

## Mandatory GMO food label not backed by science

Labeling food that contains GMO is illogical because genetic engineering is a process and not an ingredient. The US Food and Drug Administration has taken the position that labeling of GMO food is only required “if the food has a nutritional or food safety property that is significantly different from what consumers would expect of that food.”

Thus if a genetically modified food includes a protein that may be an allergen which is not contained in non-GMO varieties, then it should be labeled. Otherwise, the FDA does not view genetically engineered food as materially different from non-GMO food. That’s one key reason why placing a GMO label on a can of soup or a box of cereal is meaningless.

The push for mandatory labeling leaves open the question of exactly what is genetic modification. Should grafting be considered a form of genetic engineering or hybridization or cross breeding of fruit? What about mutagenesis which is the dirty secret of organic farming. This is a process in plant breeding where random mutations are induced in plant DNA using chemicals or radiation. Scientists have been doing this in the laboratories since the 1930s. We now regularly eat more than 2,000 mutagenically created foods, including such organic favorites as Ruby Red grapefruits and versions of wheat used to make organic Italian pasta—all developed over years of laboratory research.

According to an [article](#) in Bloomberg Business Week, entitled “The Scariest Veggies of them all”:

Reports from the National Academy of Sciences, representing the consensus of experts in the field, say the risk of creating unintended health effects is greater from mutagenesis than any other technique, including genetic modification. Mutagenesis deletes and rearranges hundreds or thousands of genes randomly, spawning mutations that are less precise than GMOs. The academy has warned that regulating genetically modified crops while giving a pass to mutant products isn’t scientifically justified.

No doubt many in the organic farming community would strongly object to GMO labeling if it included mutagenesis as many organic seeds are derived from such a process. In an article for the Boston Review, the noted plant geneticist Pamela Ronald [wrote](#) that “some varieties of California-certified organic rice were developed through radiation mutagenesis” Organic and non-organic varieties of wheat, barley, pears, peas, cotton, peppermint, sunflowers, peanuts, grapefruit, sesame, bananas, cassava and sorghum have also been developed through a process of mutagenesis.

To be fair, even though mutagenesis results in the creation of thousands of unknown mutations, versus one or two via precision engineering, there is no evidence that even thousands of random mutations pose genuine health hazards. What’s important though is the hypocrisy factor: thousands of chemical and radiation lab-created mutations are given a free pass by those opposed to GMOs but they go hysterical when just one or two genes are altered, mapped, and tested for allergenicity. That makes no logical sense.

There is another hypocritical aspect of the organic food industry that is not widely known. It likes to vilify Monsanto as an evil agriculture company that forces farmers to use genetically modified seeds. Many organic farmers however rely upon the company Seeds of Change for their seeds. This company happens to be owned by Mars, the candy company. According to *Forbes*, Mars is the sixth largest private company in the United States with revenues of \$33 billion in 2013. Monsanto by contrast had revenues of \$15.85 billion in 2014. Monsanto's annual revenue is roughly the same as Whole Foods.

Labeling food products that contain GMOs could open the flood gates for other demands for labeling under the umbrella of "right to know." Don't I have a right to know whether the food in my cereal or in my canned soup has been picked by exploited and underpaid migrant workers? Don't I have a right to know how much crop subsidies were paid to the farmer who grew the food I am consuming? Don't I have a right to know how energy efficient the growing process was for the food I am eating? Don't I have a right to know if food imported from China (organic or non-organic) is grown with water that maybe polluted?

Perhaps pears, grapes, bananas, cauliflowers, potatoes, cabbages and apples should have a label indicating that this product contains naturally occurring formaldehyde while almonds, spinach, bamboo shoots and lima beans should contain a label that says they contain natural occurring cyanide and coffee should have a label that states it contains possible carcinogens. The list of demands for "right to know" is potentially endless.

When consumers were asked in a 2014 consumer perception survey what labels they want on their foods and were not directly asked about GMOs, only four percent said they supported GMO labeling. Seventy-four percent could not think of any additional information they wanted on a food label, 8 percent wanted additional nutritional information and 5 percent wanted more ingredient information.

The complexity and confusion surrounding labeling GMO food deepens the closer you examine the issue. What about genetically modified cotton? Should that also be labelled? As of 2013, 70 percent of the area in the world cultivated by cotton was genetically engineered. What about cheese? About 90 percent of the cheese produced in America is made with fermentation produced chymosin, a milk-clotting enzyme that is produced by genetic engineering. What about the Hawaiian papaya? The crop was devastated by the ringspot virus causing a sharp reduction in production. Genetic modification though has made it no longer susceptible to the disease. As a result, 77 percent of the papaya crop in Hawaii is genetically modified. Without such genetic modification, the entire papaya industry in Hawaii would have been eradicated.

If foods containing GMOs should be labelled then for the sake of consistency, medicines that are made from GMOs should also be labelled. Most of the insulin used in the United States for instance is genetically engineered. An [article](#) entitled "GMO Cheerios versus GMO insulin", which was published on the Biology Fortified website:

Insulin made, in principle, the same way the GMO corn starch and GMO sugar in Cheerios is. To start, the DNA sequence for human insulin is inserted into the bacteria *E. coli*, which creates an organism that now has DNA from two very different species in it. This new *E. coli* is

a genetically modified organism and serves as a cheap factory for mass-producing the human insulin protein.

Genetic engineering is also involved in the production of human growth hormones and human serum albumin, which is the most abundant protein in human blood plasma, and for treatments for infertility. A February 19, 2014 [press release](#) from the Memorial Sloan Kettering Cancer Center noted:

Investigators from Memorial Sloan Kettering Cancer Center have reported more encouraging news about one of the most exciting methods of cancer treatment today. The largest clinical study ever conducted to date of patients with advanced leukemia found that 88 percent achieved complete remission after being treated with genetically modified versions of their own immune cells.

Let's be clear: the process of genetically engineering is perfectly safe, whether used to make drugs for tweak traits in food. The movement to label GMOs is actually a smokescreen as the true purpose of the labeling campaign is to escalate concerns about the supposed dangers of GMOs and to make the public suspicious about crop biotechnology.

The reality is that all the major scientific institutions in the world have endorsed the safety of GMO technology—a point underscored by this [infographic](#) developed by the Genetic Literacy Project. Among them are the National Academy of Sciences, the Royal Academy of Medicine, the Nuffield Council of Bioethics, the World Health Organization, the American Medical Association, the American Association for the Advancement of Sciences, the Swiss Institute of Technology, the American Society of Plant Biologists, the French Academy of Sciences, the European Academies of Science Advisory Council, the American Society for Cell Biology, the International Seed Foundation, The Royal Society of Canada, The American Society for Microbiology, the Crop Science Society of America, the Society of African Scientists, Health Canada, the Society of Toxicology, the International Council for Science and the Union of German Academics and Scientists.

GMO safety has not just been acknowledged by independent science organizations; it's the overwhelming view of mainstream science. A recent [survey](#) conducted by the Pew Research Center of members of the world's largest independent organization of scientists, the American Association for the Advancement of Science, indicated that 88 percent of them agreed that genetically modified food was safe. This compares to 87 percent of scientists who concur that human activity is responsible for climate change. There has not been one instance of a documented illness or death or an allergic reaction resulting from an approved genetically modified food, and therefore there is no need to label it or ban it.

The scientifically literate liberal journalism community, once wary of GMOs, has more recently become aggressive in rejecting the fear mongering surrounding the new technology. Every major [liberal publication](#) of note has endorsed the safety of GMOs and/or rejected labeling on the grounds that it's unscientific, including the [New York Times](#), [Boston Globe](#) and the [Washington Post](#).

*Scientific American*, long regarded as one of the most independent science sources in the world, in its [editorial](#)

“Labels for GMO Foods Are a Bad Idea,” made the case that labeling will spread scientifically inaccurate information that could harm human health and slow the development of agricultural biotechnology—which while not a silver bullet could play a key role in increasing the global food supply as population pressures escalate in coming decades.

Antagonism toward GMO foods also strengthens the stigma against a technology that has delivered enormous benefits to people in developing countries and promises far more.” SA wrote. “Ultimately, we are deciding whether we will continue to develop an immensely beneficial technology or shun it based on unfounded fears.

It is time to listen to the collective wisdom of the scientific and science journalism communities instead of the fear-mongers promoting pseudoscience.

Carl Sagan said something that applies to those who are peddling nonsense about GMOs and insisting that they be labelled, which would mostly serve to confirm nonsense and fears.. He said, “One of the saddest lessons of history is this: If we’ve been bamboozled long enough, we tend to reject any evidence of the bamboozle. We’re no longer interested in finding out the truth. The bamboozle has captured us. It’s simply too painful to acknowledge, even to ourselves, that we’ve been taken. Once you give a charlatan power over you, you almost never get it back.”

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