



POLICY & ACTION FROM CONSUMER REPORTS

Testimony on HB 1674, a Bill to Require Labeling of Genetically Engineered Food
before the New Hampshire House Environment and Agriculture Committee
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By

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Thank you for the opportunity to present testimony on HB 3242, a bill that would require the labeling of food and food products derived from genetically engineered (GE) organisms. My name is Michael Hansen and I am a senior scientist at Consumers Union¹ (CU), the policy and advocacy arm of Consumer Reports, whose headquarters is located in Yonkers. I have worked on the issue of genetically engineered foods for more than 25 years and have been involved in the decisions/debate about these foods at the state, national and international levels. We strongly support HB 1674.

GE Food is Different

The primary reason GE food should be labeled is that genetically engineered food is fundamentally different. Industry and their allies argue that GE is just an extension of traditional breeding, which humans have been doing for thousands of years. However, GE represents an advance of monumental proportions beyond traditional breeding—the ability to move genetic material *from* any organism *to* any other organism as well as the ability to create genetic material that has never existed before. Traditional breeding involves transfers of genetic material between closely related organisms. In contrast, GE has been used to move arctic flounder genes into tomatoes, human genes into rice, and spider silk genes into goats. Indeed, many of the GE plants that have been commercialized have genetic material for viruses and bacteria inserted into them, including genes for antibiotic resistance; such traits could not be transferred via traditional breeding. GE techniques, which were first discovered only a few decades ago, have been used in agriculture primarily to create commodity crops, including soy, field corn, canola, sugar beets and cotton,² that can withstand herbicides, produce their own insecticides, or do both.³

¹ Consumers Union is the public policy and advocacy division of Consumer Reports. Consumers Union works for telecommunications reform, health reform, food and product safety, financial reform, and other consumer issues. Consumer Reports, a non-profit, is the world's largest independent product-testing organization. Using its more than 50 labs, auto test center, and survey research center, the nonprofit rates thousands of products and services annually. Founded in 1936, Consumer Reports has over 8 million subscribers to its magazine, website, and other publications.

² Non-GMO Project, "What is GMO?" available at: <http://www.nongmoproject.org/learn-more/what-is-gmo/>.

GE Food Raise Unique Allergy Concerns

An important reason to require labeling is that genetic engineering could result in new food allergy responses. A significant number of people have life-threatening allergies to particular foods, such as peanuts and shellfish. They manage their condition by systematically avoiding the foods that trigger a reaction. Through genetic engineering, however, genes that could provoke an allergic response could be unintentionally introduced into another food, without that fact being apparent. Only through labeling could an allergic consumer distinguish an engineered food which might be causing an allergic reaction, from a non-engineered food, and avoid the reaction-causing food.

In addition to adding an allergenic substance via GE, the process of GE could also increase the existing allergenicity of a food. The process of GE involves randomly inserting new genetic material into the genome of the new organism. One study found that the process of GE turned on a known corn allergen gene in a GE corn that was not turned on in the non-engineered corn.⁴ In one study submitted to FDA, salmon genetically engineered to grow to market size faster had a statistically significant higher allergenic potency compared to the non-engineered salmon, i.e. blood from people allergic to salmon reacted more strongly to the engineered salmon compared to the non-engineered counterpart.⁵ Another study found that a soybean engineered with a gene from Brazil nuts, caused an allergic reaction in those with a Brazil nut allergy; the Brazil nut gene product had not previously been identified as an allergen.⁶ Thus, to protect people with food allergies, all GE food should be labeled, so that allergy sufferers can be aware of any new reaction they might have to such a food and have the ability to avoid it.

Safety Assessment Is Not Required

Safety is not the primary reason for labeling genetically engineered food, but given current gaps in safety assessment, safety is not adequately assured and labeling could help identify any safety problems that might possibly arise. There is global agreement that GE differs from conventional breeding, and that safety assessments should be completed for all GE foods prior to marketing. Codex Alimentarius, the food safety standards organization jointly run by the World Health Organization and the Food and Agriculture Organization (both UN bodies), has developed a set of documents on how GE safety should be assessed⁷ including whether there are increased levels

³ USDA-ERS. Adoption of Genetically Engineered Crops in the U.S. At: <http://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-us.aspx#.U9p7YuNdUzo>

⁴ Zolla, L., Rinalducci, S., Antonioli, P and P.G. Righetti. 2008. Proteomics as a complementary tool for identifying unintended side effects occurring in transgenic maize seeds as a result of genetic modifications. *Journal of Proteome Research*, 7: 1850-1861. At: <http://stopogm.net/sites/stopogm.net/files/webfm/plataforma/proteomicscomplementarytoolzolla.pdf>

⁵ Hansen, M. 2010. Comments of Consumers Union on safety assessment of AquAdvantage salmon, before Veterinary Medicine Advisory Committee, September 20, 2010. At: <http://consumersunion.org/wp-content/uploads/2013/02/CU-comments-GE-salmon-0910.pdf>

⁶ Nordlee JA, Taylor SL, Townsend JA, Thomas LA and RK Bush. 1996. Identification of a Brazil-nut allergen in transgenic soybeans. *New England Journal Medicine* 334(11): 688-692. At: <http://www.nejm.org/doi/pdf/10.1056/NEJM199603143341103>

of toxins or allergens in the foods, or if there are any unexpected effects.⁷ Premarket safety assessments are now mandatory in most developed countries, including all of Europe, Australia, Japan and China. However, they are not required in the United States.

The US Food and Drug Administration's (FDA) original policy on GE (or GM, for genetically modified) plants, developed in 1992,⁸ requires no safety assessments; although companies may go through a "voluntary safety consultation." To date, there have been some 107 "voluntary safety consultations." However, after a consultation, the FDA makes no conclusions about the safety of the GE food, but says it is up to the companies to determine safety of any GE food.

The inadequacy of FDA's policy can be seen in the letter FDA sends to the company after completion of a "safety consultation." For example, the letter sent to Monsanto on September 25, 1996 about one of their first Bt-corn varieties, MON810, states, "Based on the safety and nutritional assessment you have conducted, **it is our understanding that Monsanto has concluded that corn grain and forage derived from the new variety are not materially different in composition, safety, or other relevant parameters from corn grain and forage currently on the market, and that they do not raise issues that would require premarket review or approval by FDA**" (bold added).⁹

The letters for all 107 "safety consultations" contain basically the same language. This clearly shows that the FDA has not made a conclusion about the safety for GE plants or the safety of the technology as a whole. In addition, FDA also does no monitoring of imported food for GE status, and does not require any studies of long term effects. Indeed, FDA has no idea if GE foods are being imported from foreign countries. Furthermore, the US has publically stated that they don't test a single import for GE status because they think there is no safety issue.

One big problem with safety assessments of GE plants is that there have been very few independent long-term animal feeding studies, with most feeding studies being of 90 days or shorter. An analysis of 19 published 90-day or longer studies involving rats or mice fed GE corn or soy found damage in the kidney, liver and bone marrow, which could be potential indicators for the onset of chronic diseases.¹⁰

In January, a peer-reviewed article, "No scientific consensus on GMO safety," was published in *Environmental Sciences Europe*.¹¹ Some 300 scientists have signed on saying they agree with

⁷ CAC/GL 44, 2003; CAC/GL 45, 2003; CAC/GL 46, 2003; and CAC/GL 68, 2008 At: http://www.codexalimentarius.org/standards/list-standards/en/?no_cache=1

⁸ Pg. 22991 in FDA. Statement of Policy: Foods Derived From New Plant Varieties, May 29, 1992, *Federal Register* vol. 57, No. 104. At: <http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/Biotechnology/ucm096095.htm>

⁹ At: <http://www.fda.gov/Food/FoodScienceResearch/Biotechnology/Submissions/ucm161107.htm>

¹⁰ Séralini, G-E, Mesnage, R., Clair, E., Gress, S., de Vendômois, JS and D. Cellier. 2011. Genetically modified crops safety assessments: present limits and possible improvements. *Environmental Sciences Europe*, 23: 10. At: <http://www.enveurope.com/content/pdf/2190-4715-23-10.pdf>

¹¹ Hilbeck et al. 2015. No scientific consensus on GMO safety. *Environmental Sciences Europe*, 27: 4. At: <http://www.enveurope.com/content/pdf/s12302-014-0034-1.pdf>

this article.¹²

In addition, there is virtually no independent safety testing of these crops in the US due to intellectual property right problems. When farmers buy GE seed in the US, they invariably must sign a product stewardship agreement which forbids them from giving such seeds to researchers.¹³ In early 2009 26 public sector scientists in the US took the unprecedented step of writing to the US Environmental Protection Agency (EPA) protesting that “as a result of restricted access, no truly independent research can be legally conducted on many critical questions regarding the technology.”¹⁴ As a result, the editors of *Scientific American* published a perspective stating that “we also believe food safety and environmental protection depend on making plant products available to regular scientific scrutiny. Agricultural technology companies should therefore immediately remove the restriction on research from their end-user agreements.” We concur and believe that only truly independent safety tests will give us an answer about the safety of GE foods. In the meantime, it’s crucial that GE foods be labeled, so that if people experience negative effects, they and their doctors can identify them.

But even if all reasonable safety testing were required, certain individuals could still have unusual allergic responses that would not be detected beforehand. Finally, there can be unexpected effects--just as there are sometimes to pharmaceutical products, despite extensive premarket testing. For these reasons, it is important to label genetically engineered food, so negative effects can be noticed and identified, to help with any future epidemiological studies to track potential health impacts of consuming GE foods, and so consumers who simply want to avoid these new foods can do so if they wish.

GE and Herbicide Use

One other key public health issue is the use of glyphosate, a weed killer, on GE crops. Last year, 17 experts from 11 countries met at the World Health Organization’s International Agency for Research on Cancer (IARC) and unanimously agreed to re-classify glyphosate as “probably carcinogenic to humans” (e.g. Group 2A).¹⁵ This classification was based on limited evidence from case control epidemiology studies (which found a link with non-Hodgkin lymphoma in studies from US,¹⁶ Canada,¹⁷ and Sweden¹⁸) and sufficient evidence from animal

¹² ENSEER. 2015. Signatories to No Scientific Consensus on GMO Safety. At http://www.ensser.org/fileadmin/user_upload/150120_signatories_no_consensus_lv.pdf

¹³ Waltz, E. 2009. Under wraps. *Nature Biotechnology*, 27(10): 880-882. At: http://www.emilywaltz.com/Biotech_crop_research_restrictions_Oct_2009.pdf

¹⁴ <http://www.scientificamerican.com/article.cfm?id=do-seed-companies-control-gm-crop-research>

¹⁵ Guyton KZ, Loomis D, Grosse Y et al. 2015. Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate. *Lancet Oncology*, At: <http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045%2815%2970134-8/abstract>

¹⁶ De Ross AJ, Zahm SH, Cantor KP, Weisenburger DD, Holmes FF, Burmeister LF and A Blair. 2003. Integrative assessment of multiple pesticides as risk factors for non-Hodgkin’s lymphoma among men. *Occupational and Environmental Medicine*, 60:e11 At: <http://oem.bmj.com/content/60/9/e11.full.pdf>

¹⁷ McDuffie HH, Pahwa P, McLaughlin JR et al. 2001. Non-Hodgkin’s lymphoma and specific pesticide exposures in men: cross-Canada study of pesticides and health. *Cancer Epidemiology Biomarkers and Prevention*, 10:1155-1163. At: <http://cebp.aacrjournals.org/content/10/11/1155.full.pdf>

¹⁸ Eriksson M, Hardell L, Carlberg M and Akerman M. 2008. Pesticide exposure as risk factor for non-Hodgkin lymphoma including histopathological subgroup analysis. *International Journal of Cancer*, 123: 1657-1663. At: <http://onlinelibrary.wiley.com/doi/10.1002/ijc.23589/epdf>

studies (2 studies in mice, 2 studies in rats). In addition, there was strong evidence for mechanism of action (or how glyphosate may lead to cancer), e.g. genotoxicity and oxidative stress.¹⁹ Of the 17 experts involved in this decision, two were from the US EPA, one from the US National Institute of the Environmental Health Sciences, and one was from California EPA. The Chair of the Committee was Dr. Aaron Blair, who, prior to retiring, lead the occupational cancer unit at the National Cancer Institute for 30 years.²⁰

This finding, that glyphosate is probably carcinogenic in humans, is important since the virtually all GE food crops have been engineered to withstand the weed killer glyphosate. As a result, as acreage in GE crops has expanded, so has glyphosate use. In the period between 1996 and 2011, during which GE crops were introduced into U.S. agriculture, herbicide use was greatly increased.²¹ In 1995 some 20 million pounds of glyphosate were used in US agriculture; by 2012 that figure had increased, more than ten times over, to an estimated 280 million pounds.²² This drastic increase in glyphosate use has almost certainly increased the residues on food. Although the USDA's Pesticide Data Program doesn't collect data on glyphosate residues in foods, one study that did look, published in the journal *Food Chemistry*, found glyphosate residues in all the samples of soy they tested, which were from ten different farms growing GE soy in Iowa.²³ Labeling of GE foods would allow consumers concerned about potential residues to minimize their glyphosate exposure.

Costs of Labeling Will Be Minimal

Opponents of labeling cite industry-funded studies to suggest that mandatory GE food labeling would cause food prices to soar, boosting a typical family of four's spending by \$400 to \$800 or more, on average, per year. Such studies, such as the one released last year by a Cornell University professor, which came up with a figure of \$500 per family per year, make a number of unreasonable assumptions to come up with the supposedly large cost of labeling GE foods.²⁴ Indeed, the Washington Post Fact Checker feature just gave this Cornell study a rating of three Pinocchios (significant factual error and/or obvious contradiction) out of a possible four.²⁵ A recent analysis of existing studies commissioned by Consumers Union and conducted by the independent economic research firm ECONorthwest found that the median cost that might be passed on to consumers was just \$2.30 per person annually, less than a penny a day—or \$9.20

¹⁹ Guyton et al. 2015. *Op cit.*

²⁰ IBID

²¹ Benbrook, CM. 2012. Impacts of genetically engineered crops on pesticide use in the U.S.—the first 16 years. *Environmental Sciences Europe*, 24:24. At: <http://www.enveurope.com/content/pdf/2190-4715-24-24.pdf>

²² US Geologic Service. Pesticide National Synthesis Project. At:

http://water.usgs.gov/nawqa/pnsp/usage/maps/show_map.php?year=2005&map=GLYPHOSATE&hilo=L

²³ Bøhn T, Cuhra M, Traavik T, Sanden M, Fagan J and R Primicerio. Compositional differences in soybeans on the market: glyphosate accumulates in Roundup Ready GM soybeans. *Food Chemistry* 153: 207-215. At: <http://www.sciencedirect.com/science/article/pii/S0308814613019201>

²⁴ Hansen, M. 2014. Industry funded GMO labeling study relies on faulty assumptions for cost estimates. At: http://consumersunion.org/wp-content/uploads/2014/06/Industry_Funded_GMO_Labeling_Study_Rebutal.pdf

²⁵ Lee, MYH. 2015. Would GMO labeling requirement cost \$500 more in groceries per family a year? April 6. At: <http://www.washingtonpost.com/blogs/fact-checker/wp/2015/04/06/would-gmo-labeling-requirement-cost-500-more-in-groceries-per-family-a-year/>

for a family of four.²⁶ Finally, Campbell Soup announced earlier this month that they both plan to label the food products they sell for presence of GE ingredients and to support federal mandatory labeling of GE foods.²⁷ Campbell Soup also stated that they felt the costs of such mandatory federal labeling would be minimal and that they did not plan to raise their prices of their products.

Voluntary Labeling is Not Sufficient

Consumers can currently avoid genetically engineered foods by buying food labeled as USDA Organic, which does not allow use of GMOs, or foods labeled Non-GMO Project Verified, which are certified to have no more than 0.9% engineered content. However these labels are not sufficient to meet consumer needs. Organic foods are only about 5 percent of the total market, and because they are grown according to rules that also prohibit pesticides and antibiotics and have other requirements, are often more expensive. The Non-GMO Project label is growing rapidly, but is also a small percent of the market and has very limited availability. Further, voluntary labeling but puts burden of labeling in wrong place. Consumers want to know about all the food they are buying, not just a small percentage.

Consumers Want Labels/Several States and Many Countries Require Them

A 2014 nationally representative poll by Consumers Union found that 92% of consumers would like genetically engineered food to be labeled.²⁸ A *New York Times* poll last year got an almost identical result, 93% in favor.²⁹ This is starting to be translated into law in the United States. In 2014 Vermont became the first state to require mandatory labeling.³⁰ Maine³¹ and Connecticut³² passed laws the previous year that will go into effect when a total of five northeast states have similar requirements. Alaska has a law on the books to require labeling of GE fish. Finally, 64 countries, which together include more than half the world's population, (including all European Union, China, India, Japan, Korea, Australia, Russia, Brazil and South Africa), require labeling of GE foods.³³

²⁶ Dyke A and R Whelan. 2014. GE Foods Labeling Cost Study Findings. 14 pp. At:

http://consumersunion.org/wp-content/uploads/2014/09/GMO_labeling_cost_findings_Exec_Summ.pdf

²⁷ Strom, S. 2016. Campbell Labels Will Disclose G.M.O. Ingredients. *New York Times*, January 8, 2016, available at: <http://www.nytimes.com/2016/01/08/business/campbell-labels-will-disclose-gmo-ingredients.html>

²⁸ Consumer Reports National Research Center. 2014. Consumer Support for Standardization and Labeling of Genetically Engineered Food: 2014 Nationally-Representative Phone Survey. available at:

http://consumersunion.org/wp-content/uploads/2014/06/2014_GMO_survey_report.pdf

²⁹ Kopicki, A. 2013. Strong Support for Labeling Modified Foods. *New York Times*, July 27, 2013, available at:

http://www.nytimes.com/2013/07/28/science/strong-support-for-labeling-modified-foods.html?_r=0

³⁰ Act. No. 120 (H.112), "An act relating to the labeling of food produced with genetic engineering," available at:

<http://openstates.org/vt/bills/2013-2014/H112/>

³¹ "An Act to Protect Maine Food Consumers' Right to Know about Genetically Engineered Food and Seed Stock," available at http://www.mainelegislature.org/legis/bills/bills_126th/billtexts/HP049001.asp

³² Substitute House Bill No. 6527, Public Act No. 13-183, "An Act Concerning Genetically Engineered Food," available at: <http://www.cga.ct.gov/2013/ACT/pa/pdf/2013PA-00183-R00HB-06527-PA.pdf>

³³ Center for Food Safety, "International Labeling Laws," available at:

<http://www.centerforfoodsafety.org/issues/976/ge-food-labeling/international-labeling-laws>

GE Labeling Bill Likely to Survive Legal Challenge

If New Hampshire is concerned about whether their GE labeling bill would hold up in court, the decision of the US District Court for the District of Vermont, announced in April, 2015 should be very reassuring. The Court turned down the request of the Grocery Manufacturers Association and their allies for an injunction against Vermont's mandatory GE labeling law, ruling against three often cited objections to labeling.³⁴ The Court decided that labels such as "produced with genetic engineering," or "partially produced with genetic engineering" do not violate the Commerce Clause of the Constitution, are not preempted by federal law, and do not violate the First Amendment rights of the companies producing GE foods. The court also dismissed the idea that the GE labeling bill is only based on a desire to gratify consumer curiosity. Indeed, the court stated that the "(T)he safety of food products, the protection of the environment, and the accommodation of religious belief and practices are all quintessential government interests, as is the State's desire 'to promote informed consumer decision-making.'"³⁵ As for the argument that GE labels are "political speech," or that they are "controversial," the Court disagreed and noted that the GE disclosure requirement "remains a factual disclosure regarding a food product's ingredients made in conjunction with the purchase and sale of food."³⁶

Because of these safety questions raised by the long-term feeding studies and the new toxicity information on glyphosate, ~~because of~~ the allergy issues, ~~because of~~ the lack of consensus on GE food safety, and because consumers have a basic right to know that they are eating, CU supports labeling of GE food. Such labeling is important because consumers have a right to choose the foods they eat and to avoid any unintended health effects. We also believe that labeled foods will not be more expensive to consumers, and that HB 1674 would likely survive any legal challenges.

Bottom line, CU strongly supports mandatory labeling of GE foods and so supports HB 1674.

³⁴ Grocery Manufacturers Association et al. v William Sorrell, Peter Shumlin, Tracy Dolan and James Reardon. 2015. Case No. 5:14-cv-117. OPINION AND ORDER GRANTING IN PART AND DENYING IN PART DEFENDANTS' MOTION TO DISMISS AND DENYING PLAINTIFFS' MOTION FOR A PRELIMINARY INJUNCTION. At: http://www.centerforfoodsafety.org/files/vermont-decision_81793.pdf

³⁵ Pp. 63-64 in IBID.

³⁶ Pg. 54 in IBID.

