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Over the last 18 years, genetically modified food has become quite common in the United States. During that same period, a growing number of children have developed allergies to food. Just because the timing coincides, though, does not necessarily mean eating genetically modified food caused the rise, said Rick Goodman, a food science and technology professor at the University of Nebraska-Lincoln.

"Under the current system and products that are available, there is really no reason for concern for a health impact from..."
Link or no link? Controversy simmers over allergies and genetically modified food | Harvest Public Media

Camille Phillips is an intern for Harvest Public Media. She grew up in southwest Missouri and her farm roots go back to the 1920s in southeast Kansas. As a graduate student at Missouri School of Journalism, she reported for the local NPR affiliate, KBIA-FM, and Columbia's morning newspaper, the Columbia Missourian.

... genetically modified crops," said Goodman, who specializes in assessing the risk of allergens in genetically modified products, a skill he developed working for the biotech giant Monsanto. St. Louis-based Monsanto makes some of the most popular genetically modified products on the market, including Roundup Ready Soybeans and Roundup Ready Corn.

Monsanto's director of corporate affairs, Tom Helscher, agrees with Goodman. "We do not find any credible evidence associating GM (genetically modified) food with the occurrence of allergy in children or adults," he wrote in an email to Harvest.

But despite assurances from researchers like Goodman, biotech companies and government agencies, the parallel timing has raised concerns. Some observers also question how the research is being conducted.

"The process of genetic engineering can cause hundreds or thousands of mutations up and down the DNA and up to 5 percent of the existing natural genes can change their levels of expression. And these are not evaluated in the superficial studies that are being done before the crops get on the market as food," said Jeffrey Smith, a longtime critic of genetically modified food. Smith, who is based in Iowa, has made it his mission to expose the dangers he believes they pose and get the products removed from the food supply. He has written two books on the topic, Seeds of Deception and Genetic Roulette.

According to the Centers for Disease Control and Prevention, the prevalence of children with food allergies rose 18 percent between 1997 and 2007.

Data on food allergies was not consistently collected prior to 1997, so it’s unknown how common they were before then. Still, the data that available indicates a significant increase over time, Amy Branum, with the National Center for Health Statistics, said in an email. She is co-author of a CDC report on allergies.

According to Branum’s records, 5.5 percent of parents surveyed in 2011 reported having a child with food allergies. That’s a 67 percent increase from 1997, when just 3.3 percent of parents answered positively to the question. In straight numbers, that’s an estimated additional 2.7 million children in a 14-year time span.

Adoption of genetically engineered crops in the U.S.

The first foods derived from genetically modified crops — plants with a gene added to their DNA, giving them new traits such as pesticide resistance — hit grocery store shelves in the mid-90s. First there were tomatoes, then soybeans, potatoes and corn. And as the years passed, more and more farmland has been...
planted with genetically modified crops.

Basically, today’s children and teenagers have been eating genetically modified food all their lives.

Still, when it comes to the allergy issue, it may be that more people report that their children have food allergies today because they are more aware of the possibility. Or perhaps, as some argue, more children in the United States develop food allergies because children are less exposed to germs and allergens now.

“We have to kind of look at our whole world, the whole context,” Goodman said. “If so many things are changing in our diets, in how much exercise we get, in vaccinations that keep us from having certain diseases, in the number of visits to the doctor, in how many times we take antibiotics during our lifetime, things like that.”

Goodman often gives presentations around the world on assessing the risks of allergens. Last year he spoke at a conference in Vienna.

The research

At his lab on the University of Nebraska-Lincoln campus, Goodman explained the steps he takes to test the likelihood that products may cause an allergic reaction. First the protein created by the added gene is isolated. Then that protein is tested on a serum made from the antibodies of people allergic to similar proteins. It’s not tested directly with people.

According to Goodman, this process is enough to determine whether a genetically modified product is at risk of causing allergic reactions. And, he said, this test is only needed when signs point to the possibility of the protein being an allergen.

But Smith, the activist, disagrees. His website has video after video and list after list of reasons why genetically modified food is dangerous. Smith gets some of his information from published studies, but much of it comes from personal communication with scientists. He acknowledges that there’s not a lot of conclusive research yet, but he thinks initial findings are worrisome enough to merit further study. Many of the studies Smith does reference are animal studies, because there are few human studies.

“We know that animals consistently react to GMOs (genetically modified organisms) when their immune system is tested in a competent way in laboratories,” Smith said.

But according to Goodman, current animal studies only predict human reactions half the time. He said testing people for allergic reactions can be dangerous and complicated, which is why researchers use human antibodies in pre-market tests. As for studies on people eating genetically modified food already on the market, Goodman said, those are too hard to control.

“We don’t know who ate Roundup Ready Soybeans versus quote unquote conventional soybeans,” Goodman said. “So how can you make a correlation and how do you study a population?”

Labeling divide

It’s fairly safe to say that most everyone in the United States has eaten genetically modified soybeans — for the past five years more than 90 percent of the U.S. soybean crop has been genetically engineered. And soy can be found in a lot of different types of food, especially processed food, everything from breads and pasta to meat and dairy.
If genetically modified food were labeled, then maybe scientists could keep track and these types of studies would be more feasible. Labeling is one of Smith's primary goals. He thinks labeling genetically modified food will lead to customers rebelling against the technology.

At a support group in Lee's Summit, Mo., however, three mothers of highly allergic children see another problem.

“I don't see that there would be much left to buy,” Melody Hawkins said. “And I'm already so limited; I'd be like-ugh!”

Opponents of mandatory labeling say it would be difficult, costly and give the inaccurate perception that genetically modified food is a health concern. Supporters say labeling is a matter of the public’s right to know.

Californians will have a chance to show who they agree with come November, when a ballot initiative requiring labels on genetically modified food will be put to the vote.