The Truth About GMOs

By Amy Paturel, Reviewed by Jennifer Robinson, MD on December 07, 2014

http://www.webmd.com/food-recipes/truth-about-gmos?page=3

PRE-READING - *Before reading, write a quick list of what you know to be true about GMOs. What do you know to be false?*

If you've eaten today, chances are you've had a food that's been touched by science as well as Mother Nature. Up to 80% of processed foods in the U.S. have something that's been changed by man from the way it would grow on its own. This happens at a very basic level -- in the plant's genes. We say these are genetically modified (GM). Their number is growing by leaps and bounds. Key crops include corn, soybeans, and cotton. (Yes, cotton products are in foods.)

Scientists tinker with plants for many reasons. They often take a gene that controls a desired trait in one plant -- less need for water, so it can survive a drought, for example -- and add it into a different plant. The end result: hardier crops, more colorful berries, even seedless watermelons and grapes.

"What that means is, like it or not, genetically modified foods are almost impossible to avoid," says Sheldon Krimsky, PhD, an adjunct professor of public health and community medicine at Tufts Medical School in Boston.

REFLECT - *Think of your favorite fruit or vegetable. What is it? What makes it good? What makes it less desirable?*

The Pros

The World Health Organization, the National Academy of Sciences, and the American Medical Association all say these crops are at least as safe as, and often safer than, foods changed the old-fashioned way, such as when a new plant is bred from two different types.

In the U.S., three groups play a role in bringing GM products to grocery store shelves. The EPA rates GM plants for their effects on the environment and the USDA decides whether the plant is safe to grow -- it won't harm other plants or animals. The FDA decides whether the plant will make anyone who eats it sick.

"They're the most thoroughly tested food on the market," says Dan Goldstein, MD, senior science fellow at Monsanto, an agriculture company responsible for a large share of genetically modified crops worldwide.

Those in favor of genetically modified organisms (GMOs) count these among their top selling points:

More food: These plants can help farmers boost their yield by making crops that can live through a drought or the cold and resist disease. Backers say GM products will help us feed the extra 2 billion people that will fill the planet by 2050. “Not using these tools would push us back 40 to 50 years in food production,” says Kent Bradford, PhD, distinguished professor of plant sciences and director of the Seed Biotechnology Center at the University of California, Davis.

Less stress on the environment: Supporters say using science to make the changes is better for the planet than older farming methods. Crops built to resist pests lower farmers’ need for toxic chemical pesticides, Goldstein says. They also require less soil to be tilled, reduce runoff, and keep the soil in place.

Better products: Scientists can create crops that contain vital nutrients. Swiss researchers created a strain of “golden” rice with high amounts of beta-carotene. Monsanto produced soybeans with lots of heart-healthy omega-3 fatty acids. Other crops, like papaya and cassava, can be made to withstand disease. “Naturally occurring molds (if we don’t prevent them by creating GM crops) present huge health hazards,” Bradford says. “Why reject a technology that has the potential to benefit so many people worldwide?”

GO BACK IN THE TEXT – *Highlight or underline the central idea of each “pro” for GMOs. Put a “+” in the margin next to each. Circle the item that you think is the best argument for GMOs. Write your reasoning below.*

Circle each ethical appeal (ethos) in this section. Which is the strongest? Put a star next to the authority.

The Cons

People concerned about the planet, public interest groups, and religious organizations hold that GM foods can cause allergies, make your body resist antibiotics, or even lead to cancer. Independent scientists without a stake on either side see pitfalls to these high-profit, high-tech products.

Top concerns about GMOs include:

The rise of superweeds: Crops built to withstand herbicides could breed with each other and transfer their genes to weeds. These “superweeds” would also beat the herbicides. On the other hand, GM fans say this is nothing new. “Even nonchemical technologies create superweeds,” Bradford says.

Health problems: The process often mixes or adds proteins that don’t exist in the original plant. GMO foes fear these will create new allergic reactions. They also worry that foods made to resist disease and viruses will linger in your system after you eat them, and that could make antibiotics less effective. But no studies confirm this claim.

"Frankenfood" fears: The long-term effects of adding new genes to common crops are still unclear. While the industry and health leaders cite hundreds of studies to support its safety, not to mention 20 years of animal data, experts like Krimsky say studies that show bad effects on animals -- like harm to the kidneys, liver, heart, or other organs -- should carry more weight. “The prominent scientists who say the controversy surrounding GMOs has been resolved are dismissing at least 23 studies showing ill effects,” he says. “It has to be a balancing act that weighs the benefits of GMOs against the risks, and that is driven by science, not political pressure or profits.”

The FDA’s only litmus test for safety is based on a policy that says GM foods are close enough to natural foods that they

don't need regulation. "The question is, how can they make that determination?" Krimsky says.

GO BACK IN THE TEXT – *Highlight or underline the central idea of each "con" against GMOs. Put a "-" in the margin next to each. Circle the item that you think is the best argument against GMOs. Write your reasoning below.*

CRITICAL THINKING – *What side is the author of this article taking? How can you tell? Draw a squiggly line under your evidence.*

The Right to Know

Whether they think of them as Frankenfoods or a way to feed the world, both sides agree consumers have a right to know what's on their plates. Countries that require labels for GM foods include China, Australia, and the European Union. But the U.S. doesn't make food companies mark products with GM ingredients. So it's no surprise many Americans don't realize they're eating them.

The FDA says companies can label foods on their own to say they are or aren't GM, provided they keep it truthful. But that puts an added burden on farmers to plant, harvest, and ship GM crops separately from non-GM crops. That creates extra cost, which is passed along to the consumer.

Food companies like Nature's Path and Gerber baby food choose to use non-GM ingredients. The fast food chain Chipotle removed GM foods from its menu. Whole Foods Market promises to label all GM products at its U.S. and Canadian stores by 2018.

The bottom line: If you live (and eat) in the U.S., unless it's otherwise stated -- or it's certified organic -- it's a safe bet that your food is GM. Makers who don't use GM ingredients clearly say so on labels.

CRITICAL THINKING – *What is the author's purpose in this article?*

What structure does she use to achieve this purpose? Outline it below.

Sources:

Dan Goldstein, MD, senior science fellow, Monsanto, St. Louis, MO.

Sheldon Krimsky, PhD, adjunct professor of public health and community medicine, Tufts Medical School, Boston.

Kent Bradford, PhD, Distinguished professor of plant sciences; director, Seed Biotechnology Center, University of California, Davis.

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Iowa State University: "The Debate on Labeling Genetically Modified Food."

Brown University: "What is Genetically Modified Food?"

A Review of International Labeling Policies of Genetically Modified Food to Evaluate India's Proposed Rule. 2007.

University of California Division of Agriculture and Natural Resources Statewide Biotechnology Workgroup.

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University of Nebraska, Ag Biosafety: "Will This Stuff Harm the Environment?"