria in the respiratory system.¹⁷ Although no studies were done to verify this risk, years later UK scientists confirmed that after consuming GM soybeans, the foreign inserted genes transferred from the soy into the DNA of human gut bacteria. **If Bt genes from GM corn chips, for example, also transfer, it might convert our intestinal flora into living pesticide factories—continually producing Bt-toxin inside of us.**

Lab animals react to GM crops

Studies confirm that several GM crops engineered to produce built-in pesticides provoke immune responses in animals. A Monsanto rat study on Bt corn showed a significant increase in blood cells related to the immune system.¹⁸ Pesticide producing GM peas¹⁹ and potatoes²⁰ (not Bt) also provoked immune responses in rodents.

Allergic reactions are a defensive, often harmful immune system response to an external irritant. The body interprets something as foreign, different, and offensive, and reacts accordingly. All GM foods, by definition, have something foreign and different. According to GM food safety expert Arpad Pusztai, "A consistent feature of all the studies done, published or unpublished, . . . indicates major problems with changes in the immune status of animals fed on various GM crops/foods."²¹

In addition to immune responses, several studies and reports suggest that GM foods are toxic.

To learn more about the health dangers of GMOs, and what you can do to help end the genetic engineering of our food supply, visit www.ResponsibleTechnology.org.

To learn how to choose healthier non-GMO brands, visit www.NonGMOShoppingGuide.com.

International bestselling author and filmmaker Jeffrey Smith is the leading spokesperson on the health dangers of genetically modified (GM) foods. His first book, *Seeds of Deception*, is the world's bestselling and #1 rated book on the topic. His second, *Genetic Roulette: The Documented Health Risks of Genetically Engineered Foods*, provides overwhelming evidence that GMOs are unsafe and should never have been introduced. Mr. Smith is the executive director of the Institute for Responsible Technology, whose Campaign for Healthier Eating in America is designed to create the tipping point of consumer rejection of GMOs, forcing them out of our food supply.

¹ Vazquez et al, "Intragastric and intraperitoneal administration of Cry1Ac protoxin from *Bacillus thuringiensis* induces systemic and mucosal antibody responses in mice," *Life Sciences*, 64, no. 21 (1999): 1897-1912; Vazquez et al, "Characterization of the mucosal and systemic immune response induced by Cry1Ac protein from *Bacillus thuringiensis* HD 73 in mice," *Brazilian Journal of Medical and Biological Research* 33 (2000): 147-155.

- ² Vazquez et al, "Bacillus thuringiensis Cry1Ac protoxin is a potent systemic and mucosal adjuvant," *Scandinavian Journal of Immunology* 49 (1999): 578–584. See also Vazquez-Padron et al., 147 (2000b).
- ³ EPA Scientific Advisory Panel, "Bt Plant-Pesticides Risk and Benefits Assessments," March 12, 2001: 76. Available at:
<http://www.epa.gov/scipoly/sap/2000/october/octoberfinal.pdf>
- ⁴ M.A. Noble, P.D. Riben, and G. J. Cook, "Microbiological and epidemiological surveillance program to monitor the health effects of Foray 48B BTK spray" (Vancouver, B.C.: Ministry of Forests, Province of British Columbia, Sep. 30, 1992).
- ⁵ A. Edamura, MD, "Affidavit of the Federal Court of Canada, Trial Division. Dale Edwards and Citizens Against Aerial Spraying vs. Her Majesty the Queen, Represented by the Minister of Agriculture," (May 6, 1993); as reported in Carrie Swadener, "Bacillus thuringiensis (B.t.)," *Journal of Pesticide Reform*, 14, no. 3 (Fall 1994).
- ⁶ J. R. Samples, and H. Buettner, "Ocular infection caused by a biological insecticide," *J. Infectious Dis.* 148, no. 3 (1983): 614; as reported in Carrie Swadener, "Bacillus thuringiensis (B.t.)," *Journal of Pesticide Reform* 14, no. 3 (Fall 1994).
- ⁷ M. Green, et al., "Public health implications of the microbial pesticide *Bacillus thuringiensis*: An epidemiological study, Oregon, 1985-86," *Amer. J. Public Health*, 80, no. 7 (1990): 848–852.
- ⁸ A. Edamura, MD, "Affidavit of the Federal Court of Canada, Trial Division. Dale Edwards and Citizens Against Aerial Spraying vs. Her Majesty the Queen, Represented by the Minister of Agriculture," (May 6, 1993); as reported in Carrie Swadener, "Bacillus thuringiensis (B.t.)," *Journal of Pesticide Reform*, 14, no. 3 (Fall 1994).
- ⁹ Carrie Swadener, "Bacillus thuringiensis (B.t.)," *Journal of Pesticide Reform* 14, no. 3 (Fall 1994). See also, *Health effects of B.t.: Report of surveillance in Oregon, 1985-87. Precautions to minimize your exposure* (Salem, OR: Oregon Department of Human Resources, Health Division, April 18, 1991); and *Material Safety Data Sheet for Foray 48B Flowable Concentrate* (Danbury, CT: Novo Nordisk, February, 1991).
- ¹⁰ Washington State Department of Health, "Report of health surveillance activities: Asian gypsy moth control program," (Olympia, WA: Washington State Dept. of Health, 1993).
- ¹¹ M. Green, et al., "Public health implications of the microbial pesticide *Bacillus thuringiensis*: An epidemiological study, Oregon, 1985-86," *Amer. J. Public Health* 80, no. 7(1990): 848–852.
- ¹² Ashish Gupta et. al., "Impact of Bt Cotton on Farmers' Health (in Barwani and Dhar District of Madhya Pradesh)," *Investigation Report*, Oct–Dec 2005.
- ¹³ C. M. Ignoffo, and C. Garcial, "UV-photoinactivation of cells and spores of *Bacillus thuringiensis* and effects of peroxidase on inactivation," *Environmental Entomology* 7 (1978): 270–272.
- ¹⁴ BT: An Alternative to Chemical Pesticides, Environmental Protection Division, Ministry of Environment, Government of British Columbia, Canada,
http://www.env.gov.bc.ca/epd/epdpa/ipmp/fact_sheets/BTfacts.htm
- ¹⁵ See for example, A. Dutton, H. Klein, J. Romeis, and F. Bigler, "Uptake of Bt-toxin by herbivores feeding on transgenic maize and consequences for the predator *Chrysoperia carnea*," *Ecological Entomology* 27 (2002): 441–7; and J. Romeis, A. Dutton, and F. Bigler, "Bacillus thuringiensis toxin (Cry1Ab) has no direct effect on larvae of the green lacewing *Chrysoperla carnea* (Stephens) (Neuroptera: Chrysopidae)," *Journal of Insect Physiology* 50, no. 2–3 (2004): 175–183.
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<http://www.fao.org/es/ESN/food/pdf/allergygm.pdf>
- ¹⁷ N. Tomlinson of UK MAFF's Joint Food Safety and Standards Group 4, December 1998 letter to the U.S. FDA, commenting on its draft document, "Guidance for Industry: Use of Antibiotic Resistance Marker Genes in Transgenic Plants," <http://www.food.gov.uk/multimedia/pdfs/acnfp1998.pdf>; (see pages 64–68).
- ¹⁸ John M. Burns, "13-Week Dietary Subchronic Comparison Study with MON 863 Corn in Rats Preceded by a 1-Week Baseline Food Consumption Determination with PMI Certified Rodent Diet #5002," December 17, 2002 http://www.monsanto.com/monsanto/content/sci_tech/prod_safety/fullratstudy.pdf, see also Stéphane Foucart, "Controversy Surrounds a GMO," *Le Monde*, 14 December 2004; and Jeffrey M. Smith, "Genetically Modified Corn Study Reveals Health Damage and Cover-up," *Spilling the Beans*, June

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<http://www.seedsofdeception.com/Public/Newsletter/June05GMCornHealthDangerExposed/index.cfm>

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²⁰ A. Pusztai, et al, "Genetically Modified Foods: Potential Human Health Effects," in: *Food Safety: Contaminants and Toxins* (ed. JPF D'Mello) (Wallingford Oxon, UK: CAB International), 347–372, also additional communication with Arpad Pusztai.

²¹ October 24, 2005 correspondence between Arpad Pusztai and Brian John