

# The Real Dangers of Genetically Engineered Food

By Dr. Mercola

Who better to speak the truth about the risks posed by genetically modified (GM) foods than Thierry Vrain, a former research scientist for Agriculture Canada? It was Vrain's job to address public groups and *reassure them* that GM crops and food were safe, a task he did with considerable knowledge and passion.

But Vrain, who once touted GM crops as a technological advancement indicative of sound science and progress, has since started to acknowledge the steady flow of research coming from prestigious labs and published in high-impact journals - research showing that there is significant reason for concern about GM crops – and he has now changed his position.

## Former Pro-GMO Scientist Cites GM Food Safety Concerns

Vrain cites the concerning fact that it is studies done by Monsanto and other biotech companies that claim GM crops have no impact on the environment and are safe to eat. But federal departments in charge of food safety in the US and Canada have *not* conducted tests to affirm this alleged “safety.”

Vrain writes:<sup>1</sup>

*“There are no long-term feeding studies performed in these countries [US and Canada] to demonstrate the claims that engineered corn and soya are safe. All we have are scientific studies out of Europe and Russia, showing that rats fed engineered food die prematurely.*

*These studies show that proteins produced by engineered plants are different than what they should be. Inserting a gene in a genome using this technology can and does result in damaged proteins. The scientific literature is full of studies showing that engineered corn and soya contain toxic or allergenic proteins.*

*... I refute the claims of the biotechnology companies that their engineered crops yield more, that they require less pesticide applications, that they have no impact on the environment and of course that they are safe to eat.”*

## “The Whole Paradigm of Genetic Engineering Technology is Based on a Misunderstanding”

This misunderstanding is the “one gene, one protein” hypothesis from 70 years ago, which stated that each gene codes for a single protein. However, the Human Genome project completed in 2002 failed dramatically to identify one gene for every one protein in the human body, forcing researchers to look to epigenetic factors -- namely, "factors beyond the control of the gene" – to explain how organisms are formed, and how they work.

According to Vrain:

*“Genetic engineering is 40 years old. It is based on the naive understanding of the genome based on the One Gene – one protein hypothesis of 70 years ago, that each gene codes for a single protein. The Human Genome project completed in 2002 showed that this hypothesis is wrong.*

*The whole paradigm of the genetic engineering technology is based on a misunderstanding. Every scientist now learns that any gene can give more than one protein and that inserting a gene anywhere in a plant eventually creates rogue proteins. Some of these proteins are obviously allergenic or toxic.”*

In other words, genetic engineering is based on an extremely oversimplified model that suggests that by taking out or adding one or several genes, you can create a particular effect or result. But this premise, which [GMO expert Dr. Philip Bereano](#) calls “the Lego model,” is not correct. You cannot simply take out a yellow piece and put in a green piece and call the structure identical because there are complex interactions that are still going to take place and be altered, even if the initial structure still stands.

## **Serious Problems May Arise From Horizontal Gene Transfer**

GE plants and animals are created using horizontal gene transfer (also called horizontal inheritance), as contrasted with vertical gene transfer, which is the mechanism in natural reproduction. Vertical gene transfer, or vertical inheritance, is the transmission of genes from the parent generation to offspring via sexual or asexual reproduction, i.e., breeding a male and female from one species.

By contrast, horizontal gene transfer involves injecting a gene from one species into a completely different species, which yields unexpected and often unpredictable results. Proponents of GM crops assume they can apply the principles of vertical inheritance to horizontal inheritance, but according to [Dr. David Suzuki](#), an award-winning geneticist, this assumption is flawed in just about every possible way and is “just lousy science.”

Genes don’t function in a vacuum — they act in the context of the entire genome. Whole sets of genes are turned on and off in order to arrive at a particular organism, and the entire orchestration is an activated genome. It’s a dangerous mistake to assume a gene’s traits are expressed properly, regardless of where they’re inserted. The safety of GM food is based only on a hypothesis, and this hypothesis is already being proven *wrong*.

## **Leading Scientists Disprove GMO Safety**

Vrain cites the compelling report "GMO Myths and Truths"<sup>2</sup> as just one of many scientific examples disputing the claims of the biotech industry that GM crops yield better and more nutritious food, save on the use of pesticides, have no environmental impact whatsoever and are perfectly safe to eat. The authors took a science-based approach to evaluating the available research, arriving at the conclusion that most of the scientific evidence regarding safety and increased yield potential do *not at all* support the claims. In fact, the evidence demonstrates the [claims for genetically engineered foods](#) are not just wildly overblown – they simply *aren't true*.

The authors of this critical report include Michael Antoniou, PhD, who heads the Gene Expression and Therapy Group at King's College at London School of Medicine in the UK. He's a 28-year veteran of genetic engineering technology who has himself invented a number of gene expression biotechnologies; and John Fagan, PhD, a leading authority on food sustainability, biosafety, and GE testing. If you want to get a comprehensive understanding of genetically engineered foods, I strongly recommend reading this report.

Not only are GM foods less nutritious than non-GM foods, they pose distinct health risks, are inadequately regulated, harm the environment and farmers, and are a poor solution to world hunger. Worse still, these questionable GM crops are now polluting non-GM crops, leading to contamination that cannot ever be “recalled” the way you can take a bad drug off the market ... once traditional foods are contaminated with GM genes, *there is no going back!* Vrain expanded:<sup>3</sup>

*“Genetic pollution is so prevalent in North and South America where GM crops are grown that the fields of conventional and organic grower are regularly contaminated with engineered pollen and losing certification. The canola and flax export market from Canada to Europe (a few hundreds of millions of dollars) were recently lost because of genetic pollution.”*

## **American Academy of Environmental Medicine Called for Moratorium on GM Foods FOUR Years Ago**

*In 2009, the American Academy of Environmental Medicine called for a [moratorium on GM foods](#), and said that long-term independent studies must be conducted, stating:*

*“Several animal studies indicate serious health risks associated with GM food, including infertility, immune problems, accelerated aging, insulin regulation, and changes in major organs and the gastrointestinal system. ... **There is more than a casual association between GM foods and adverse health effects. There is causation...**”*

*Despite this sound warning, GM foods continue to be added to the US food supply with no warning to the Americans buying and eating this food. Genetic manipulation of crops, and more recently [food animals](#), is a dangerous game that has repeatedly revealed that assumptions about how genetic alterations work and the effects they have on animals and humans who consume such foods are deeply flawed and incomplete. Monsanto CEO Hugh Grant claims genetically engineered crops are “the most-tested food product that the world has ever seen.” What he doesn't tell you is that:*

1. Industry-funded research predictably affects the outcome of the trial. This has been verified by dozens of scientific reviews comparing funding with the findings of the study. When industry funds the research, it's virtually guaranteed to be positive. Therefore, independent studies must be done to replicate and thus verify results.
2. The longest industry-funded animal feeding study was 90 days, which recent research has confirmed is FAR too short. In the world's first independently funded [lifetime feeding study](#), massive health problems set in during and after the 13th month, including organ damage and cancer.

3. Companies like Monsanto and Syngenta rarely if ever allow independent researchers access to their patented seeds, citing the legal protection these seeds have under patent laws. Hence independent research is extremely difficult to conduct.
4. There is no safety monitoring. Meaning, once the GM item in question has been approved, not a single country on earth is actively monitoring and tracking reports of potential health effects.

## **It Might Take More Than One Bite to Kill You ...**

*“One argument I hear repeatedly is that nobody has been sick or died after a meal (or a trillion meals since 1996) of GM food,” Vrain said. “Nobody gets ill from smoking a pack of cigarettes either. But it sure adds up, and we did not know that in the 1950s before we started our wave of epidemics of cancer. Except this time it is not about a bit of smoke, it’s the whole food system that is of concern. The corporate interest must be subordinated to the public interest, and the policy of substantial equivalence must be scrapped as it is clearly untrue.”*

Remember, Vrain used to give talks about the *benefits* of GM foods, but he simply couldn’t ignore the research any longer ... and why, then, should you? All in all, if GM foods have something wrong with them that potentially could cause widespread illness or environmental devastation, Monsanto would rather NOT have you find out about it. Not through independent research, nor through a simple little label that would allow you to opt out of the experiment, should you choose not to take them on their word. As Vrain continued:

*“The Bt corn and soya plants that are now everywhere in our environment are registered as insecticides. But are these insecticidal plants regulated and have their proteins been tested for safety? Not by the federal departments in charge of food safety, not in Canada and not in the U.S.*

*... We should all take these studies seriously and demand that government agencies replicate them rather than rely on studies paid for by the biotech companies ... Individuals should be encouraged to make their decisions on food safety based on scientific evidence and personal choice, not on emotion or the personal opinions of others.”*

At present, the only way to avoid GM foods is to ditch processed foods from your grocery list, and revert back to whole foods grown according to organic standards.

## **Keep Fighting for Labeling of Genetically Engineered Foods**