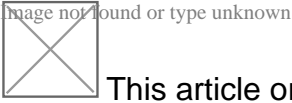


Food labeling: Should environmentalists be pro-GM?



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Half a century on from Rachel Carson's seminal *Silent Spring*, debate rages over GM food labeling proposals.

Fifty years ago, marine biologist Rachel Carson ignited the modern environmental movement with the publication of *Silent Spring*. It was an ecological alarm call – an attack on what she believed was the overuse of pesticides and the potential harm they might cause to humans and wildlife – and a call for a progressive science-focused view of modern agriculture and food.

Her deeper, ecological message is often overlooked by her most ardent supporters. It should be front and center as Californians prepare to go the polls in November to decide the fate of Proposition 37 – which would introduce mandatory labeling of genetically modified (GM) foods into the United States for the first time.

Carson got some key facts catastrophically wrong in her book, particularly her wholesale demonization of DDT, which she believed was killing eagles and other wildlife. Hundreds of studies have since shown that DDT, as properly used, does not cause cancer in humans or pose serious threats to wildlife.

Then and today DDT is recognized as a unique and indispensable tool in combating mosquito-born malaria. Literally millions of people may have died because of bans imposed on DDT as the result of campaigns inspired by Carson's book.

But Carson's overriding vision remains powerful and prescient. She spurred awareness of the fragility of nature's food chain and she introduced to a science-wary public the notion that genetics can work with nature in a sustainable way.

"A truly extraordinary variety of alternatives to the chemical control of insects is available," she wrote. So what would she say if she were around to witness the raging debate over the future of GM foods?

While many of Carson's followers mischaracterize her book as a wholesale rejection of pesticides, and say she would have rejected GM crops, her writings suggest that she was a pragmatist who understood that solving world hunger rested on developing a range of science-based solutions, including the deployment of crop biotechnology.

"Specialists representing various areas of the vast field of biology are contributing – entomologists, pathologists, geneticists, physiologists, biochemists, ecologists – all pouring their knowledge and their creative inspirations into the formation of a new science of biotic controls," Carson wrote.

What about the science?

Yet, a broad coalition of activists in the US who invoke Carson as their inspiration – led by high-profile organic producers, Friends of the Earth, Center for Food Safety, Environmental Working Group, Consumers Union and the Sierra Club – continue to play fast and loose with the very science that motivated Carson to write *Silent Spring*.

“It would be a setback to the ecologically based farming movement if Californians approved this labeling initiative,” says Pamela Ronald, a University of California-Davis plant geneticist who is a leader in the emerging “green genes” movement. These are environmentalists who see genetics as a key tool to dramatically enhance sustainable agriculture.

Ronald has contributed to the development of flood-tolerant and disease-resistant rice (it’s already reached one million farmers, mostly in the developing world), which along with drought-tolerant and vitamin-enhanced varieties is poised to revolutionize farming. Ronald outlined this prospect in *Tomorrow’s Table*, which she co-authored with her husband, Ronald Adamchak, an organic farmer who manages the student-run organic farm at the Davis campus.

“The science is clear,” she says. “The GM crops currently on the market are safe to eat, benefit the environment and improve the health of farm workers.”

Ronald has found that the views of progressive scientists are being overwhelmed by the voices of precautionary-minded, anti-science advocacy groups. If current polls hold up, in November California foods will be subject to strict GM labeling laws. And in India, the ministry of health has proposed one of the most restrictive labeling laws in the world, tighter even than those imposed in the European Union.

Anti-GM, pro-labeling forces behind the US and Indian initiatives have gone to great lengths to frame this issue as a matter of choice, transparency and precaution. But what’s really at stake here?

GM labeling policies vary considerably around the world. The great divide is between the EU, which has favored mandatory labeling, and the US federal government, which is legally barred from imposing such requirements unless there is a proven scientific justification rather than just fears.

Japan has loose labeling laws, limited to 30 foods. In the developing world, while Brazil and China have adopted mandatory labeling laws, the Philippines and South Africa rely on voluntary labeling.

India is proposing mandatory labeling that would be the most stringent yet. It would include no exemptions for animal products or processed foods. It reads: “A GM food, derived there from, whether it is primary or processed or any ingredient of food, food additives or any food product that may contain GM material shall be compulsorily labeled, without any exceptions.”

Costs and benefits

If mandatory labeling were, as its proponents claim, merely a matter of transparency then the choice

would be easy. But that's not the case. There are huge consequences, intended and unintended.

Unlike other quality attributes of agricultural produce, genetic modification is difficult to detect. You can't just see it. A food product cannot be verified to be GM-free unless documented steps have been taken to preserve the "identity" of the product in the production and marketing chain through what's known as "identity preservation" (IP). However, because some GM foods are genetically equivalent to non-GM foods, existing testing mechanisms cannot accurately detect transgenic DNA.

For instance, there is no reliable way to distinguish soy oil derived from GM soybean from soy oil from non-GM beans. The only differences are in the process, not in the final product, which (despite what GM critics claim) is nutritionally and functionally identical to organic and conventional varieties.

So, unlike with the case for most labeling – for example, whether a product contains high fructose sugar, which is easily identified – the cost of verification can be considerable or even catastrophic to producers and consumers. In fact, that's what labeling supporters are betting on.

Opponents are determined to beef up regulation to make producing GM foods prohibitively costly. They know that a mandated system in California (or India) would require the construction of parallel production, processing and distribution systems to track every crop, processed food or trait, dramatically raising prices – and immediately ending the cost benefits of GM foods that drives their growth.

Quality standards and labeling are traditionally justified by health and safety considerations. So, tighter regulations could be justified if a case could be made that GM foods pose a unique danger to consumers. Better safe than sorry. The problem is that there is no reputable data that shows that GM foods have any unusual health impacts.

Some consumers may wish not to consume GM foods because of ideological fervor ("it violates nature"), which amounts to a religious or ethical preference. Or they can genuinely "fear the unknown", the precautionary justification for setting aside the empirical data. But there is no actual evidence that GM foods are harmful.

There have been more than 300 independent medical studies on the safety of genetically modified foods. The World Health Organization, the US National Academy of Sciences and most recently the American Medical Association House of Delegates have evaluated the evidence. They have concluded that there is no evidence that the genetic modification process presents any unique safety issues and recognized the potential benefits of the technology.

The US Food and Drug Administration has not even considered the labeling question, despite enormous pressure from advocacy groups. At its best, it's a science-based agency. Unlike precautionary-obsessed regulators in the EU and elsewhere, the FDA does not even have the authority to react solely to consumer fears – it's mandated to follow the evidence. The evidence consistently shows that genetically engineered foods are as safe and have a similar nutritional profile as their non-GM counterparts.

And that's why the EU's chief scientist, renowned biologist Anne Glover, recently reaffirmed that foods made through genetic engineering are as safe as organic or conventional foods – unleashing predictable

howls from Friends of the Earth and other anti-GM campaigners.

Shutting down choice

The only justification for labeling is that consumers have a “right to know”. In other words, in the absence of mandatory labeling, consumers have no choice but to consume GM foods. Mandatory labeling could theoretically give consumers the choice of selecting foods according to their preferences.

At first blush, this seems reasonable – more consumer disclosure. But in the real world, it’s quite reactionary. Contrary to what pro-labeling advocates maintain, almost all academic studies have made the point that rather than facilitating consumer choice, mandatory labeling acts as a “fear generator” and market barrier. That’s because GM foods, which require the use of less pesticide and produce higher yields, are less costly than either conventional or organic competitors.

Information masquerading as “knowledge” would actually limit consumer choices. As the anti-GM US Interfaith Center on Corporate Responsibility cheerfully told Ethical Corporation, labeling a product as GM would be akin to slapping “a skull and cross bones” on it. Activists are banking on the fact that many consumers are “label sensitive,” meaning they will reflexively impute a negative quality to a labeled food – GM would imply “bad”.

“We fully expect producers or grocery stores won’t want to risk alienating their customers with labeling, so they’ll eventually decide not to use any bio-stuff at all,” says Michael Passoff, senior strategist at the US NGO As You Sow. Consumers will end up paying more. The very existence of a label would create a market barrier and restrict competition, jacking up overall costs to consumers.

Anti-GM groups also claim that they are merely following consumer preferences, not leading them. Superficially that’s true. Consumer surveys invariably show a large preference for GM-free foods. Why? Confused by the he said/she said quality of the controversy, many consumers default to precaution when responding to surveys.

But studies show they often reach that default opinion without factoring in what will undoubtedly happen in California and India should mandatory labeling prevail. Prices will soar, impacting the most vulnerable and least affluent, and some products will disappear because they will no longer be price competitive.

The default desire for non-GM foods often dissolves in the grocery store, when choosing between expensive organic food “A” and cheaper food “B” containing GM ingredients. The perception of quality matters to consumers – but it has its limits and is directly and negatively correlated to price. Surveys are renowned for hyping hysteria and missing actual purchasing behaviors.

Because price matters most, the market share of exclusively segregated, comparatively expensive, voluntarily purchased GM-free products is likely to be small. That means such products are likely to be available in large quantities only if regulators – or voters – artificially impose a closed market. This exists in Europe and could happen in the US, India and other places with Draconian mandatory labeling laws set to take effect.

The California vote will undoubtedly unleash a torrent of legislation, as the measure is all but unenforceable without huge infrastructure changes in the food business, at very high cost. But the precautionary mindset that is driving this is unlikely to abate soon.

Under a barrage of lobbying pressure from the organic movement, even the American Medical Association turned weak-kneed, passing a resolution recommending pre-market assessment of genetically engineered foods, even though the science says there are no health concerns. In response to anti-science campaigners, they invoked an odd twist on the “trust but verify” strategy – which is doomed to fail because no test can allay precautionary fears.

And Carson?

So what would Rachel Carson make of all this?

For 10,000 years, humans have altered the DNA make-up of our crops. Conventional approaches were often quite crude, resulting in new varieties through a combination of trial and error, and without knowledge of the precise function of the genes that were being moved around.

Such methods include grafting or mixing of genes of distantly related species, as well as radiation treatments to induce random mutations in the genetic make-up of the seed. Today, virtually everything we eat is produced from seeds that have been genetically altered in one way or another.

Pamela Ronald, and other science-minded ecologists and environmentalists, worry that the labeling initiative will end up having the opposite effect of that intended.

“A ‘warning’ label would unnecessarily frighten consumers and force a return to a conventional system of breeding,” she warns. “Such an approach is eerily similar to the recent campaigns against vaccines, which has led to outbreaks of life-threatening diseases in children. Denying the scientific consensus behind agricultural and medical science only hinders humanitarian goals.”

She believes Carson might very well have been on the front lines of the new era in biology – campaigning for the precise control of genetic modification, instead of relying on random chance to create new varieties. That’s sustainable agriculture in its purest form.

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