

Peril on Your Plate: Effects of GE and Chemical Agriculture

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Ekaterina Yakovleva embarks on a journey to investigate the human health effects of GMOs and pesticides after learning they may be the cause of her son's food allergies
- › Yakovleva learns there is a huge movement against genetically modified (GM) crops despite there being 190 million hectares (469.5 acres) planted in 28 countries worldwide
- › The investigation takes her to India where she learns about the mass farmer suicides spurred by the failure of Monsanto's Bt cotton
- › Yakovleva talks to environmental activist Vandana Shiva, who explains how seed and chemical corporations use imagery of rich American farmers to persuade Indian farmers into buying faulty GM seed
- › Yakovleva meets with Zen Honeycutt of Moms Across America about the link between GMOs, pesticides and chronic disease in humans

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After being told by her doctor that genetically engineered (GE) food and pesticides could be responsible for her son's food allergies, Ekaterina Yakovleva set out to investigate. Her quest for answers was captured by the Russian Times in the featured film, "The Peril on Your Plate: Genetic Engineering and Chemical Agriculture."

The film shows Yakovleva and her team traveling the world to meet "the people who lift the lid on the perils of GMOs and the chemicals used in the industry," as well as

proponents of GMOs who argue that genetic engineering is a "high-tech" solution to feeding the world's growing population.

Advocates for genetic engineering tell Yakovleva that the technology is beneficial to farmers in that it increases resistance to pests and disease, as well as produces higher yields. But Yakovleva isn't convinced.

She learns nothing could be further from the truth after witnessing the devastation caused by mass farmer suicides in India as a result of the failure of Monsanto's Bt cotton. Yakovleva visits the U.K. where she meets Lady Margaret, Countess of Mar, a member of the House of Lords and a former farmer who suffered from chemical use, and then to the U.S. where she meets with Zen Honeycutt of Moms Across America about the link between GMOs, pesticides and chronic disease in humans.

What Is Genetic Engineering?

In order to better understand genetic engineering and its impact on human health, Yakovleva starts to research the technique and how it's used. She learns that genetic engineering enables DNA to be transferred not only between different kinds of plants, but even between different kingdoms, meaning scientists can take DNA from an insect or animal and insert it into the genome of a plant.

Many GMO proponents claim that genetic engineering is just an extension of natural breeding methods, and just as safe. Nothing could be further from the truth – on both counts. Genetic engineering is radically different from conventional breeding techniques used to improve a crop. For starters, it's a laboratory-based technique allowing scientists to create a food that could never be created by nature.

Claire Robinson, editor of GM Watch and co-author of the book, "GMO Myths and Truths: A Citizen's Guide to the Evidence on the Safety and Efficacy of Genetically Modified Foods and Crops," says:

"Genetic engineering enables DNA to be transferred not only between different kinds of plants, but even between different kingdoms. You can take DNA from

an insect, an animal, a virus or a bacterium, and insert it into the genome of a food crop plant. This is actually a very imprecise process. The truth is that the genetic engineering process disrupts the genome (organization and function of genes) of the plant.

As a result we found time and time again that there are unexpected effects on the plant that is genetically engineered. They tell us that it's exactly the same, except for the inserted gene that's been deliberately put in ... But this isn't the case. The genome is very complex. It's not like Lego; you can't just take out one bit, put in another bit, and expect there to be no knock-on effects."

US Leads World in GM Crop Production

Yakovleva learns that an estimated 190 million hectares (469.5 acres) of GE crops¹ — an area three times the size of France — are cultivated in 28 countries worldwide.² In 2018 the U.S. led the world in GM crop production, growing about 38%.³

In the 20 years of commercialization of biotech crops (1996-2015), the United States accrued the highest benefits at \$72.9 billion and \$6.9 billion for 2015 alone.⁴ GE crops in production in the U.S. in 2019 included squash/pumpkin, alfalfa, sugar beet, potato, papaya, rapeseed oil, corn, soy and cotton.

Monsanto, soon to forgo its name and merge with Bayer, controls a vast majority of GE crops including 80% of GE corn and 93% of GE soy in the U.S. The first GE crop to hit the market was tobacco. It was genetically modified in 1983 to be resistant to an antibiotic.⁵ It was later altered for other reasons, including to remove a gene that turns nicotine into a carcinogen in tobacco leaves,⁶ and to increase the amount of nicotine in cigarettes.⁷

The first genetically engineered food crop was the Flavr Savr tomato, produced by Calgene, a California-based company later bought by Monsanto. The tomato was genetically modified to stay riper longer by inhibiting a gene responsible for producing a protein that makes a tomato soften.⁸

Calgene is reported to have been transparent in its marketing of the tomato, clearly labeling the product and adding an 800 number for people with questions. Monsanto later removed the Flavr Savr tomato from store shelves.

A Growing List of Countries Say No to GMOs

The film highlights regions that are completely GMO-free, including Romania, which stopped cultivating GE crops despite being the first country in geographical Europe to introduce them.⁹ Portugal and Spain have reduced the amount of areas under GE crop cultivation,¹⁰ while a number have enacted a total ban including France, Germany, Austria, Poland, Greece, Switzerland, Northern Ireland, Scotland and Wales.

Russia forbids GE crop cultivation,¹¹ but does not prevent GMOs from entering the country's food chain, according to the film. Yakovleva travels to the Agrarian University in Moscow to meet GMO proponent Arkady Zlochevsky, chairman of the Russian Grain Union. She confronts him about the human health effects of eating GE foods.

"There is absolutely no risk to the human body associated with eating GM foods compared to traditional equivalents, not a single one," he says, adding that GMOs are "high-tech" and have "significant advantages." He even went so far as to say that glyphosate, the key active ingredient in Monsanto's Roundup weedkiller, is safer than 100% manure.

Glyphosate Doubles as Herbicide and Suicide Poison in India

Unconvinced, Yakovleva travels to India where glyphosate doubles as a lethal human poison. The Punjab region, formally known as the bread basket of India, is now known for colossal suicides among farmers, particularly young farmers between the ages of 20 and 35.

Yakovleva meets with families of farmers who committed suicide. She learns that thousands of farmers have taken their own lives after agriculture corporations granted

them loans they could never repay to purchase seeds and pesticides that ultimately failed to provide the profits that were promised.

Inderjit Singh Jaijee, chairman of Punjab's Baba Nanak Educational Society, says farmers who commit suicide often take drugs, drink alcohol or even take a swig of glyphosate to muster up the courage to go through with it. Singh Jaijee, who is on a mission to raise awareness about the serious issue of suicides in Punjab, says that young farmers are more susceptible because they don't yet have the experience older people do to survive.

Thousands of Indian Farmers Commit Suicide Over Faulty GE Crops

The amount of suicides in the Punjab region is so massive that some people are making a profit removing dead bodies from a local canal. Ashu Malik, an underwater diver, uses surveillance cameras to monitor the canal for floating bodies.

If a body is not claimed, it's placed back into the water, he says. Ending up in the canal as a result of suicide is so common in this region that families built a house on the canal's shoreline for them to stay in while they search for their loved ones who are missing.

The exact number of suicides occurring annually in the Punjab region remains unknown. One estimation found the annual suicide rate to be about 2,200. However, Singh Jaijee's research estimates it to be closer to 4,000 suicides per year, while farmer organizations estimate up to 6,000.

Shocked by what's become a normality for agricultural communities in India, Yakovleva interviews agricultural scientist Kiran Kumar Vissa to learn more about Monsanto's Bt cotton, the crop responsible for placing so many farmers into debt.

Monsanto's Bt cotton was marketed as a solution to the challenges faced by cotton farmers, many of whom were in crisis; however, it ended up causing farmers more

problems. There are many places where Bt cotton is not suitable for cultivation, including dry, nonirrigated areas, explains Vissa. The packaging says that Bt cotton is suitable for both irrigated and nonirrigated conditions, but it's not true, says Vissa, adding, that it's deceptive to farmers.

Big Ag Uses Images of Rich, American Farmers to Sell GMOs

Next, Yakovleva meets with renowned scholar and environmental activist Vandana Shiva, who blames the mass suicides solely on the corporations that sell the seeds and chemicals. Monsanto spends huge amounts of money on advertising. Between the fiscal years 2011 to 2017, Monsanto spent more than \$500 million on advertising worldwide.¹²

Shiva explains that seed and chemical agents show farmers in India images of American farmers with big tractors and promise them that if they just take this seed, which they can pay for later, they will be rich. But what they don't tell the farmer is that they can't save the seed and that it might fail because the seeds aren't meant for dry, nonirrigated areas, says Shiva.

So, the farmer takes it on credit, not having a good understanding of the costs involved, and the seed fails, Vandana explains, adding that in two years' time the agents who sold the seed and pesticide return and repossess the farmer's land because he could not pay his loan. Shiva tells Yakovleva that she has personally spoken to widows whose farmer husbands committed suicide and when she asked what their debt was, they showed her packages of Monsanto's Bt cotton seed.

Are Farmers Risking Their Health by Using Chemicals?

Yakovleva's investigation proceeds to the U.K. where she meets with Lady Margaret, Countess of Mar, a member of the House of Lords and a former farmer who suffered from chemical use.

While serving organic tea and pudding, Lady Margaret says she had to give up farming after she was exposed to harmful chemicals while dipping sheep. The sheep dip contained organophosphates, the same class of chemicals to which glyphosate belongs. The chemicals are used as both flame retardants and pesticides. According to National Geographic:

"Organophosphates attack the nervous system in the same way as nerve agents like sarin ... [and] are so toxic to humans that the U.S. Environmental Protection Agency (EPA) has taken steps to limit their availability to the public."¹³

Within weeks of being exposed, Lady Margaret says she began to suffer from intense fatigue and neurological problems. She even felt suicidal. At one point, she was forced to rely on an oxygen tank for up to 16 hours a day. Lady Margaret was ill for three years before doctors diagnosed her with organophosphate poisoning.

Most of Americans Have Glyphosate in Their Bodies

Humans are increasingly testing positive for residues of glyphosate.¹⁴ In tests conducted by a University of California San Francisco lab, 93% of the participants tested positive for glyphosate residues.¹⁵

In the European Union, when 48 members of Parliament volunteered for glyphosate testing, everyone one of them tested positive.¹⁶ **Humans are exposed to glyphosate via the food they eat**, the air they breathe, the water they drink, and the lawns, gardens, parks and other environments they frequent.

What impact is this having on human health? To find out, Yakovleva and her team head to the U.S. to meet with Honeycutt, who blames chemicals in our food for the rise in chronic disease. A number of chronic diseases have been linked to pesticides, including autism, cancer, food allergies, endocrine disruption, diabetes, and Parkinson's and Alzheimer's disease.¹⁷

One in 4 females over the age of 30 now has a gluten intolerance, says Honeycutt; however, she believes it's not gluten that's the problem, but the glyphosate that's applied

to wheat as a drying agent prior to harvest.

"It's destroying their gut lining. They can't process it and then the body acknowledges it as a gluten intolerance," says Honeycutt, adding that food today not only has more chemicals, but is also less nutritious. Chemical-intensive agriculture has depleted our soils of essential nutrients and has drawn out vitamins and minerals that make our food healthy, she adds.

Long-Term Safety Studies Are Sorely Lacking

Yakovleva and her team reached out to Monsanto regarding the public health concerns tied to its Roundup weed killer, but the company refused to comment, instead directing them to its website which, of course, states that all of their products are safe and environmentally friendly.

The deceptive GMO talking points Yakovleva received from the seed and chemical industry failed to convince her that GE crops are safe for human consumption, as there's no real evidence to support this claim.

While few in number, longer-term animal feeding studies have been published over the past several years showing there's definite cause for concern. Liver and kidney toxicity and immune reactions tend to be the most prevalent. Digestive system, inflammation and fertility problems have also been seen.

A major part of the problem is that safety studies conducted for regulatory purposes to gain market approval for a GE product are too short to show the damage that could occur from life-long consumption of the GE food.

Some independent studies looking at lifetime consumption of GMOs have found rather dramatic health effects, whereas the safety studies used to promote GE foods as safe have all been short-term.

There seems to be an agreement among biotech scientists to not test GE foods longer than 90 days in rats, which is only about seven to nine years in human terms. That's

nothing when you consider the average human life span is somewhere in the 70s, and the current generation is fed GMO food from Day 1.

How to Protect Yourself From Toxic Agriculture

The biotech giants have deep pocketbooks and political influence and are fighting to maintain their position of dominance. At the end of the day, we must shatter Monsanto's grip on the agricultural sector. There is no way to recall GMOs once they have been released into the environment. The stakes could not be higher. Will you continue supporting the corrupt, toxic and unsustainable food system that Monsanto and its industry allies are working so hard to protect?

For more and more people, the answer is no. Consumers are rejecting genetically engineered and pesticide-laden foods. Another positive trend is that there has been strong growth in the global organic and grass-fed sectors. This just proves one thing: We can make a difference if we steadily work toward the same goal.

One of the best things you can do is to buy your foods from a local farmer who runs a small business and uses diverse methods that promote regenerative agriculture. You can also join a community-supported agriculture (CSA) program, where you can buy a "share" of the vegetables produced by the farm, so that you get a regular supply of fresh food.

I believe that joining a CSA is a powerful investment not only in your own health, but in that of your local community and economy as well. In addition, you should also adopt preventive strategies that can help reduce the toxic chemical pollution that assaults your body. I recommend visiting these trustworthy sites for non-GMO food resources in your country as well:

[Australian Organic Food Directory](#)

[Eat Wild \(Canada\)](#)

[Organic Explorer \(New Zealand\)](#)

[Eat Well Guide \(United States and Canada\)](#)

Farm Match (United States)

Local Harvest (United States)

Weston A. Price Foundation (United States)

The Cornucopia Institute

Demeter USA

American Grassfed Association

Monsanto, now Bayer, and its allies want you to think that they control everything, but they are on the wrong side of history. It's you, the informed and empowered, who hold the future in your hands. Let's all work together to topple the biotech industry's house of cards. Remember – it all starts with shopping smart and making the best food purchases for you and your family.

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