

## NBJ Spotlight: GMOs and the U.S. Food Supply

### What is in store for 2009? | Is organic seed safe?

#### The Battle Against GMOs Heats Up in the United States

*With new consumer education and standardized testing programs in place, many believe 2009 will be a turning point in fight over GM crops*

Fourteen years after the first genetically modified (GM) crop, *FlavrSavr* tomatoes, hit grocery store shelves, America is awash in genetically engineered organisms, or GMOs. An estimated 70% of processed foods contain GMOs, and more than 160 million acres of GMO crops were planted in the United States in 2008, according to the **U.S. Department of Agriculture** (USDA). Yet, when it comes to consumer awareness of GMOs, surveys reveal that what people know and understand is minimal at best.

But that's not stopping a committed group of activists, organizations and companies from stepping up the attack on GMOs. As the window of opportunity to preserve access to GMO-free food grows narrower, seed growers, farmers, retailers, manufacturers and distributors in the natural & organic food industry have joined forces to launch a unified effort to alert consumers to the potential risks associated with GMOs and ultimately get them out of the U.S. food supply. "We intend to make 2009 the year of the tipping point for consumer rejection of GMOs," said Jeffrey Smith, founder of the consumer outreach group **Campaign for Healthier Eating in America**.

Meanwhile, others are working to protect the non-GMO food that is still available in the United States. For example, the **Non-GMO Project**, which is made up of players working at every step in the natural & organic food processing chain, is finalizing its creation of a standardized, third-party-verified system for identifying GMO-contaminated prod-

ucts. The group hopes to have 2,000 products in the program by June and its consumer logo rolled out by October.

"We have hit a critical point where if we don't do something now to preserve non-GMO ingredients, we will lose our ability to do so—it's now or never," said Megan Thompson, executive director of the Non-GMO Project. "[GMO contamination] is a big threat to the organic and natural products industry."

#### The *FlavrSavr* and Beyond

The birth of GMOs in America dates back to 1994, when California-based **Calgene** manipulated genes in the *FlavrSavr* tomato to delay its ripening and extend its shelf-life. Due to high production costs, this product was soon discontinued. But agricultural biotech company **Monsanto** acquired the technology and ran with it, rolling out genetically modified seeds that made crops resistant to its popular herbicide glyphosate, *Roundup*. The company also created seeds that were spliced with DNA that made them naturally repellant to pests.

Since then, dozens of GMO crops—which are defined as crops in which genes from one species have been spliced into another—have been developed, including frost-resistant strawberries infused with arctic fish genes; antioxidant-enriched rice made with corn genes; and nutrient-enriched cassava designed to address malnutrition in developing countries. To date, only four GM crops are in broad commercial use in North America, but these crops have significantly penetrated the U.S. market. According to the USDA, 86% of all cotton, 92% of soy beans, and 80% of corn grown in the United States is genetically modified.

#### GMOs: United States Vs. Europe

In 1999, U.S. environmentalists stepped up their fight against GMOs after the journal *Nature* suggested GM pollen was killing off Monarch butterflies; and in 2000, consumers expressed dismay

when tests discovered that **Taco Bell** taco shells included *StarLink* GM corn, a product that had been approved only for animal feed because federal regulators expressed fears that the corn could prompt allergies in humans. Ultimately, both claims were dismissed by federal regulators who contend that GMO foods are safe and do not "differ from other foods in any meaningful or uniform way." After that, the GMO issue slipped below the radar screen in the United States. "GMOs are one of the most dangerous and radical changes to our food supply," Smith said. "But in the United States, [the fight against GMOs] just died."

Things went differently in Europe, however, where "people were talking about GMOs and writing about them," Smith added. Today in Europe, companies are required to label a product if it contains more than trace amounts of GMOs (meat and dairy are exempt). Several European countries, including Austria and Hungary, hold bans on the planting of GM crops, and numerous international companies—such as **Unilever** and **Nestlé**—have vowed to keep GM products out of their European product lines. In the United States, the **U.S. Food and Drug Administration** (FDA) requires companies to voluntarily consult with the agency and provide safety and economic data before commercializing a GMO product. No labeling is required. This could change, however, given the USDA's March 11 announcement that it will hold a "scoping session" to discuss new rules for GMOs.

Smith acknowledged that the body of evidence regarding health risks of GMOs is slim. According to his book, *Genetic Roulette*, by the beginning of 2007, there were just over 20 peer-reviewed animal feeding safety studies on GM crops and only one human feeding trial. But mounting anecdotal evidence and a few emerging studies have Smith convinced that GM crops put people at greater risk of allergies, digestive problems, impaired immune response and reproductive problems.

## Organic Seeds Increasingly in Danger of GMO Contamination

As a small-scale seed breeder on an organic farm in Oregon's Willamette Valley, Frank Morton didn't worry much about genetically modified (GM) seed. He figured the vast majority of GM crops, including soy and corn, were grown elsewhere, and the chances of his organic baby greens or table beets becoming contaminated by floating pollen were slim to none. "I used to never pay attention to this issue in terms of my own business, but then it showed up at my back door," Morton told *Nutrition Business Journal*. In 2008, farmers within two miles of Morton began to plant GM sugar beets, which easily cross-pollinate with table beets and chard, and Morton began to envision his profits, quite literally, drifting in the wind. "As soon as I told my customers I had GMO sugar beets in the valley, they told me we can't buy those species from you anymore unless you test them for GMO," said Morton, who now tests. "If you don't have seeds with organic integrity, you can't have food with organic integrity. Everything starts with the seed."

Morton is among the growing number of organic farmers who are taking great pains to keep their seeds from being contaminated with GM counterparts. While national standards require that products labeled "organic" be GM-free, inadvertent contamination of organic seed—via wind drift or during storage or transportation—is on the rise; and as more GM seeds are commercialized, many fear the problem will only escalate. In 2002, GM testing companies reported that fewer than 5% of organic samples contained more than .1% GM material. "It is definitely more of a problem now," said John Fagan, PhD, chairman and chief scientific officer at the GM-testing company **Genetic ID**. "There are some sectors of the industry where you can find double-digit levels of contamination."

A 2003 survey by the **Organic Farming Research Foundation** (OFRF) found that 17% of certified organic farmers were testing their seed, and of those, 11% had discovered contamination. Nearly half said they were taking measures, often at great cost, to protect their farms by increasing buffer zones and inspecting storage and transportation vessels. In signing the Safe Seed Pledge, more than 100 seed companies have vowed that they "will not knowingly buy or sell GM seeds or plants." Despite such efforts, high-profile cases of contamination have occurred. In 2007, according to the *Organic and Non-GMO Report*, **Nevada Soy Products**, a producer of organic soybean oil and meal, lost \$100,000 after discovering organic soy beans it had received were as much as 20% contaminated. That same year, **Fedco Seeds** found several lots of its organic corn to be contaminated and pulled them off the market. And in February 2008, **Straus Family Creamery** reported that it had rejected 200 tons of organic corn after nearly one in three samples tested positive, with some having as much as 6% GM.

Some counties, including Mendocino County in California, have banned the planting of GM crops, while some states, such as Vermont and Hawaii, have tried to force manufacturers of GM plants to pay for damage caused by cross-contamination and/or provide public disclosure of GM crop locations.

In 2008, seed growers, including Morton, filed a lawsuit challenging the USDA's decision to approve the planting of GM sugar beets, alleging that the beets would "inevitably cross-pollinate with related crops," putting the organic industry in jeopardy. Morton warned that transgenic GM cabbage will likely be next to enter the market, and it too can contaminate other seed varieties, including broccoli and mustard greens. That's why he is dedicating so much of his time to lobbying for change. "The genie is definitely out of the bottle," Morton said. "But I believe it can be put back in."

After GM soy was introduced in the United Kingdom, soy allergies there skyrocketed by 50%, according to European press reports. Some studies have shown that animals fed GM foods have stunted growth and higher offspring mortality. And dozens of farmers have reported that either they or their livestock have fallen ill after consuming GM crops.

Bruce Chassy, PhD, a professor of nutritional science and food safety at **University of Illinois** and a former member of the FDA's food advisory council, strongly disagrees, calling Smith's claims myths without basis in science. "The preponderance of scientific literature shows that there is absolutely nothing there," said Chassy, who believes GM crops are safe, easier on the environment, and hold great promise for easing the world's hunger problem. Facing such differing perspectives on the issue, the world has split along pro- and anti-GMO lines.

But what do U.S. consumers think? According to a 2006 survey by the **Pew Initiative on Food and Biotechnology**, 41% said they were familiar with the issue (down from 45% in 2001). Roughly 34% said they believe GMOs are safe, while 29% called them unsafe and 37% had no opinion. Such findings, the Pew report said, show that "the opportunity to shape public opinion is ripe." A poll conducted by the *New York Times* and CBS news in 2008 found that 87% of Americans would like to see GMOs labeled, and 54% wouldn't knowingly buy food made with them.

### Testing for GMOs

The GMO issue is certainly seeing the light of day in the natural & organic sector. In fact, there are already roughly 400 natural products that carry "non-GMO" claims on their labels. Although this is a step in the right direction, Non-GMO Project board members say that the screening programs used to identify GMO ingredients vary radically. By creating one consensus-based standard, which the Non-GMO Project has done, the group hopes to level the playing field for manufacturers and eliminate the guesswork for consumers. Thus far, the project has 15 product lines enrolled in its program and another 25 to 30 in

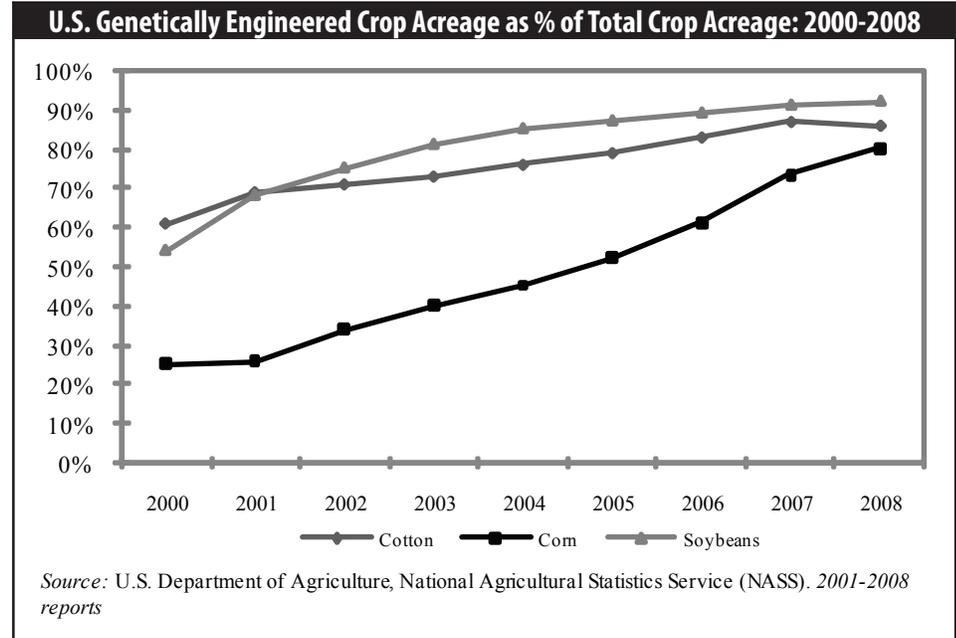
the process. It has also enlisted the help of 400 “retail endorsers” that are committed to offering non-GMO shopping guides and, in the case of **Whole Foods Market**, keeping GMOs out of its private-label products.

On the consumer education front, Smith’s group intends to distribute 1 million non-GMO shopping guides in 1,000 retail stores this year. The group is also launching online consumer education campaigns. “By the end of the year, people are going to be seeing this message from several angles,” said Smith, who believes that if 15 million consumers (or about 5% of shoppers) reject GMOs outright, it may sway food companies to do the same.

Michael Funk, chairman of **United Natural Foods Inc.** (UNFI), the largest distributor of natural & organic products, said he believes it is critical that the organic food industry pay attention to the GMO issue or risk losing credibility among increasingly fickle consumers. “People who buy organic food products expect them to be free of GMOs,” said Funk. “It only takes a few negative media stories [about contamination] for the consumer to start to wonder whether they should really pay a premium for these organic products. And in this economy, it is even more of an issue.”

Already, GMO testing is costing food manufacturers big money. For example, Michael Potter, president of organic manufacturer **Eden Foods**, estimates that his \$50 million company spends as much as a half-million dollars per year testing for GMO contamination. “We test the seed to death,” he said. “[Then Eden tests] the crop as it is growing, after it is harvested, before it is moved to and when it arrives at the elevator, and when it arrives at the manufacturing facility. There is an enormous amount of record keeping. It is a huge burden.”

Potter said that putting his products through the additional Non-GMO Project process will likely cost the company an extra \$30,000 to \$40,000 the first year, and he concedes that when approached by the Non-GMO Project, some companies have balked at the idea of taking on an additional expense. But ultimately,



Potter added, a streamlined system will likely save everyone money. “If everybody does it by themselves, like we have done, there are a lot of redundancies,” he said. “If we all use the same system, it can drive down the cost.”

### Crop Contamination

Agricultural producers are also feeling the sting of GMOs. Bill Wenzel, director of the **Farmer to Farmer Campaign on Genetic Engineering**, said that both conventional and organic farmers are at economic risk as GM crops proliferate. That’s because GM seed costs more and doesn’t necessarily increase yield (which the University of Illinois’ Chassy asserts that it does). In addition, the advent of herbicide-ready and pesticide-resistant crops has led to the development of stronger weeds and insects.

Perhaps the thorniest issue for farmers, however, is the risk of GM crops contaminating nearby non-GM crops. Until recently, Wenzel said, farmers have been successful at fighting the introduction of new GM varieties, crop by crop. For example, when GMO wheat, rice and alfalfa were poised to be commercialized, farmers rallied and squelched those efforts. “Up until recently a large part of our focus was drawing a line in the sand,” said Wenzel, who added that “there hasn’t been a new GMO crop that has been commercialized since the original four in 1996.”

The latest GMO battle for farmers centers on a new herbicide-tolerant sugar beet. In January 2008, activists filed suit in federal court, challenging the approval of this new GM crop. Farmers began planting the GM sugar beet last spring, and already, the crop can be found in countless sugar-containing products on grocery-store shelves. While the lawsuit makes its way through the courts, the **Center for Food Safety** has created a registry for companies to sign if they vow not to use the beets. Thus far, 70 companies have added their names to the list. Meanwhile, Smith is organizing a petition to send to President Obama, asking him to put mandatory labeling of GMOs on his agenda for 2009.

Ultimately, Wenzel would like to see federal regulators more rigorously evaluate the health, environmental and economic consequences of GM crops. “We just don’t know what the long-term consequences are,” he said, “and there could be some serious problems down the road.”

GMO advocates, on the other hand, contend that not only are GMOs safe for consumers and advantageous to farmers by helping them better manage weeds and pests and increase yields, they also could hold the key to addressing global malnutrition. “There are some clear benefits to using this technology,” said Chassy. “I find it cruel and immoral for these activists to try to block it.”