

# Scientist with Plant PhD Shares The Truth About GMOs and Genetic Engineering

Video Source: [Mercola](#)

**By Dr. Mercola**

Scientific misconduct and fraud: most of us have no concept of how they influence our food. Jonathan Latham, a scientist with a master's degree in crop and a Ph.D. in plant virology, sheds much-needed light on this issue.

Together with his wife, Allison Wilson, who is also a scientist, he founded the [Bioscience Resource Project](#), an organization with a mission "to provide the highest quality scientific information and analysis to enable a healthy food system and a healthy world."

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He's also the editor of [Independent Science News](#).

Part of his career was spent doing medical research in the genetics department at the University of Wisconsin. He also worked in the U.K., where many of his coworkers were proposing ambitious research projects designed to alter soil microbiology and cure plant viruses using novel transgenic techniques.

As explained by Latham in the video, when you make a transgene, you take different parts of genes from different organisms, and you put them together to (hopefully) get them to do what you want them to do.

Once a transgene performs according to expectation, it is used to develop commercial transgenic plants carrying that particular feature. However, Latham noticed that the end results were frequently potentially very dangerous, both to plants and people, which made him question the purpose of it all.

*“There were people proposing ideas in molecular genetics and genetic engineering that were incredibly ambitious and interesting to think about from an intellectual perspective, but really quite scary if you thought about what would happen in the real world,”* he says.

## **U.S. Regulatory System Allows Unsafe Products to Be Brought to Market**

Eventually he became quite concerned about the potential implications the commercialization of genetically engineered plants might engender.

*“I saw these ideas people were having, which had potentially major implications for human health or for the soil, and were risky in my opinion.*

*I didn't worry about them too much because I imagined no serious person would take up these ideas, and the regulatory system would work as advertised ...*

*But when I moved to the genetics department, I started looking at the regulatory system in the United States.*

*I came to realize that the regulatory system was intellectually bankrupt and also corrupt. It wasn't asking questions that it should've been asking. And they were perfectly happy with answers they shouldn't have been happy with ...*

*Between people making products that I was really unhappy with, and the risk assessment process that wasn't functioning*

*intellectually ... it didn't take me long to realize that you can put 2 and 2 together here and see that bad products are going to come on the market.*

## **Scientific Profession Is Ruled by Secret Culture of Fear**

It's not uncommon for people to be fired from their academic positions or blackballed in the scientific community when disagreeing with the status quo, but fortunately that did not happen in Dr. Latham's case.

He decided to resign instead, in the late 1990s, after becoming dispirited with the scientific profession. He did see it happen to another virologist however.

*"He published a couple of papers, skeptical of the idea that you can put virus genes into transgenic plants and expect nothing to go wrong. He was hounded out of his position and had to take a position in a completely different branch of science to still get grants.*

*This is a real thing that scientists are facing: professional intimidation, harassment, and personal effects.*

*Sometimes they lose their jobs over these issues. So there's a culture of fear in the scientific community. Scientists don't like to discuss it because it implies all sorts of things about academic freedom and so on. But it's a real thing."*

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After quitting his job with the Genetics department at the University of Wisconsin, he and his wife worked on an organic farm in England and raised a child. Still people would ask him to get involved in GMO issues, asking him to give talks and explain various issues to laypeople.

He eventually got drawn back in when the British government was setting up field trials under false pretenses.

*“They were trying to bamboozle people with scientific information that, in my opinion, was incorrect,”* he says.

*“They were trying to convince the legal system, the media, and the rest of the public that these projects were perfectly well-understood scientific experiments, and that there was nothing to worry about – most of which I disagreed with, so I ended up getting drawn back into all these issues.”*

## **Genetic Engineering Is an Imprecise Science**

Latham and Wilson, ended up writing a scientific paper,<sup>1</sup> published in 2006, which reviews what happens when you put a transgenic DNA into the genome of a plant.

Prior to that, no one had ever collected the data to show whether or not the biotech industry was correct in saying that the process of genetic engineering was precise.

*“They wanted to argue that this is much more precise than conventional plant breeding, in which you don’t know what’s going on because you’re just crossing plants together. They wanted to argue that their methodology was very precise. We wanted to test that thesis,”* he says.

Together with Wilson, he collected a vast amount of data showing the process of plant transformation through genetic engineering was making a mess of plant genomes.<sup>2</sup> The process caused:

- Unexpected gene mutations
- Movement and activation of transposons
- DNA damage

Moreover, most genetically engineered (GE) plants contain more than one transgene: some of the plants they evaluated had as many as 40 different transgenes in them.

They even discovered that some of the now commercially available GE plants had transgene insertions that were so complicated the companies themselves had actually *given up* trying to get to the bottom of how much damage had been done to the plant's DNA. It was simply too difficult to do so.

*"The more complex and damaging the DNA effects are, the more difficult it is to do the research. We published this in the peer-reviewed literature. It was very important in our view because the whole risk assessment process, and the whole of the reassurance process for the public, depends on the idea that we know what we're doing, and that what we're doing is precise. None of those things were true,"* he says.

## **Viral Transgenes**

Latham and Wilson have also published a paper<sup>3</sup> on viral transgenes. A viral transgene is when you take a piece of a virus and put it into a transgenic plant, and for reasons that are still unclear, that plant becomes resistant to the virus from which the transgene came.

Essentially, there's an entire process of making plants resistant to viruses, but no one has any real grasp of how it works, and this lack of understanding is a serious concern according to Latham.

*"To me, this was a total no-no from the perspective of risk assessment. The whole point of risk assessment is that you have to understand what it is that you're doing in order to do experiments and to answer the questions that appear to be pertinent ... So we wrote an article about all the different ways in which viral transgenes can cause ecological hazards and various other problems."*

## **Important Science Remains Hidden Behind Expensive Paywalls**

Another problem with science is that so much of the research remains hidden behind very expensive paywalls. Scientists are legally restricted from sharing their research with the public. To address this, Dr. Latham and his wife created a non-profit to publicize their and other scientists' papers, and allow the public access to this crucial information.

*"I went to a scientific panel, for example, in which all of the scientists were explaining the wonders of GMOs. I wanted the public to understand that there are lots of contradictory information out there that could've discredited what these people were saying, but no one's allowed to share it because it's behind the paywall. If they do, it'll cost them a lot of money and they may have to face legal consequences. So there's a very one-sided discussion going on."*

## **Viral Promoter Used in GE Plants Produces Potentially Hazardous Protein**

Independent Science News has also published documentation that the global regulators were unaware of, such as that the viral promoter used in most transgenic plants (cauliflower mosaic virus promoter) actually contains a viral gene (called gene VI), which may be producing proteins that have never undergone risk assessment.

This despite the fact that this protein is something you would expect to cause harm to human health.

It's known to disrupt or inhibit RNA interference (RNAi), a process by which both people and plants resist viruses. According to Latham, it appears that the protein produced can stop that process, thereby rendering plants (and possibly humans as well) susceptible to viruses.

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The gene VI protein also causes other protein production in the plant to become scrambled, which will likely have additional negative effects.

*"It's a multifunctional protein that has all these interesting biological consequences, so that things will happen in plants. But also, if you ingest that protein, because it's being produced in the plant you're eating, then it can go into your stomach, your gut lining, or your bloodstream, and potentially cause problems there. What happened is the European Food Safety Authority (EFSA) discovered what they'd done.*

*They panicked and produced an article. But they tried to bury the article. They wanted on the one hand to say that they knew what was happening and they published about it, and on the other hand to make sure that nobody read it. Because I'm a virologist, I was aware of this gene. I actually had wondered about this problem before.*

*As soon as I saw the paper, I knew what it was they were talking about. So, we were able to show that the European Union didn't know what it was talking about and that all these other regulators around the world had been ignoring this problem for 20 years. They failed to notice that there was a gene being produced in the transgenic plants that they had not risk assessed and not told anyone about."*

## **Worst Case Scenario**

According to Latham, the worst case scenario is that this protein is directly harmful to human health. And in his opinion, some of the proteins produced by GE plants are indeed harmful, and therefore you certainly would not want your gut microbes or your cells to take up transgene DNA and therefore produce them.

In his estimation, the most likely of those scenarios is that your [gut microbiome](#) would take up those genes, some of which can have “potentially interesting” consequences.

For example, the Roundup Ready resistance gene—which is incorporated into every cell of Roundup Ready plants—could potentially be taken up and become integrated into your gut microbiome. This gene confers resistance to Roundup. Bugs that acquire this gene can become resistant to Roundup. Indeed, Monsanto originally isolated their gene from such a bug, which was isolated from a chemical plant that made the Roundup herbicide.

Were harmful bacteria to take up this gene in your gut, they may become more successful in your gut than they might have been otherwise. And we’ve now come to realize that gut bacteria have very complex roles in human health. So the possibilities of how Roundup Ready resistant gut bacteria might interact with your health are really difficult to foretell.

## **Countering GMO Propaganda**

As noted by Latham, multinational corporations spin every single piece of information that might possibly benefit them, and what many are taught in school and read in the news is quite simply not true. Oftentimes the truth is the complete converse of what’s being taught or presented, but these untruths are repeated so often and so consistently that people assume they must be correct.

*“If you want to make change in the world; if you don’t think the world is fair and if you don’t think that people should have to eat food with pesticides on it, then you have to understand the politics of what is going on,”* Dr. Latham says. *“Our project is to help people with the politics, but also with the science. The two kind of go together ...*



*For example, we wrote about how people are promoting GMOs online and on social media. There is always that question: Are they just irate people upset about people who are offering false solutions like organic farming, or are these people mostly working for agribusiness? Now we know pretty much that they're working for agribusiness ...*

*You see this whole network of people working in one way or another for Monsanto, for Bayer, the trade associations, and the biotech industry. We can see that these people are all connected together. A month ago, I would've said, 'I suspect they are but I can't prove it.' Now we know."*

## **GMO Risk Assessments Are Severely Flawed**

According to Latham, there are many shortcomings when it comes to GMO risk assessments, and companies have developed ways of fudging their risk assessments. This applies not only to GMOs but chemicals as well. Say you have a product you want the public to eat. You know that once this product comes to market, it will end up in numerous places: the water supply, the food supply, and in people's bodies, for example.

You've likely heard that the risk assessment can account for all these issues and will accurately demonstrate whether a product is safe or not. The million dollar question is whether this really is true. Can a risk assessment actually provide these answers?

Our industrial technological system depends on the answer to that question being, "Yes, we can find out. We can answer that question." Sadly, the true answer is "No, we cannot." So, as Latham says, "the system is intellectually bankrupt."

*"The way it works is, somebody comes to the regulator and says, 'I want to test this product.' The standard method is you feed it to rats for 15 days or 30 days, and that experiment becomes the basis of your risk assessment. That is*

*supposed to demonstrate that even though this chemical is going to get into the bodies of different organisms, and it's going to be in all these different places, in rivers, streams, and lakes, it didn't harm the rat.*

*Therefore, it's going to be fine for other animals, or for humans [eating it] or drinking the [contaminated] water. But that experiment violates the fundamental principle of science. The fundamental principle it violates is that inferences can only be drawn from an identical situation.*

*For example, if you do your experiment on rats, fed on a particular diet, at the particular stage of their life, you can't infer information about another stage of its life or about another species, or about rats fed under different circumstances, say with different diets or with different combinations of chemicals in their diets and so on. You can't do that in science.*

*The inference of doing that experiment is that you can extrapolate to all these different circumstances ... The whole principle of risk assessment is based on the idea that you can do a very simple experiment and extrapolate basically to the whole world ... So it's a scientifically bankrupt process ... But the risk assessment process depends on people accepting that these experiments can do exactly what science says they **cannot** do."*

Investigators like Gilles-Eric Séralini, who has conducted *lifelong* feeding studies, have revealed tremendous differences in outcomes compared to feeding studies lasting for mere weeks or a few months, and his adverse findings on GMOs include tumors, increased mortality, decreased fertility, and sterility.

Seralini became a massive target of discrediting; so much so, that industry supporters retracted his paper even though it was done using the identical methods Monsanto used. He merely

extended the length of the experiment, and was discredited for finding adverse health outcomes. As lifelong consumers of food, this is indeed important information, and you ignore it at your own risk.

## **Err on the Side of Caution in Your Own Decision-Making**

Faking data that doesn't "fit" the outcome you want to see is also all too common a phenomena. In the '50s, '60s, and '70s, chemical companies were sending their products to independent testing companies. One of them, Industrial Bio-Test Laboratories (IBT), was eventually caught faking data; moving animals from the control groups to the test groups, and so on.

Some of the employees went to prison, and after an investigation, the US Food and Drug Administration concluded that only *1 percent* of IBT's animal experiments were scientifically valid.

Yet, chemicals that are still on the market today were approved based on these faked experiments! Both Roundup and Atrazine were approved based on IBT experiments. There are also far more subtle ways of fudging data, and Latham saw such tactics employed in [GMO](#) testing.

*"So you have a fraudulent and intellectually bankrupt risk assessment process, which means that ultimately you can assume that none of the industrial chemicals that enter your body have been adequately tested, and you have no idea whether they're safe or not. You should act in accordance with that conclusion,"* Latham warns.

The FDA is threatening the existence of our food supply. We have to start taking action now. I urge you to share this article with friends and family. If we act together, we can make a difference and put an end to the absurdity.

# QR Codes Are NOT an Adequate Substitute for Package Labels

The biotech industry is trying to push the QR code as an answer for consumer concerns about GE foods. QR stands for Quick Response, and the code can be scanned and read by smart phones and other QR readers.

The code brings you to a product website that provides further details about the product. The video below shows you why this is not an ideal solution. There's nothing forcing companies to declare GMOs on their website. On the contrary, GE foods are allowed to be promoted as "natural," which further adds to the confusion.

These so-called "Smart Labels" hardly improve access to information. Instead, by making finding the truth time consuming and cumbersome, food makers can be assured that most Americans will remain ignorant about the presence of GMOs in their products. Besides, *everyone* has a right to know what's in the food. You shouldn't have to own a smartphone to obtain this information.

## Non-GMO Food Resources by Country

If you are searching for non-GMO foods here is a list of trusted sites you can visit.

- [Organic Food Directory \(Australia\)](#)
- [Eat Wild \(Canada\)](#)
- [Organic Explorer \(New Zealand\)](#)
- [Eat Well Guide \(United States & Canada\)](#)
- [Farm Match \(United States\)](#)
- [Local Harvest \(United States\)](#)
- [Weston A. Price Foundation \(United States\)](#)

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