

BOX 8.2 What Does a “Non-GMO” Label Mean?

What Is a GMO?

The US Food and Drug Administration (FDA) has concluded that there is no universal or logical definition of GMO food.²³ Everything we eat has been genetically improved in some manner. “Most foods do not contain entire organisms,” the FDA notes.²⁴

GMO Labeling Campaigns

The FDA does not support a mandatory GMO label because there is no nutritional need for more labeling.²⁵ The FDA already requires stringent testing of food products and labeling of those that carry an ingredient found to be potentially harmful (e.g., peanuts).

In addition to being safe to eat,²⁶ virtually every crop grown for human consumption has been genetically altered in some way. For example, bananas are sterile plants with artificially induced triple chromosomes; some varieties of California-certified organic rice were developed through radiation mutagenesis; and most cheeses are made with a genetically engineered enzyme.²⁷

With a few exceptions (e.g., wild berries, game, chanterelles from the forest, live-caught pacific salmon), all the food we eat has been genetically altered in some manner. Each crop is different. It is not useful to group all GMOs together without regard to the purpose of the engineering, the needs of the farmer, or the social, environmental, economic, or nutritional benefits. A “GMO” label does not indicate whether the product has been sprayed with herbicides, because “non-GMO crops” are also typically sprayed with herbicides (albeit a different set of herbicides, which are typically more toxic and persist longer in the soil).²⁸ The exception to this is crops produced organically. Although organic farmers commonly use diverse types of pesticides, there are few herbicides registered for use directly on organic crops (see Box 5.2 in Chapter 5).²⁸ Instead, organic growers use tractor cultivation to till frequently, hand weeding, soil solarization, and other procedures to eliminate weeds.

Despite the lack of information provided by “GMO” labels, more than 50 countries require them, and more than a dozen US states have considered or are considering similar laws. For example, in 2013, voters in Washington defeated Initiative 522, a GMO labeling proposal by a vote of 54.8% to 45.2%. In 2012, California voters rejected a similar initiative, Proposition 37; it would have required labels on all foods made from GMOs. In 2014, Vermont governor Peter Shumlin signed a GMO labeling bill into law. This made Vermont the first US state to require mandatory GMO labeling. The bill went into effect July 1, 2016, but was superseded by Federal law later that year.

The Vermont law required labeling of foods (or extracted ingredients) that had been grown from seed genetically engineered with genes from other organisms (e.g., the Bt

gene derived from a bacterium). Yet, the Vermont bill, like the proposed California and Washington bills, contained a mishmash of exceptions. Cheese made with genetically engineered enzymes, red grapefruit developed through radiation mutagenesis, animals fed genetically engineered corn and soybeans, and insulin developed through genetic engineering were all exempted from labeling in the proposed laws. Crops sprayed with the Bt pesticide would not need a label, but crops genetically engineered to produce Bt would require a label.

The bills failed to note that the process of genetic engineering has been used safely in food and medicine for 40 years.²⁶ The bills did not mention that the planting of Bt corn in the United States has allowed corn farmers to reduce the amount of insecticides sprayed around the world or that planting of virus-resistant papaya saved the Hawaiian papaya industry.²⁹ None of the bills banned the planting of seeds developed by Monsanto or other corporations. In other words, these laws would not have provided consumers access to food that is more sustainable, more healthful, or less “corporate.”

The claim that consumers have a “right to know” what is in their food is misleading. Many foods derived from genetically engineered crop varieties do not carry new genes or proteins. For example, sugar extracted from herbicide-tolerant sugar beets is chemically identical to sugar extracted from non-GMO or organic sugar beets. The herbicide-tolerant sugar beets are sprayed with glyphosate, which is classified as nontoxic by the EPA. NPR correspondent Dan Charles reported that for most farmers, planting non-GMO beets would mean going back to what they used to do, spraying their crop every 10 days or so with a “witches brew” of five or six different weedkillers. For example, non-GMO sugar beets are sprayed with paraquat, which is highly toxic to humans (see Box 2.2 in Chapter 2).^{30,31} It makes sense to want to know what type of herbicide is being sprayed, but generic GMO labels do not provide that information. Consumers have the right not to be misled by a label that suggests there is something fundamentally different about food produced from crops developed through genetic engineering.

For these reasons, many scientists and farmers oppose generic labels. “Instead of providing people with useful information, mandatory GMO labels would only intensify the misconception that so-called Frankenfoods endanger people’s health,” stated the editors of *Scientific American*.³² “Many people argue for GMO labels in the name of increased consumer choice. On the contrary, such labels have limited people’s options. In 1997, a time of growing opposition to GMOs in Europe, the EU began to require them. By 1999, to avoid labels that might drive customers away, most major European retailers had removed genetically modified ingredients from products bearing their brand. Major food producers such as Nestlé followed suit. Today it is virtually impossible to find GMOs in European supermarkets.”

What About the Farmers?

Many of Washington’s canola, corn, and alfalfa farmers choose to grow genetically engineered crops, in part because of the cost savings and environmental benefits.³³ For this reason, most Washington farmers opposed Initiative 522.

Heather Hansen, Executive Director of Washington Friends of Farms and Forests, said the state's commodity growers (e.g., potatoes, wheat, canola, berries) would be hurt by Initiative 522, whether or not they grow genetically engineered crops, in part because of the new layer of bureaucracy it would add. Although Washington's large berry crops (primarily raspberries, blueberries, and strawberries) are not genetically engineered, growers would have been required to add GMO labels if the initiative had passed. That's because many growers pack their own berries and freeze them, adding a little sugar. The berries are not genetically engineered, but the sugar comes from genetically engineered sugar beets.³⁴

The National Farmers' Federation in Australia believes that "responsible and strategic application of biotechnology within Australian agriculture can result in significant benefits for Australian farmers, the environment, consumers, and the Australian economy as a whole."³⁵ They urge the State governments to remove contradictory legislation and lift restrictions.³⁵ In Jackson County, Oregon, a ban on planting genetically engineered alfalfa angered farmers and triggered "right to farm" protests.³⁶

It's Not About Your Health

The Washington state labeling initiative was the most expensive in state history. The No on 522 campaign set a record for fundraising, largely from out of state, bringing in \$22 million in donations, according to *The Seattle Times*.³⁷ Just \$550 came from Washington residents, according to the newspaper. The top five contributors were the Grocery Manufacturers Association, Monsanto, DuPont Pioneer, Dow AgroSciences, and Bayer CropScience. The largest donors to the pro-labeling campaign were California-based Dr. Bronner's Magic Soaps, the Organic Consumers Association, and the Center for Food Safety in Washington, DC, all identified by the nonprofit consumer awareness and medical watchdog group, *Quackwatch*, as "promoters of questionable health practices."^{38,39}

In California, food and biotechnology companies amassed \$46 million to defeat Prop 37, with Monsanto, the largest supplier of genetically engineered seeds, contributing \$8.1 million.⁴⁰ The backers of Proposition 37 raised \$9.2 million, mainly from the \$35 billion organic food industry and nutritional supplement businesses. The top financial supporter of the initiative was Mercola Health Resources (see Box 8.3). These numbers make it clear that Proposition 37 was about large industries battling for market share, with much of the advertising aimed at spreading fear and misinformation. It was not about food safety or sustainable agriculture. It was difficult for consumers to access science-based information.

Spreading Misinformation

Misinformation about genetically engineered crops is fueled by the proliferation of groups claiming that foods made from these crops are dangerous. For example, during the runup to the vote on Initiative 522 in Washington State, the PCC Food Co-op in

Seattle sent flyers to customers falsely warning that GMOs cause allergies and autoimmune disease.⁴¹ After the loss at the polls, the Seattle food co-op pledged to label genetically engineered foods in their stores by 2018.⁴² They are not alone. Many stores and corporations have announced plans to go “GMO-free.” For example, Whole Foods (larger than Monsanto in terms of total sales) has declared that within 5 years it will require labeling of all GMO foods sold in its stores.⁴³ Whole Foods also continues to sell highly profitable vitamin supplements as health remedies, even though some of those compounds can be harmful (see Box 8.3).

Many of the groups that demand GMO labeling and eventual elimination of GMOs⁴⁴ are supported by multinational corporations that would profit from such labels. For example, a slew of large corporations support the “Just Label It” campaign,⁴⁵ led by businessman Gary Hirshberg, chairman of the multinational corporation Stonyfield Farm, formerly owned by Danone (now owned by Lactalis). These companies often falsely claim that their own products are healthier than other products.^{46–48}

Why We Should All Care About Science-Based Information

Why should consumers care about generic GMO labels? After all, any individual consumer can either pay heed to a label or ignore it. The reason is that marketing campaigns that discount science misinform consumers and harm the environment.

The focus on GMO labels often distracts stores from encouraging good nutritional and cost-effective choices for their customers. Like our own Co-op in Davis, the PCC Co-op in Seattle and Whole Foods sell arrays of herbal supplements, which are displayed prominently in the front of the store. The stores also prominently display organic produce and stow the cheaper conventional produce on small shelves in the back of the store. I noticed the other day that organically grown shallots cost \$4.99/pound, whereas conventionally grown ones cost \$2.99/pound. Few people in our well-off town are concerned that the prices for organic produce are often 50% higher than for conventional produce.

Transparency in Labeling

There is no evidence that Whole Foods can safeguard the food supply better than the FDA. In the last few years, Whole Foods has failed to address real food safety problems, endangering the health of their consumers.⁴⁹

The main goal of a large corporation such as Whole Foods is to sell more of its products. If labels will drive huge profits, there is a strong financial incentive to use labels.^{50,51} A. C. Gallo, president of Whole Foods, recently told *The New York Times*, “Some of our manufacturers say they’ve seen a 15 percent increase in sales of products they have labeled.”⁴³

The abundant use of “GMO-free” labels is starting to muddle the marketing campaigns of large corporations. For example, Chipotle began a campaign claiming that GMO cultivation hurts the environment. This claim contradicts the scientific evidence.²⁶ Without genetically engineered crops, it is estimated that agriculture’s global environmental footprint would be substantially larger.⁵² Compared with genetically engineered crops, Chipotle’s non-GMO ingredients are more likely to have been sprayed with insecticides and more toxic herbicides.⁵³ Chipotle also continues to sell food produced using genetic engineering technology; for example, the meats are produced from livestock fed genetically engineered corn and soybeans, the cheese is made using genetically engineered chymosin (see Box 5.1 in Chapter 5), and the soft drinks carry sugars from genetically engineered corn or sugar beets. In 2015, because of these inconsistencies, Chipotle was sued for false advertising.⁵⁴ The plaintiff alleged that Chipotle had violated the Federal Food, Drug and Cosmetic Act through this misleading marketing and had tricked customers into paying extra for food that they falsely perceive to be more “natural” and therefore more healthy.

Cheerios and Grape-Nuts, produced by General Mills and Post, respectively, have also run into complications. Both companies started selling “GMO-free” cereals in 2014. This was an effort to give consumers a choice even though the company acknowledged on their website that GMO crops are safe to eat. But there were unintended consequences. The GMO-free versions of the cereals lacked certain vitamins. Vitamins are often produced with the use of genetically engineered bacteria⁵⁵; furthermore, these bacteria feed on sugars, which are typically produced from corn or sugar beets that are genetically engineered.⁵⁶

These stories give consumers cause to be skeptical about the current labeling trends. It is not in consumers’ best interests to have massive corporations like Danone, Monsanto (Bayer), Chipotle, and Whole Foods decide what is nutritious or safe. Whole Foods, a for-profit corporation, has been called “America’s temple of pseudoscience” because some of the health remedies that it sells are so diluted that, “statistically speaking, they may not contain a single molecule of the substance they purport to deliver.”⁵⁷

Reaping greater profits is a perfectly legitimate goal for a corporation. But, as Steven Strauss, Distinguished Professor of Forest Biology at Oregon State University, has stated, “When science is subverted and distorted to advance a particular ideology or business interest, consumers are deprived of basic information and important benefits.”

So how can consumers best gain information about how their food is grown? Consumers want transparency. In June 2016, a bipartisan agreement was reached in the US Senate to address this issue. The accord would require labeling of genetically engineered ingredients on packages via digital codes.⁵⁸ Ideally, such a label could indicate which ingredients were made using genetic engineering and, more importantly, for what purpose. If all products (not only those made from genetic engineering)

were labeled with digital codes, consumers could better shop and compare. They could know what types of pesticides had been applied to the crop. Some consumers may prefer to avoid foods that have been mutagenized with irradiation (including some certified organic produce). Some might prefer corn syrup produced from Bt corn if they knew that farmers growing the corn had reduced applications of chemical insecticides. They may prefer a genetically engineered virus-resistant papaya over its organic counterpart when they learn that the genetically engineered papaya likely carries tenfold less viral protein. I dream of the day when a simple scan from my smartphone would reveal all that went in to growing my apples and zucchini.