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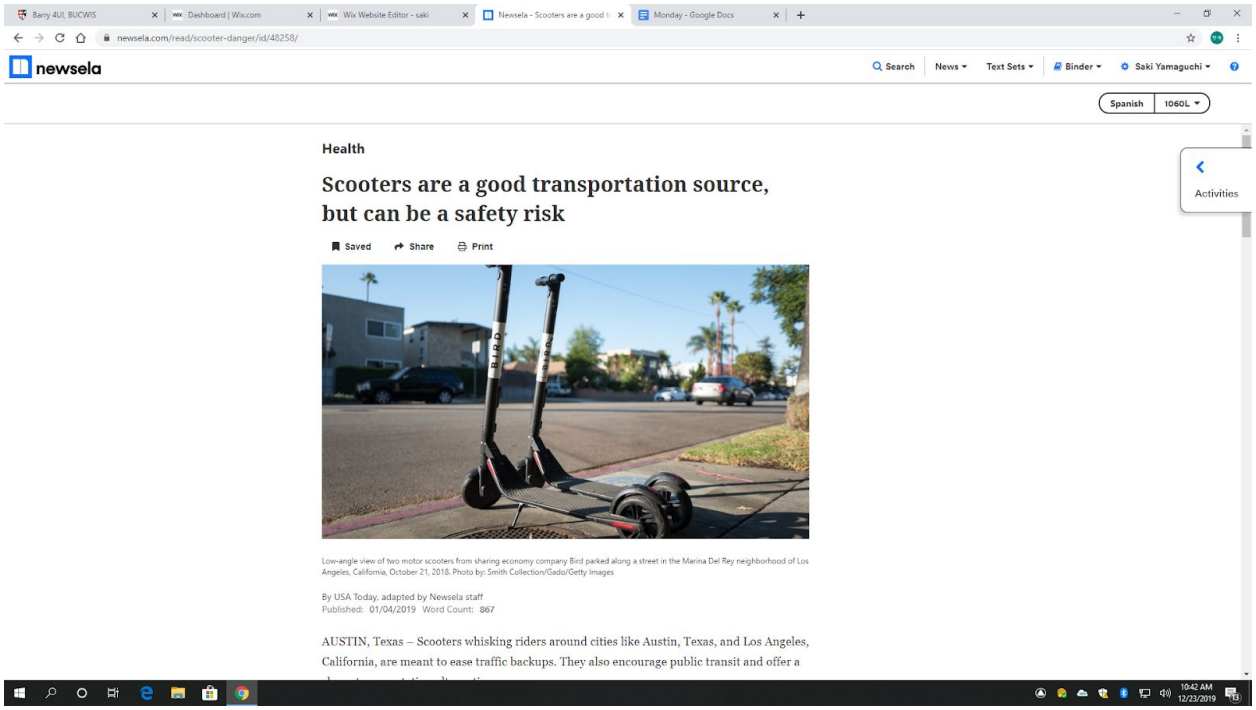
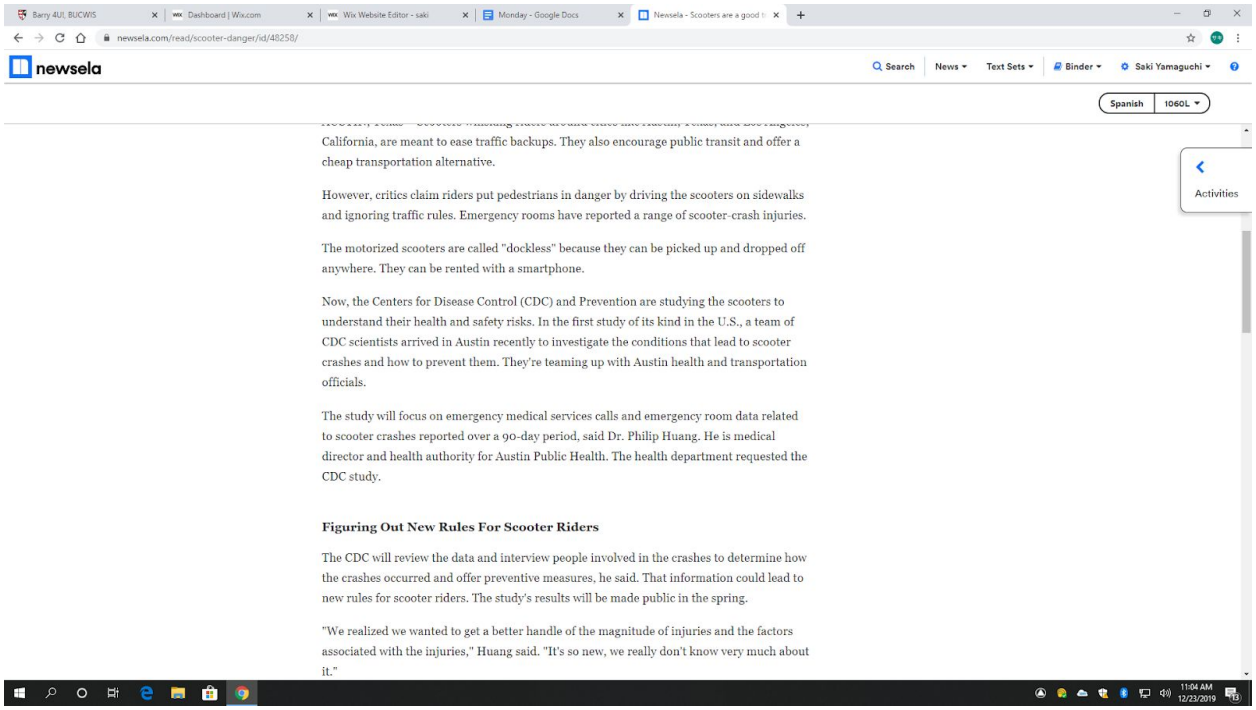
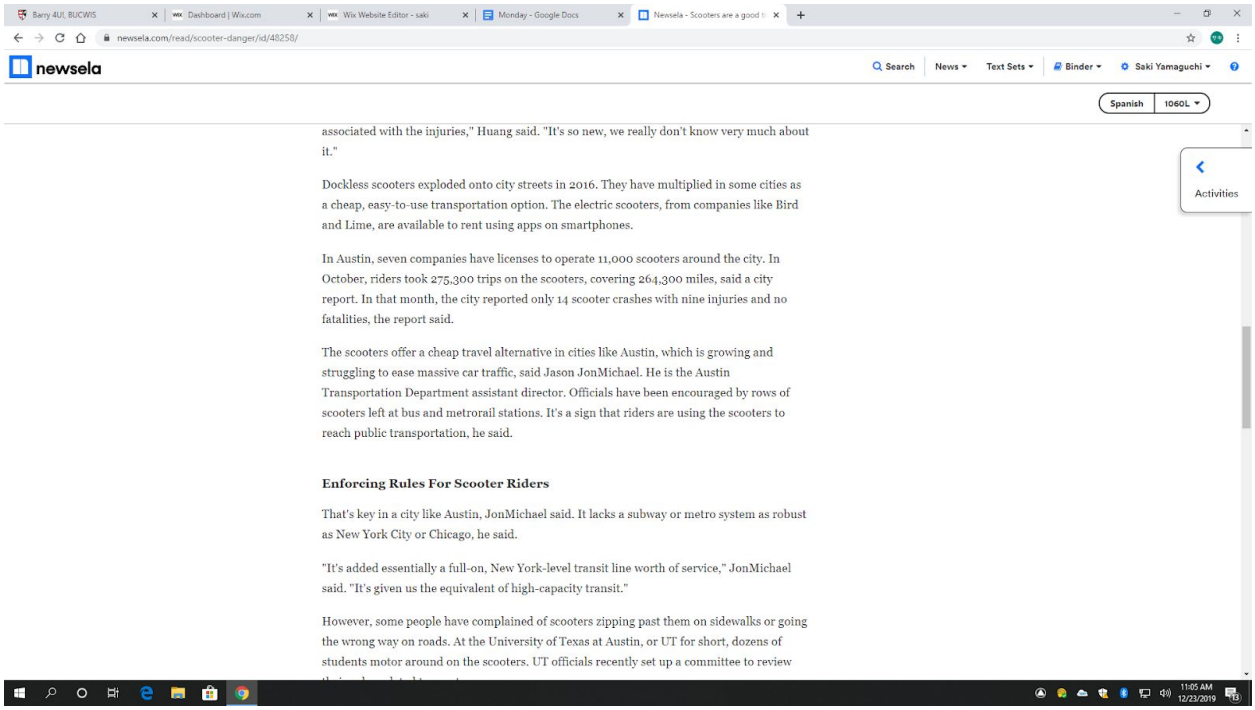






associated with the injuries," Huang said. "It's so new, we really don't know very much about it."

Dockless scooters exploded onto city streets in 2016. They have multiplied in some cities as a cheap, easy-to-use transportation option. The electric scooters, from companies like Bird and Lime, are available to rent using apps on smartphones.

In Austin, seven companies have licenses to operate 11,000 scooters around the city. In October, riders took 275,300 trips on the scooters, covering 264,300 miles, said a city report. In that month, the city reported only 14 scooter crashes with nine injuries and no fatalities, the report said.

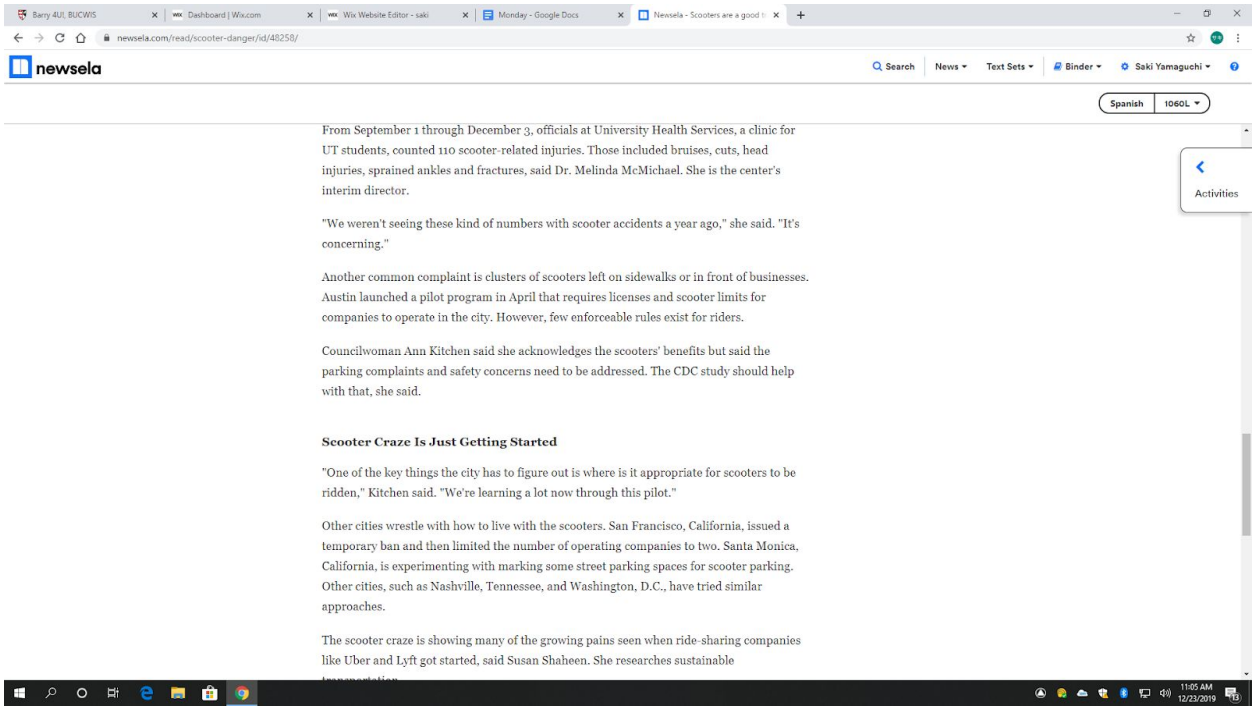
The scooters offer a cheap travel alternative in cities like Austin, which is growing and struggling to ease massive car traffic, said Jason JonMichael. He is the Austin Transportation Department assistant director. Officials have been encouraged by rows of scooters left at bus and metrorail stations. It's a sign that riders are using the scooters to reach public transportation, he said.

Enforcing Rules For Scooter Riders

That's key in a city like Austin, JonMichael said. It lacks a subway or metro system as robust as New York City or Chicago, he said.

"It's added essentially a full-on, New York-level transit line worth of service," JonMichael said. "It's given us the equivalent of high-capacity transit."

However, some people have complained of scooters zipping past them on sidewalks or going the wrong way on roads. At the University of Texas at Austin, or UT for short, dozens of students motor around on the scooters. UT officials recently set up a committee to review



From September 1 through December 3, officials at University Health Services, a clinic for UT students, counted 110 scooter-related injuries. Those included bruises, cuts, head injuries, sprained ankles and fractures, said Dr. Melinda McMichael. She is the center's interim director.

"We weren't seeing these kind of numbers with scooter accidents a year ago," she said. "It's concerning."

Another common complaint is clusters of scooters left on sidewalks or in front of businesses. Austin launched a pilot program in April that requires licenses and scooter limits for companies to operate in the city. However, few enforceable rules exist for riders.

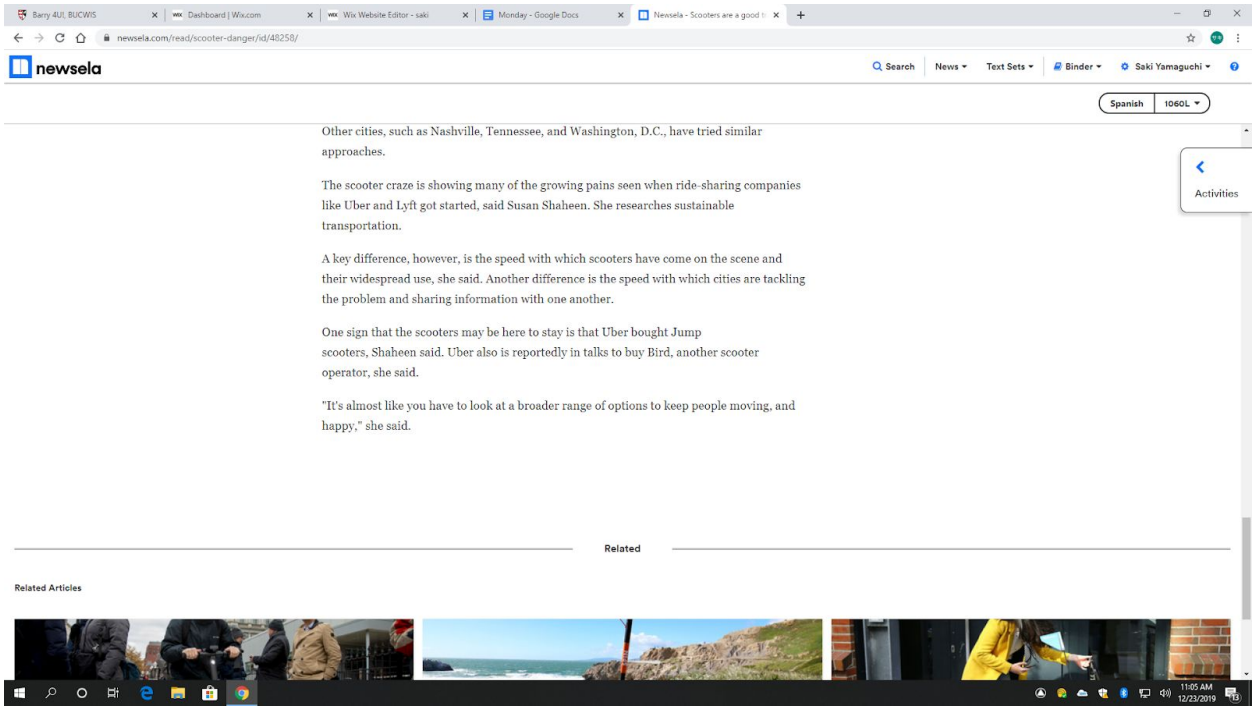
Councilwoman Ann Kitchen said she acknowledges the scooters' benefits but said the parking complaints and safety concerns need to be addressed. The CDC study should help with that, she said.

Scooter Craze Is Just Getting Started

"One of the key things the city has to figure out is where is it appropriate for scooters to be ridden," Kitchen said. "We're learning a lot now through this pilot."

Other cities wrestle with how to live with the scooters. San Francisco, California, issued a temporary ban and then limited the number of operating companies to two. Santa Monica, California, is experimenting with marking some street parking spaces for scooter parking. Other cities, such as Nashville, Tennessee, and Washington, D.C., have tried similar approaches.

The scooter craze is showing many of the growing pains seen when ride-sharing companies like Uber and Lyft got started, said Susan Shaheen. She researches sustainable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The scooter craze is showing many of the growing pains seen when ride-sharing companies like Uber and Lyft got started, said Susan Shaheen. She researches sustainable transportation.
A key difference, however, is the speed with which scooters have come on the scene and their widespread use, she said. Another difference is the speed with which cities are tackling the problem and sharing information with one another.
One sign that the scooters may be here to stay is that Uber bought Jump scooters, Shaheen said. Uber also is reportedly in talks to buy Bird, another scooter operator, she said.
"It's almost like you have to look at a broader range of options to keep people moving, and happy," she said.
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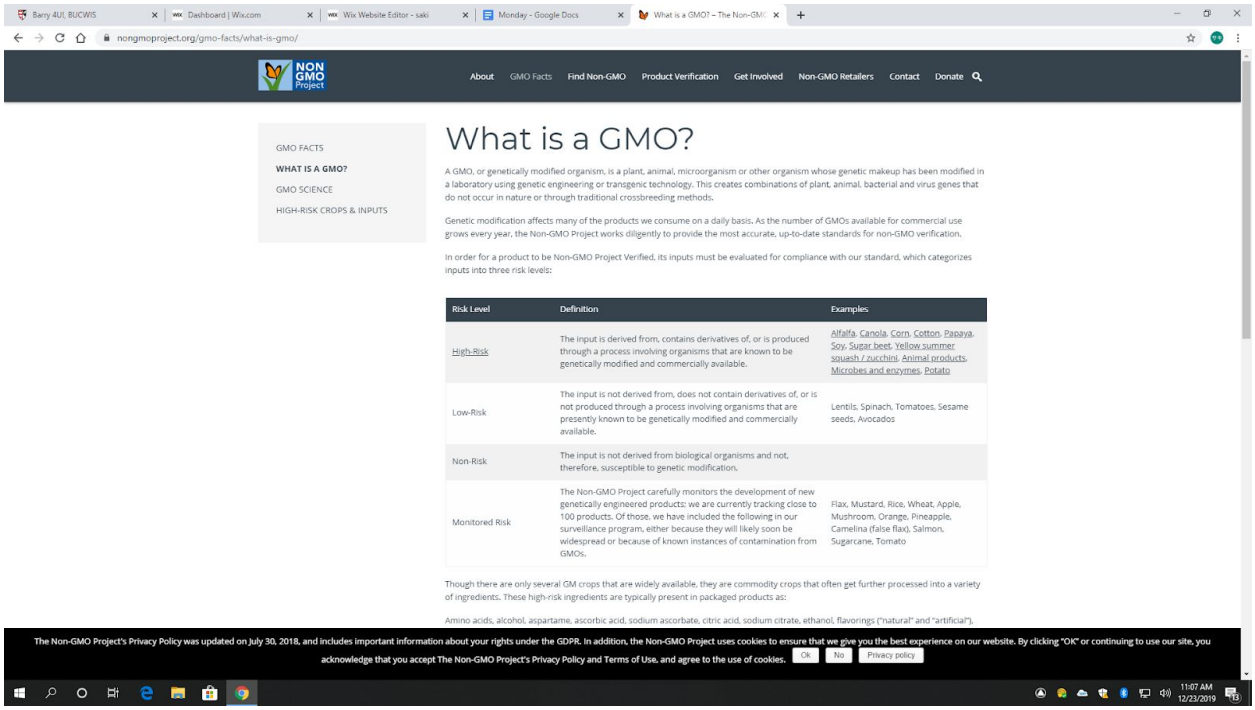
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What is a GMO?
A GMO, or genetically modified organism, is a plant, animal, microorganism or other organism whose genetic makeup has been modified in a laboratory using genetic engineering or transgenic technology. This creates combinations of plant, animal, bacterial and virus genes that do not occur in nature or through traditional crossbreeding methods.
Genetic modification affects many of the products we consume on a daily basis. As the number of GMOs available for commercial use grows every year, the Non-GMO Project works diligently to provide the most accurate, up-to-date standards for non-GMO verification.
In order for a product to be Non-GMO Project Verified, its inputs must be evaluated for compliance with our standard, which categorizes inputs into three risk levels:
Risk Level
Definition
Examples
High-Risk
The input is derived from, contains derivatives of, or is produced through a process involving organisms that are known to be genetically modified and commercially available.
Alfalfa, Canola, Corn, Cotton, Papaya, Soy, Sugar beet, Yellow summer squash / zucchini, Animal products, Microbes and enzymes, Potato
Low-Risk
The input is not derived from, does not contain derivatives of, or is not produced through a process involving organisms that are presently known to be genetically modified and commercially available.
Lentils, Spinach, Tomatoes, Sesame seeds, Avocados
Non-Risk
The input is not derived from biological organisms and not, therefore, susceptible to genetic modification.
Monitored Risk
The Non-GMO Project carefully monitors the development of new genetically engineered products: we are currently tracking close to 100 products. Of those, we have included the following in our surveillance program, either because they will likely soon be widespread or because of known instances of contamination from GMOs.
Flax, Mustard, Rice, Wheat, Apple, Mushroom, Orange, Pineapple, Camelina (false flax), Salmon, Sugarcane, Tomato
Though there are only several GM crops that are widely available, they are commodity crops that often get further processed into a variety of ingredients. These high-risk ingredients are typically present in packaged products as:
Amino acids, alcohol, aspartame, ascorbic acid, sodium ascorbate, citric acid, sodium citrate, ethanol, flavorings ("natural" and "artificial"),
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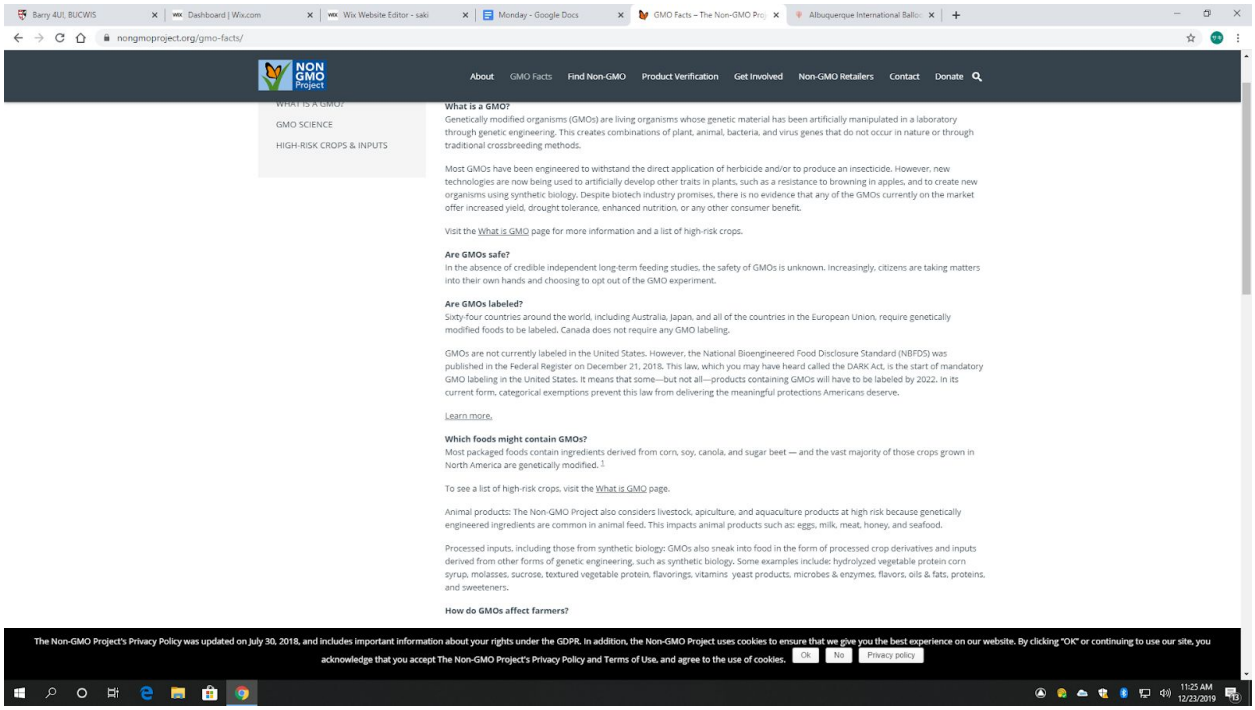
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What is a GMO?
Genetically modified organisms (GMOs) are living organisms whose genetic material has been artificially manipulated in a laboratory through genetic engineering. This creates combinations of plant, animal, bacteria, and virus genes that do not occur in nature or through traditional crossbreeding methods.
Most GMOs have been engineered to withstand the direct application of herbicide and/or to produce an insecticide. However, new technologies are now being used to artificially develop other traits in plants, such as a resistance to browning in apples, and to create new organisms using synthetic biology. Despite biotech industry promises, there is no evidence that any of the GMOs currently on the market offer increased yield, drought tolerance, enhanced nutrition, or any other consumer benefit.
Visit the What is GMO page for more information and a list of high-risk crops.
Are GMOs safe?
In the absence of credible independent long-term feeding studies, the safety of GMOs is unknown. Increasingly, citizens are taking matters into their own hands and choosing to opt out of the GMO experiment.
Are GMOs labeled?
Sixty-four countries around the world, including Australia, Japan, and all of the countries in the European Union, require genetically modified foods to be labeled. Canada does not require any GMO labeling.
GMOs are not currently labeled in the United States. However, the National Bioengineered Food Disclosure Standard (NBFDS) was published in the Federal Register on December 21, 2018. This law, which you may have heard called the DARK Act, is the start of mandatory GMO labeling in the United States. It means that some—but not all—products containing GMOs will have to be labeled by 2022. In its current form, categorical exemptions prevent this law from delivering the meaningful protections Americans deserve.
Learn more.
Which foods might contain GMOs?
Most packaged foods contain ingredients derived from corn, soy, canola, and sugar beet — and the vast majority of those crops grown in North America are genetically modified. [1]
To see a list of high-risk crops, visit the What is GMO page.
Animal products: The Non-GMO Project also considers livestock, apiculture, and aquaculture products at high risk because genetically engineered ingredients are common in animal feed. This impacts animal products such as: eggs, milk, meat, honey, and seafood.
Processed inputs, including those from synthetic biology: GMOs also sneak into food in the form of processed crop derivatives and inputs derived from other forms of genetic engineering, such as synthetic biology. Some examples include: hydrolyzed vegetable protein corn syrup, molasses, sucrose, textured vegetable protein, flavorings, vitamins yeast products, microbes & enzymes, flavors, oils & fats, proteins, and sweeteners.
How do GMOs affect farmers?
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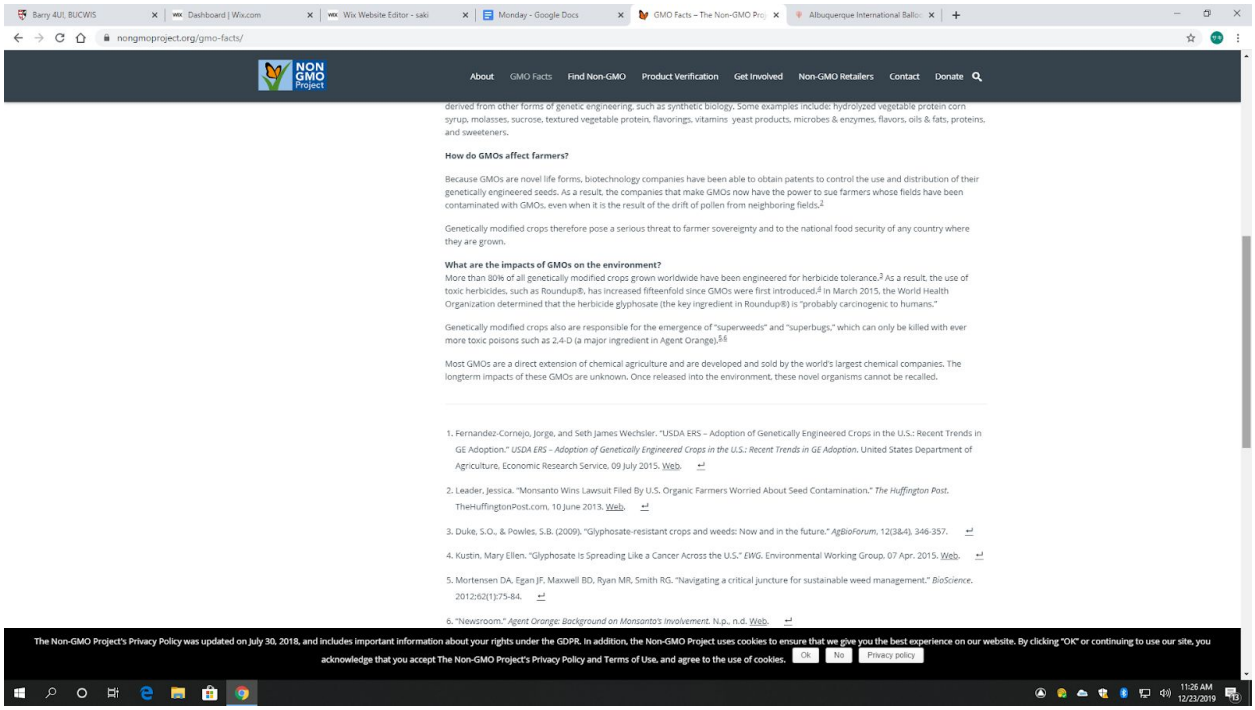
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derived from other forms of genetic engineering, such as synthetic biology. Some examples include: hydrolyzed vegetable protein corn syrup, molasses, sucrose, textured vegetable protein, flavorings, vitamins yeast products, microbes & enzymes, flavors, oils & fats, proteins, and sweeteners.
How do GMOs affect farmers?
Because GMOs are novel life forms, biotechnology companies have been able to obtain patents to control the use and distribution of their genetically engineered seeds. As a result, the companies that make GMOs now have the power to sue farmers whose fields have been contaminated with GMOs, even when it is the result of the drift of pollen from neighboring fields.[2]
Genetically modified crops therefore pose a serious threat to farmer sovereignty and to the national food security of any country where they are grown.
What are the impacts of GMOs on the environment?
More than 80% of all genetically modified crops grown worldwide have been engineered for herbicide tolerance.[3] As a result, the use of toxic herbicides, such as Roundup®, has increased fifteenfold since GMOs were first introduced.[4] In March 2015, the World Health Organization determined that the herbicide glyphosate (the key ingredient in Roundup®) is "probably carcinogenic to humans."
Genetically modified crops also are responsible for the emergence of "superweeds" and "superbugs," which can only be killed with ever more toxic poisons such as 2,4-D (a major ingredient in Agent Orange).[5,6]
Most GMOs are a direct extension of chemical agriculture and are developed and sold by the world's largest chemical companies. The longterm impacts of these GMOs are unknown. Once released into the environment, these novel organisms cannot be recalled.
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BIOLOGY

The Truth about Genetically Modified Food

Proponents of genetically modified crops say the technology is the only way to feed a warming, increasingly populous world. Critics say we tamper with nature at our peril. Who is right?

By David H. Freedman on September 1, 2013

Robert Goldberg sags into his desk chair and gestures at the air. "Frankenstein monsters, things crawling out of the lab," he says. "This the most depressing thing I've ever dealt with."

Goldberg, a plant molecular biologist at the University of California, Los Angeles, is not battling psychosis. He is expressing despair at the relentless need to confront what he sees as bogus fears over the health risks of genetically modified (GM) crops. Particularly frustrating to him, he says, is that this debate should have ended decades ago, when researchers produced a stream of exonerating evidence: "Today we're facing the same objections we faced 40 years ago."

Across campus, David Williams, a cellular biologist who specializes in vision, has the opposite complaint. "A lot of naive science has been involved in pushing this technology," he says. "Thirty years ago we didn't know that when you throw any gene into a different genome, the genome reacts to it. But now anyone in this field knows the genome is not a static environment. Inserted genes can be transformed by several different means, and it can happen generations later." The result, he insists, could very well be potentially toxic plants slipping through testing.

Williams concedes that he is among a tiny minority of biologists raising sharp questions about the safety of GM crops. But he says this is only because the field of plant molecular biology is protecting its interests. Funding, much of it from the companies that sell GM seeds, heavily favors researchers who are exploring ways to further the use of genetic modification in agriculture. He says that biologists who point out health or other risks associated with GM crops—who merely report or defend experimental findings that imply there may be risks—find themselves the focus of vicious attacks on their credibility, which leads scientists who see problems with GM foods to keep quiet.

Read more from this special report:
The Food Issue: The Science of Feast, Fuel and Farm

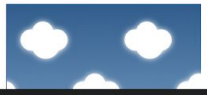
Whether Williams is right or wrong, one thing is undeniable: despite overwhelming evidence that GM crops are safe to eat, the debate over their use continues to rage, and in some parts of the world, it is growing ever louder. Skeptics would argue that this contentiousness is a good thing—that we cannot be too cautious when tinkering with the genetic basis of the world's food supply. To researchers such as Goldberg, however, the persistence of fears about GM foods is nothing short of exasperating. "In spite of hundreds of millions of genetic experiments involving every type of organism on earth," he says, "and people eating billions of meals without a problem, we've gone back to being ignorant."

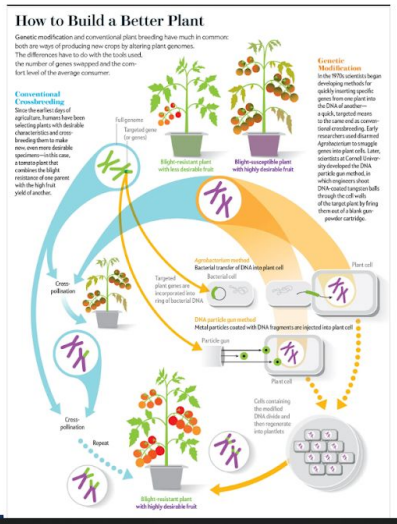
So who is right: advocates of GM or critics? When we look carefully at the evidence for both sides and weigh the risks and benefits, we find a

BENEFITS AND WORRIES

The bulk of the science on GM safety points in one direction. Take it from David Zilberman, a U.C. Berkeley agricultural and environmental economist and one of the few researchers considered credible by both agricultural chemical companies and their critics. He argues that the benefits of GM crops greatly outweigh the health risks, which so far remain theoretical. The use of GM crops "has lowered the price of food," Zilberman says. "It has increased farmer safety by allowing them to use less pesticide. It has raised the output of corn, cotton and soy by 20 to 30 percent, allowing some people to survive who would not have without it. If it were more widely adopted around the world, the price [of food] would go lower, and fewer people would die of hunger."

In the future, Zilberman says, those advantages will become all the more significant. The United Nations Food and Agriculture Organization estimates that the world will have to grow 70 percent more food by 2050 just to keep up with population growth. Climate change will make much of the world's arable land more difficult to farm. GM crops, Zilberman says, could produce higher yields, grow in dry and salty land, withstand high and low temperatures, and tolerate insects, disease and herbicides.





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Despite such promise, much of the world has been busy banning, restricting and otherwise shunning GM foods. Nearly all the corn and soybeans grown in the U.S. are genetically modified, but only two GM crops, Monsanto's MON810 maize and BASF's Amflora potato, are accepted in the European Union. Ten E.U. nations have banned MON810, and although BASF withdrew Amflora from the market in 2012, four E.U. nations have taken the trouble to ban that, too. Approval of a few new GM corn strains has been proposed there, but so far it has been repeatedly and soundly voted down. Throughout Asia, including in India and China, governments have yet to approve most GM crops, including an insect-resistant rice that produces higher yields with less pesticide. In Africa, where millions go hungry, several nations have refused to import GM foods in spite of their lower costs (the result of higher yields and a reduced need for water and pesticides). Kenya has banned them altogether amid widespread malnutrition. No country has definite plans to grow Golden Rice, a crop engineered to deliver more vitamin A than spinach (rice normally has no vitamin A), even though vitamin A deficiency causes more than one million deaths annually and half a million cases of irreversible blindness in the developing world.

Globally, only a tenth of the world's cropland includes GM plants. Four countries—the U.S., Canada, Brazil and Argentina—grow 90 percent of the planet's GM crops. Other Latin American countries are pushing away from the plants. And even in the U.S., voices decrying genetically modified foods are becoming louder. In 2016 the U.S. federal government passed a law requiring labeling of GM ingredients in food products, replacing GM-labeling laws in force or proposed in several dozen states.

labeling laws in force or proposed in several dozen states.

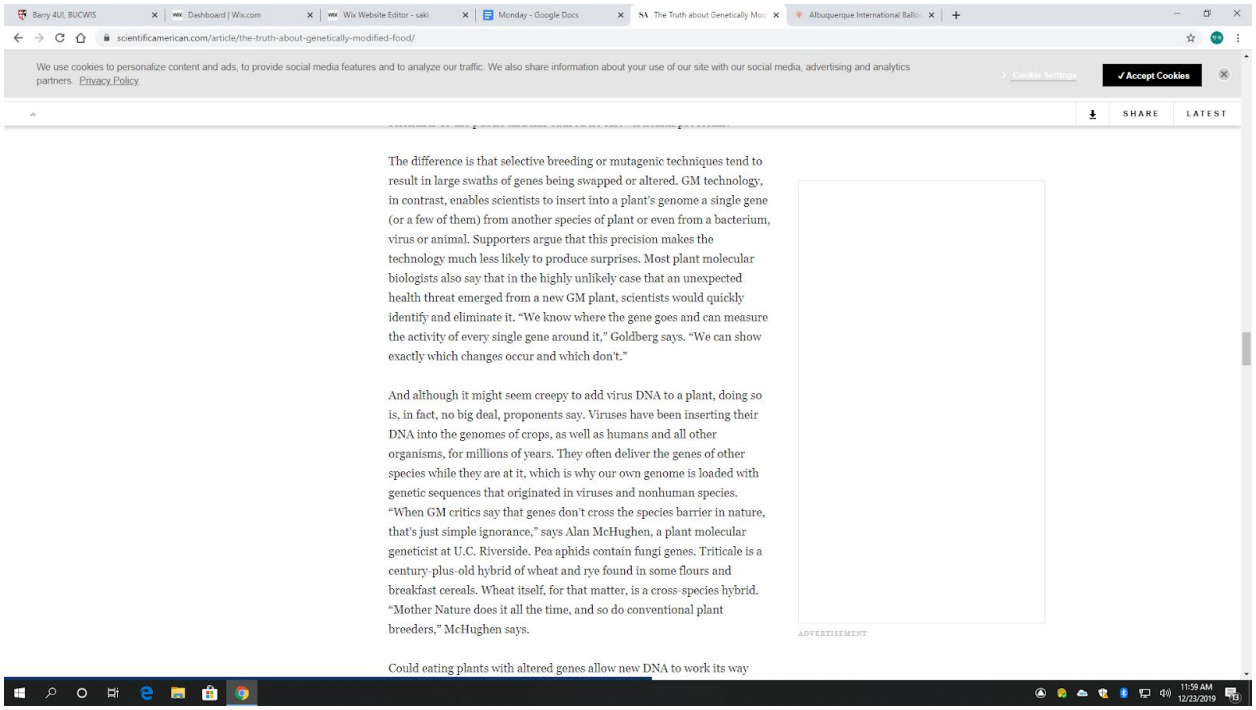
The fear fueling all this activity has a long history. The public has been worried about the safety of GM foods since scientists at the University of Washington developed the first genetically modified tobacco plants in the 1970s. In the mid-1990s, when the first GM crops reached the market, Greenpeace, the Sierra Club, Ralph Nader, Prince Charles and a number of celebrity chefs took highly visible stands against them. Consumers in Europe became particularly alarmed: a survey conducted in 1997, for example, found that 69 percent of the Austrian public saw serious risks in GM foods, compared with only 14 percent of Americans.

In Europe, skepticism about GM foods has long been bundled with other concerns, such as a resentment of American agribusiness. Whatever it is based on, however, the European attitude reverberates across the world, influencing policy in countries where GM crops could have tremendous benefits. "In Africa, they don't care what us savages in America are doing," Zilberman says. "They look to Europe and see countries there rejecting GM, so they don't use it." Forces fighting genetic modification in Europe have rallied support for "the precautionary principle," which holds that given the kind of catastrophe that would emerge from loosing a toxic, invasive GM crop on the world, GM efforts should be shut down until the technology is proved absolutely safe.

But as medical researchers know, nothing can really be "proved safe." One can only fail to turn up significant risk after trying hard to find it—as is the case with GM crops.

A CLEAN RECORD

The human race has been selectively breeding crops, thus altering plants' genomes, for millennia. Ordinary wheat has long been strictly a human-engineered plant; it could not exist outside of farms, because its seeds do not scatter. For some 60 years scientists have been using "mutagenic" techniques to scramble the DNA of plants with radiation and chemicals, creating strains of wheat, rice, peanuts and pears that have become agricultural mainstays. The practice has inspired little objection from scientists or the public and has caused no known health problems.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The difference is that selective breeding or mutagenic techniques tend to result in large swaths of genes being swapped or altered. GM technology, in contrast, enables scientists to insert into a plant's genome a single gene (or a few of them) from another species of plant or even from a bacterium, virus or animal. Supporters argue that this precision makes the technology much less likely to produce surprises. Most plant molecular biologists also say that in the highly unlikely case that an unexpected health threat emerged from a new GM plant, scientists would quickly identify and eliminate it. "We know where the gene goes and can measure the activity of every single gene around it," Goldberg says. "We can show exactly which changes occur and which don't."
And although it might seem creepy to add virus DNA to a plant, doing so is, in fact, no big deal, proponents say. Viruses have been inserting their DNA into the genomes of crops, as well as humans and all other organisms, for millions of years. They often deliver the genes of other species while they are at it, which is why our own genome is loaded with genetic sequences that originated in viruses and nonhuman species. "When GM critics say that genes don't cross the species barrier in nature, that's just simple ignorance," says Alan McHughen, a plant molecular geneticist at U.C. Riverside. Pea aphids contain fungi genes. Triticale is a century-plus-old hybrid of wheat and rye found in some flours and breakfast cereals. Wheat itself, for that matter, is a cross-species hybrid. "Mother Nature does it all the time, and so do conventional plant breeders," McHughen says.
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Could eating plants with altered genes allow new DNA to work its way
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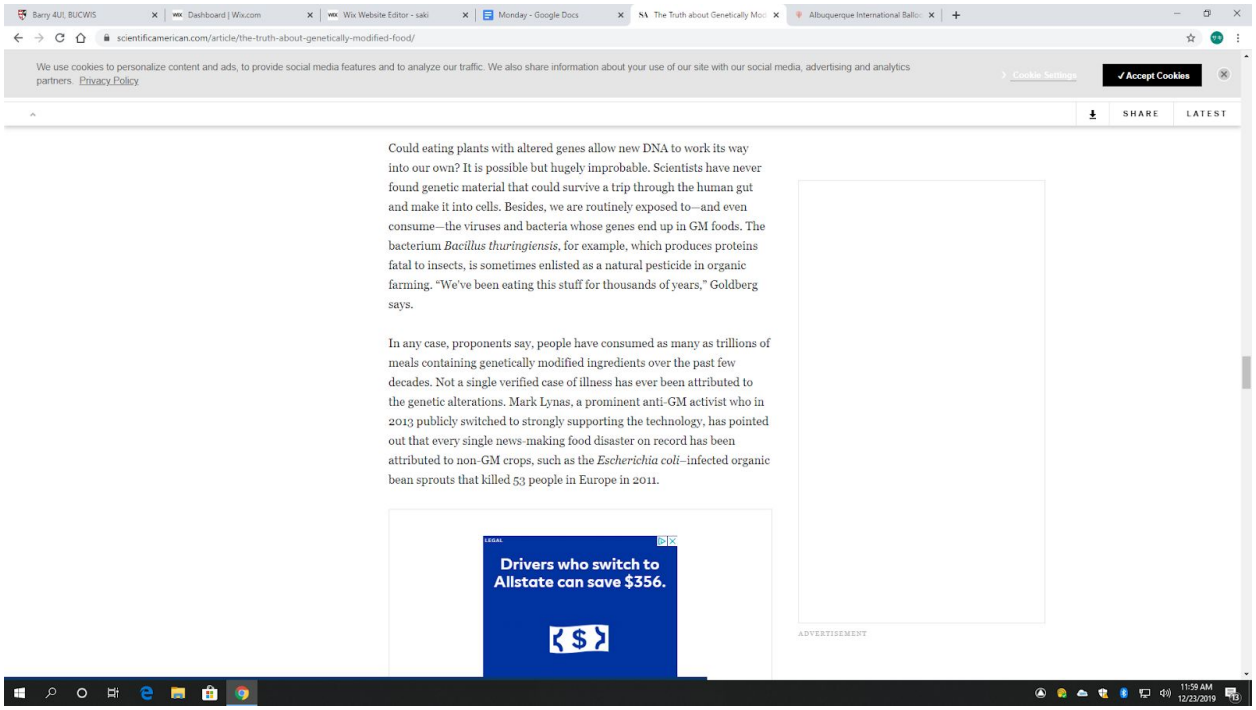
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Could eating plants with altered genes allow new DNA to work its way into our own? It is possible but hugely improbable. Scientists have never found genetic material that could survive a trip through the human gut and make it into cells. Besides, we are routinely exposed to—and even consume—the viruses and bacteria whose genes end up in GM foods. The bacterium *Bacillus thuringiensis*, for example, which produces proteins fatal to insects, is sometimes enlisted as a natural pesticide in organic farming. "We've been eating this stuff for thousands of years," Goldberg says.
In any case, proponents say, people have consumed as many as trillions of meals containing genetically modified ingredients over the past few decades. Not a single verified case of illness has ever been attributed to the genetic alterations. Mark Lynas, a prominent anti-GM activist who in 2013 publicly switched to strongly supporting the technology, has pointed out that every single news-making food disaster on record has been attributed to non-GM crops, such as the *Escherichia coli*–infected organic bean sprouts that killed 53 people in Europe in 2011.
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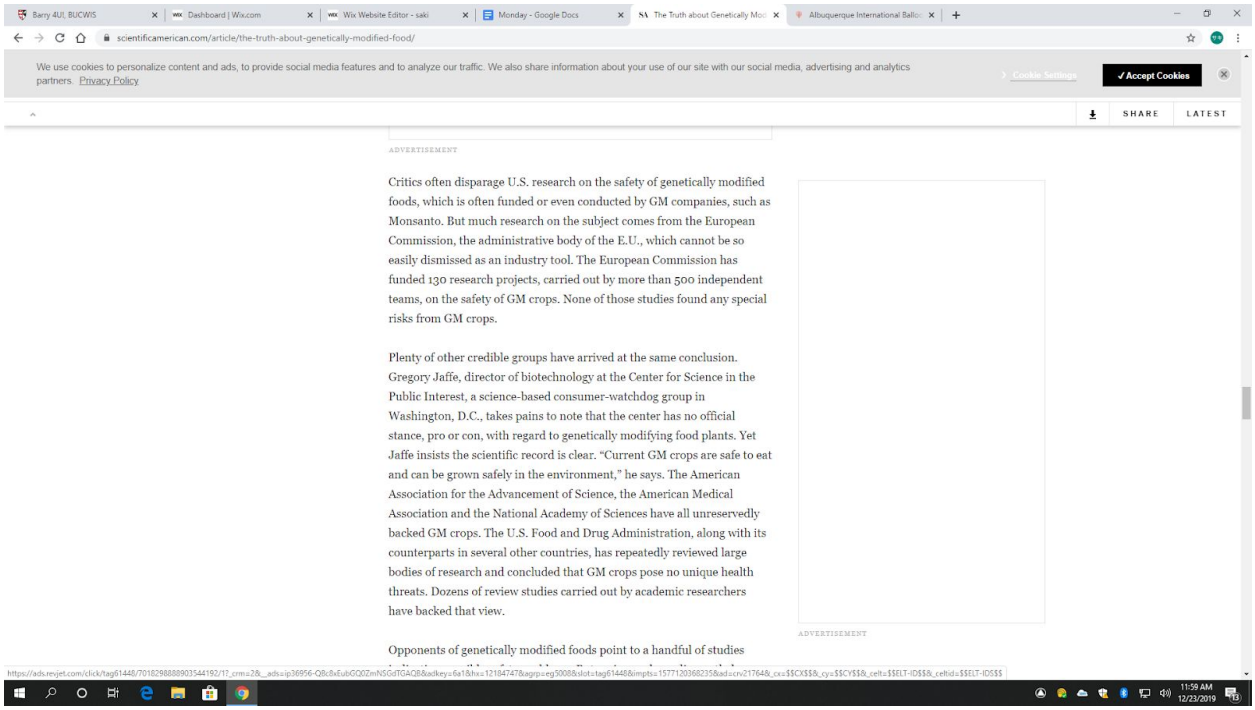
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Critics often disparage U.S. research on the safety of genetically modified foods, which is often funded or even conducted by GM companies, such as Monsanto. But much research on the subject comes from the European Commission, the administrative body of the E.U., which cannot be so easily dismissed as an industry tool. The European Commission has funded 130 research projects, carried out by more than 500 independent teams, on the safety of GM crops. None of those studies found any special risks from GM crops.
Plenty of other credible groups have arrived at the same conclusion. Gregory Jaffe, director of biotechnology at the Center for Science in the Public Interest, a science-based consumer-watchdog group in Washington, D.C., takes pains to note that the center has no official stance, pro or con, with regard to genetically modifying food plants. Yet Jaffe insists the scientific record is clear. "Current GM crops are safe to eat and can be grown safely in the environment," he says. The American Association for the Advancement of Science, the American Medical Association and the National Academy of Sciences have all unreservedly backed GM crops. The U.S. Food and Drug Administration, along with its counterparts in several other countries, has repeatedly reviewed large bodies of research and concluded that GM crops pose no unique health threats. Dozens of review studies carried out by academic researchers have backed that view.
Opponents of genetically modified foods point to a handful of studies
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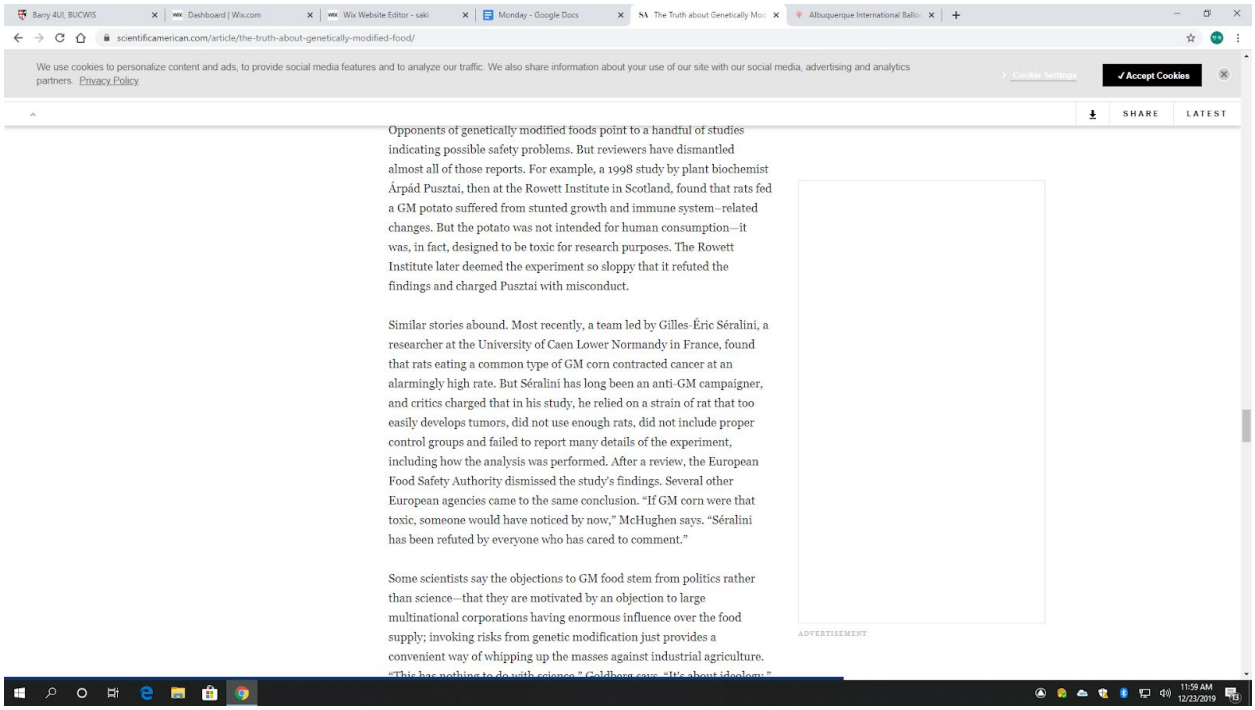
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Opponents of genetically modified foods point to a handful of studies indicating possible safety problems. But reviewers have dismantled almost all of those reports. For example, a 1998 study by plant biochemist Árpád Pusztai, then at the Rowett Institute in Scotland, found that rats fed a GM potato suffered from stunted growth and immune system–related changes. But the potato was not intended for human consumption—it was, in fact, designed to be toxic for research purposes. The Rowett Institute later deemed the experiment so sloppy that it refuted the findings and charged Pusztai with misconduct.
Similar stories abound. Most recently, a team led by Gilles-Éric Séralini, a researcher at the University of Caen Lower Normandy in France, found that rats eating a common type of GM corn contracted cancer at an alarmingly high rate. But Séralini has long been an anti-GM campaigner, and critics charged that in his study, he relied on a strain of rat that too easily develops tumors, did not use enough rats, did not include proper control groups and failed to report many details of the experiment, including how the analysis was performed. After a review, the European Food Safety Authority dismissed the study's findings. Several other European agencies came to the same conclusion. "If GM corn were that toxic, someone would have noticed by now," McHughen says. "Séralini has been refuted by everyone who has cared to comment."
Some scientists say the objections to GM food stem from politics rather than science—that they are motivated by an objection to large multinational corporations having enormous influence over the food supply; invoking risks from genetic modification just provides a convenient way of whipping up the masses against industrial agriculture.
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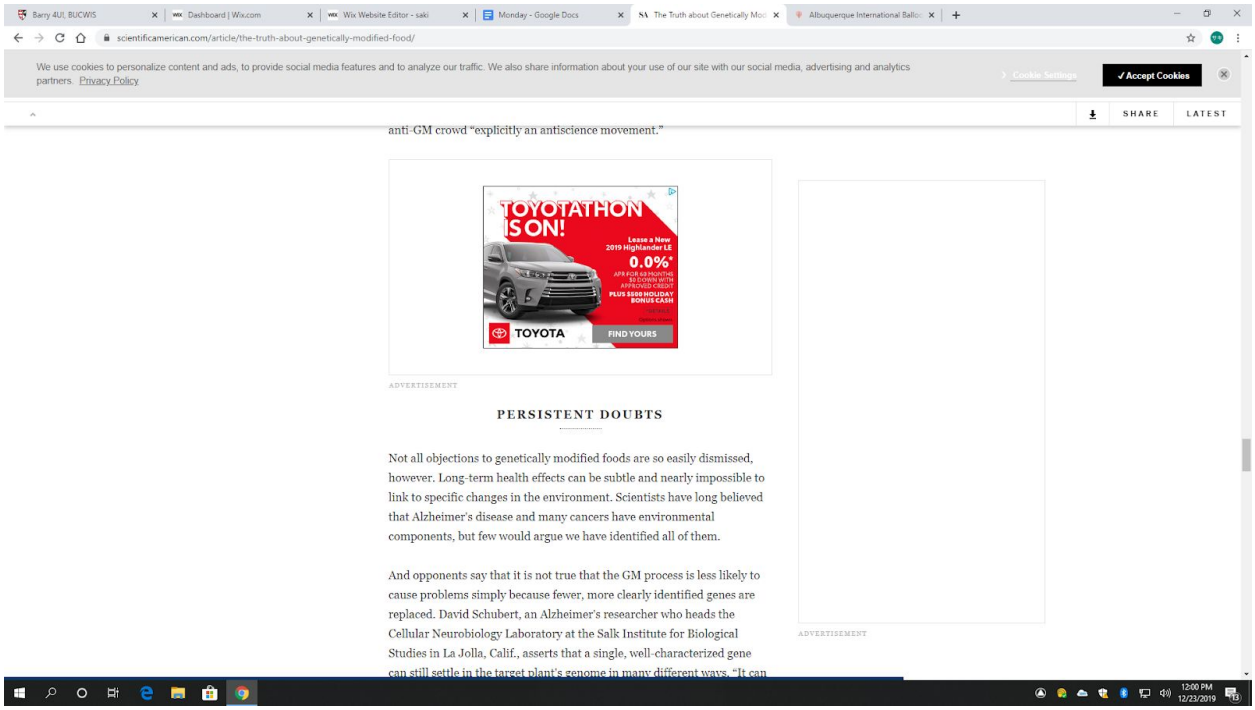
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Not all objections to genetically modified foods are so easily dismissed, however. Long-term health effects can be subtle and nearly impossible to link to specific changes in the environment. Scientists have long believed that Alzheimer's disease and many cancers have environmental components, but few would argue we have identified all of them.
And opponents say that it is not true that the GM process is less likely to cause problems simply because fewer, more clearly identified genes are replaced. David Schubert, an Alzheimer's researcher who heads the Cellular Neurobiology Laboratory at the Salk Institute for Biological Studies in La Jolla, Calif., asserts that a single, well-characterized gene can still settle in the target plant's genome in many different ways. "It can
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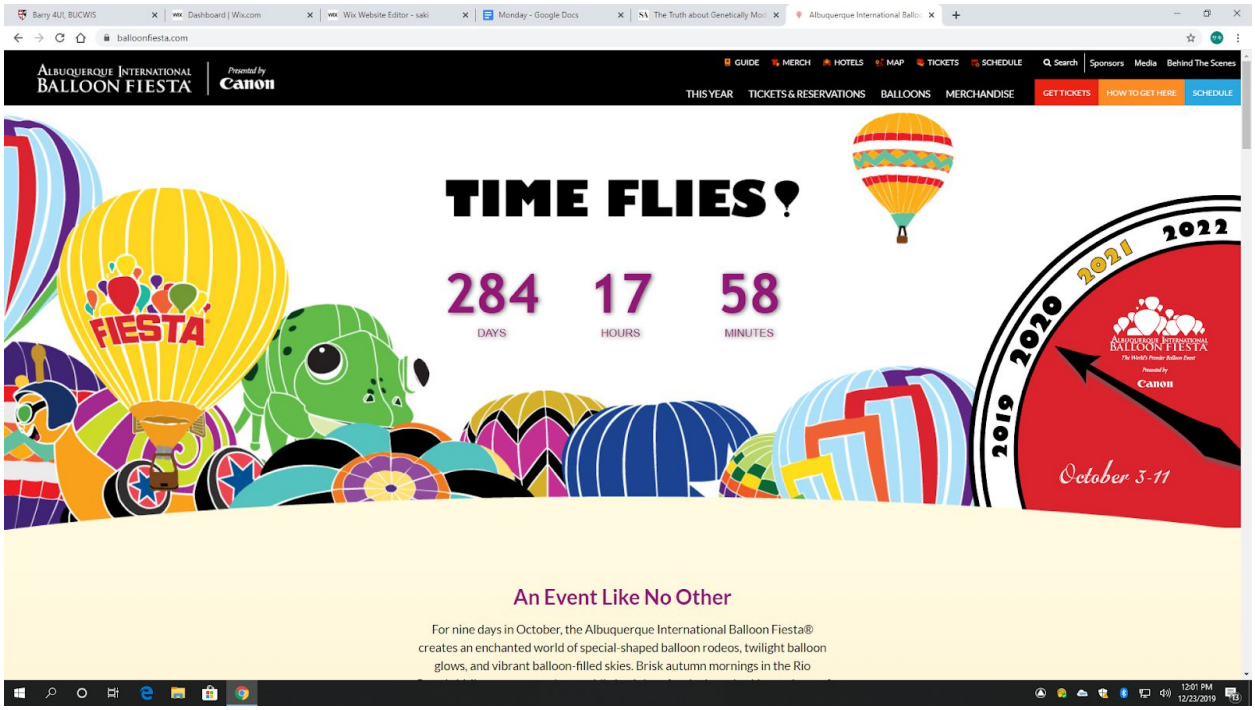
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