



TOP 10 CONSUMER QUESTIONS ABOUT GMOS, ANSWERED.

GMO Answers and the Council for Biotechnology Information conducted a national survey to identify, for the first time, the top questions consumers have about GMOs. We compiled the top 10 questions and reached out to scientists, farmers, economists and other experts to provide answers. The following are the top consumer questions and abbreviated expert responses. For complete responses, please visit www.gmoanswers.com/studies/top-10-gmo-questions.

1 DO GMOS CAUSE CANCER?

"The short answer is no, there is absolutely zero reputable evidence that GMO foods cause cancer," says Dr. Kevin Folta, University of Florida interim chairman and associate professor, Horticultural Sciences Department.

Additionally, the health and safety of GMOs have been validated by many independent scientists and organizations around the world. For example, there are more than 1,080 studies about the health and safety of GMOs available at biofortified.org, and a decade of GMO research, funded by the European Commission, that find GMOs pose no greater risk than their conventional counterparts.¹

2 ARE GMOS CAUSING AN INCREASE IN ALLERGIES?

Lisa Katic, RD, explains that "No commercially available crops contain allergens that have been created by genetically engineering a seed/plant. And the rigorous testing process ensures that will never happen."

Lisa goes on to say, "food allergies are mainly caused by eight foods (milk, eggs, peanuts, tree nuts, soy, wheat, fish and shellfish) and account for about 90 percent of reported food allergies in the United States. It is important to note that only one of the eight major allergens listed above is a potential product of biotechnology, and that is soy. Of the remaining seven allergens listed, none is commercially available in genetically modified varieties."

GMOs do not introduce any new allergens. If a person is allergic to a non-GM plant, for example soy, he or she will also be allergic to the plant's GMO counterpart on the market today.

3 ARE BIG COMPANIES FORCING FARMERS TO GROW GMOS?

"None of the seed companies force farmers like me to buy any particular product...I can buy any seed from any vendor I choose from one year to the next," says Brian Scott, an Indiana farmer who grows corn and soybeans.

Jillian Etress, a high school agriculture teacher and family farmer from south Alabama, explains that on her farm, they "choose to use or not use GMOs based on the needs of our farm."

We couldn't agree more. GMO Answers respects farmers' right to choose seeds based on what is best for their farms, market demand and local growing environments. In fact, a farmer's right to choose the best seed type for his or her farm is one of our five core principles.



GMO Answers is sponsored by the members of The Council for Biotechnology Information, the agricultural biotechnology companies that develop genetically modified seeds — or GMOs. To learn more about GMO Answers' founding members and supporting partners, visit us at GMOAnswers.com.

4 ARE GMOS INCREASING THE PRICE OF FOOD?

While the cost of food is impacted by various factors (the price of oil affects transportation costs; drought can affect yield and available supply; etc.), GMOs play an important role in keeping those prices as low as possible.

"Actually, GMOs have contributed to reducing the real cost of food," explains Graham Brookes, agricultural economist, PG Economics Ltd. "The [GM] technology adopted to date has largely been productivity-enhancing and cost-reducing technology. This means additional global production has arisen from use of the technology, equal to an extra 138 million tonnes [304 billion pounds] of soybeans, 274 million tonnes [604 billion pounds] of corn, 21.7 million tonnes [48 billion pounds] of cotton lint and 8 million tonnes [18 billion pounds] of canola in the period 1996–2013."

5 ARE GMOS CONTAMINATING ORGANIC FOOD CROPS?

The coexistence of multiple production methods – organic, conventional and GM – is not a new concept. Farmers have been producing different types of crops next to one another before and since GM seeds were first introduced in 1996, and they work hard every day managing their farms to ensure each crop meets the appropriate marketing requirements.

Mary Mertz who farms a combination of seed types—conventional and GM—and does so next door to an organic farm states, "Organic and conventional farmers are all in the food production business together. We need to work together and respect each other's farming practices. This entails communication, heightened awareness of weather conditions and being solution-oriented to prevent problems from occurring in the first place."

6 WHY AREN'T LONG-TERM HEALTH STUDIES CONDUCTED ON GMO PLANTS?

Long-term health studies have been conducted on GMOs. Aside from the fact that GM foods have a long, safe track record (18 years in the marketplace), GM crops are repeatedly and extensively tested for consumer and environmental safety, and those tests are reviewed by the U.S. Department of Agriculture, U.S. Environmental Protection Agency (EPA) and the Food and Drug Administration, and similar organizations internationally.

A list of 1,785 GMO safety studies, including long-term studies, are available for download at Informa Healthcare.³ The International Service for the Acquisition of Agri-biotech Applications (ISAAA)⁴ provides 610 scientific papers published in peer reviewed journals which evaluate the safety of foods derived from GM crops, and biofortified.org provides a growing list of exclusively independent studies on GMOs.

In addition, the European Commission conducted numerous studies on the safety of GMOs. According to the European Commission, "the main conclusion, after more than 130 research projects covering a period of more than 25 years of research and involving more than 500 independent research groups, is that biotechnology, in particular GMOs, are not per se more risky than, e.g., conventional plant breeding technologies."⁵



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7 ARE GMOS CAUSING AN INCREASE IN THE USE OF PESTICIDES?

Overall, pesticide applications have decreased, largely due to the adoption of insect-resistant crops, particularly in cotton, according to Agricultural Economist Graham Brookes.

Reducing pesticide applications saves farmers' time and money by decreasing the amount of chemicals they need to purchase and the number of times they need to apply them to fields over the course of a growing season. This has translated into documented benefits to the environment, including a reduction in greenhouse gas emissions, equivalent to taking 12.4 million cars off the road for one year.^{6*}

Furthermore, Andrew Kniss, associate professor of weed ecology and management at the University of Wyoming, notes that the adoption of the herbicide-tolerant crops available today has allowed farmers to use less toxic herbicides in the field.

8 WHY DO GMO COMPANIES SEEM LIKE THEY ARE SO AGAINST LABELING GMO FOODS?

As Cathy Enright, executive director for the Council for Biotechnology Information states, "We support mandatory labeling of food, including GMO food, when a food raises a safety or health issue—for example, to alert sensitive populations to the potential presence of an allergen."

Cathy further explains, "but we cannot support the mandatory labeling of GMO food just because the food in the market was produced using genetic engineering, for example, in wine, yogurt or bread made with GM yeast, vegetable oil made from GM soybeans, or cereal sweetened with GM sugar. These foods are as safe and nutritious as their non-GMO counterparts as determined by recognized authorities around the world."

9 ARE GMOS CONTRIBUTING TO THE DEATH OF BEES AND BUTTERFLIES?

Bees: EPA and other authorities recognize that bee populations may be challenged by a number of factors, including pests and parasites, microbial disease, inadequate diet and loss of genetic diversity, as explained by Paul Driessen, a senior policy analyst and author.

According to Paul, "the proceedings of the U.S. National Academy of Sciences indicated that bees may be dying not from a single toxin or disease, but rather from a variety of factors." He goes on to say, "GM crops have not been implicated in CCD [Bee Colony Collapse Disorder] and, in fact, have made it possible to grow more food and other crops on less land, with fewer insecticides and even under conditions of limited rainfall or drought."

Butterflies: There are a variety of factors impacting monarch butterfly populations, such as deforestation, parasites, and ebbing populations of their host milkweed plants, including claims that GMOs and herbicides are contributing to the decline in milkweed.

Andrew Kniss, associate professor of weed ecology and management at the University of Wyoming, explains why the cause for the milkweed decline is a complex issue, concluding that while herbicides may have played a role in the decline of species like milkweed, "the research does suggest that there are more important factors than herbicides responsible for the decline of native plant species near crop fields, [such as] milkweeds."

Shifting land management practices is one important factor. Researchers, conservation groups, government agencies and the agricultural community are identifying ways to reestablish functional habitat on the agricultural landscape, recognizing the need for productive agricultural systems.

It is important to note that before a genetically modified crop can be grown commercially, companies developing GM plants must demonstrate that the new plants are not harmful to "non-target" insects, such as bees and butterflies.

10 IF LIVESTOCK EAT GENETICALLY MODIFIED GRAIN, WILL THERE BE GMOS IN MY MEAT?

Alison Van Eenennaam, extension specialist in animal genomics and biotechnology at the University of California, Davis, explains, "Genetically engineered crops are digested by animals in the same way as conventional crops. Evidence to date strongly suggests that feeding livestock with genetically engineered crops is equivalent to feeding unmodified feed sources in terms of nutrient composition, digestibility and feeding value."

It has been estimated that between 70-90 percent of harvested GM crops are fed to food producing animals, making the world's livestock populations the largest consumers of the current generation of GM crops.⁷ GMOs have never been detected in the milk, meat or eggs derived from animals fed GM feed.

Sources:

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