

SCIENCE

vs. Nutrition

THE GMO DEBATE

BY BARBI WALKER

If the old saying, “you are what you eat,” is true, what happens to us when science changes our food – more specifically genetically modified? Genetically modified (GM) foods (sometimes called GMOs—genetically modified organisms), are organisms where the DNA has been modified in some way or another.

According to the Human Genome Project (HGP), “GM is a special set of technologies that alter the genetic makeup of organisms such as animals, plant, or bacteria.” This is not to be confused with biotechnology. “Biotechnology refers to using organisms or their components, such as enzymes, to make products that include wine, cheese, beer, and yogurt.”

GM food debate have been discussed among the scientists, health professionals, farmers, families and foodies with the underlying question “Are GMs healthy for us or not?”

Pro GMO

Currently, GM foods are in many processed foods and, according to the Institute for Responsible Technology, there are about four or five “at-risk” ingredients and about 100 “invisible” sources of possible GM foods. For example, corn, soy, canola oil (aka rapeseed oil) and cottonseed oil, are known to contain GMOs.

These GM foods are used to enhance the size, shape, and nutritional value of food as well resist certain pests or diseases. Such methods are used to grow GM plants, which then are used to grow GM food crops. Originally they were used to increase production and yield in crops by reducing the need for pesticides to kill insects or viruses.

Using fewer pesticides means less poisonous residue in the plant. Less poisonous residue in the plant means fewer chemicals we come in contact with when we consume the plant. Because of GMOs in certain crops in Arizona, there is no longer a need for crop dusters to fly over and spray crops with chemicals to fight weeds.

“We’ve put crop dusters out of business,” says Kevin Rogers, a fourth generation Arizona farmer and president of the Arizona Farm Bureau (AZFB).

“Pests have cost the industry millions and millions of dollars,” Rogers adds. “GMO pest resistant plants are the reason farmers can spend less on pesticides.”

This increases productivity as well as the farmer’s income, says Julie Murphee, spokeswoman for the AZFB.

“The first few modified crops that have been grown widely, including insect-resistant and herbicide-tolerant corn, cotton, canola and soybeans, have increased agricultural productivity and farmers’ incomes,” Murphee adds.

She says that people around the world have consumed modified crops for 15 years without incident, and stands firm in her belief that GMOs are safe and has no qualms about her family eating foods that have been grown with them.

The World Health Organization (WHO) says, “GM foods currently available on the international market have passed risk assessments and are not likely to present risks for human health. In addition, no effects on human health have been shown as a result of the consumption of such foods by the general population in the countries where they have been approved.”

Murphee agrees and points out that we have been consuming GMOs for years, whether we know it or not. She says that GMOs are found mostly in processed food and is quick to point out that she tells her family and farmers’ families to shop the “outside” aisles at the grocery store and to consume less processed food. Not because of GMOs but because of overall health. Less processing means less sugar, less sodium, and more nutrition.

No Go GMO

When it comes to eating healthier, most of us know to eat more whole foods, fruits and vegetables. Eating less processed foods is better for your overall health. And in terms of GMOs, most fruits and vegetables are less likely to have such properties.

According to the PBS special series “Harvest of Fear”, few whole fruits and vegetables have GMOs in them, but highly processed breads, cereals and vegetable oils are likely to contain GMOs since processed foods are made from a supply of soy, corn and cotton seed oil.

In the series, NOVA online editor-in-chief, Peter Tyson, addresses the question of growing crops with GMOs.

“GM ingredients, in the form of modified enzymes, are found in virtually all breads, cheeses, sodas, and beers, and farmers have been raising GM food crops such as corn, soybeans,

and potatoes since the mid-1990s," Tyson reports in his "Should We Grow GM Crops?" segment.

Eric Herm, a fourth generation farmer in Texas, believes we should not grow such crops. He firmly believes that by using GMOs we are overproducing food that is lower in nutritional value, depleting the nutrients in the soil, and creating a nutrition shortage. He adds that, in his experience, he has used more chemicals on his GMO crops.

"We are not in a food shortage, we are in danger of a nutrient shortage," he says. Herm believes that what farmers are being "sold" in terms of what's "good" for the crops and land is actually making us and the land sick.

"When I came back to the family farm in 2005, I kept noticing all the skull and cross bones on the packages I needed to feed my GMO seeds," Herm says. "I kept asking myself, 'Why is this so dangerous?'"

He believes things like crop rotation and organic farming are the way to improve the land and crops.

Get Educated

"Science is wonderfully equipped to answer the question 'How?' but it gets terribly confused when you ask the question 'Why?' - Erwin Chargaff

"We are what we eat," Chargaff says. "Poison is as poison does."

Many consumers worry that GMOs are possibly causing allergies, cancers and other serious or life threatening health issues.

"Are we seeing increases of cancers, hormone problems and other ailments caused by the introduction of non-natural substances into our food, air and water? Do GMOs carry the same risks? I don't know and am not sure the GMO researchers know for sure either," says John Zavalney, Assistant District Manager for The Climate Project and an award winning science teacher.

Although he is not directly involved in the GMO debate, he is familiar with them, he says via email.

"I understand what GMOs are and the logic behind the supposed need for their development; increased food production, disease resistance etc.," says Zavalany, who was trained by former Vice President Al Gore and his staff to lecture on Gore's Nobel prize winning documentary film *An Inconvenient Truth*.

Truth be said, there is no simple answer. But with education and information we can begin to understand more about GM foods and their impact on our society and overall health.

"As a society we need to get more educated," says Lisa Niver Rajna, an award winning sixth grade science teacher in California.

Niver Rajna, recently nominated for the 2012 Presidential Award for Excellence in Math Science Teaching, is currently reading a series of articles on GMOs through the California Education and the Environment Initiative (EEI) with her students.

"I tell my students that you have to look carefully at the good and bad of an issue," Niver Rajna says.

Science may be the common ground for answers. Both Niver Rajna and Murphee agree on one thing—don't be afraid of science.

Science can create techniques and products that make both

organic and bio-engineered farming better.

Herm has seen great changes in organic farming thanks to innovation and science. "Is organic farming doable? Absolutely. I believe it to be the only real future agriculture has in this country, and I'm thrilled to be in the initial stages of this transformation," he says.

Although government testing regarding the safety of GM foods has been done, consumers still have questions and concerns about the food supply. In the mid 90s, WHO reported that Europeans had lost confidence in food safety due to a number of food scares unrelated to GMOs. Fortunately, it did start the discussion about long-term effects of GMOs.

"Unfortunately we only have sound bites which causes knee-jerk reactions," says Niver Rajna. "I think legitimate information is out there and sometimes it's hard to know what's accurate, but science has a lot to offer in the way of education and information."

Herm agrees and says awareness and education are key, but action is what makes the difference in sustainable farming for both farmers and consumers.

"There is a connection between a farmer and the earth. We're gatekeepers of sorts. Guardians of the land," says Herm. "We're supposed to be good stewards of the land, to be caretakers of the land." ■

RESOURCES

For a comprehensive list of the hidden ingredients, go to nongmoshoppingguide.com
azfb.org
pbs.org/wgbh/harvest/exist/ "Should We Grow GM Crops?" Author Peter Tyson

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