<table>
<thead>
<tr>
<th>Crop</th>
<th>GM Trait</th>
<th>Crop Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Squash</td>
<td>• Disease resistance</td>
<td>• Food</td>
</tr>
<tr>
<td>Corn (field and sweet)</td>
<td>• Insect resistance&lt;br&gt;• Herbicide tolerance</td>
<td>• Sweet Corn:&lt;br&gt;  ○ Food&lt;br&gt;  ○ Field Corn:&lt;br&gt;  ○ Livestock/poultry feed&lt;br&gt;  ○ Fuel ethanol&lt;br&gt;  ○ High-fructose corn syrup&lt;br&gt;  ○ Corn oil, starch, cereal ingredients</td>
</tr>
<tr>
<td>Sugar Beet</td>
<td>• Herbicide tolerance</td>
<td>• Sugar&lt;br&gt; • Animal feed</td>
</tr>
<tr>
<td>Cotton</td>
<td>• Insect resistance&lt;br&gt;• Herbicide tolerance</td>
<td>• Fiber to make fabric&lt;br&gt; • Animal feed&lt;br&gt; • Cotton-seed oil</td>
</tr>
<tr>
<td>Rainbow Papaya</td>
<td>• Disease resistance</td>
<td>• Food</td>
</tr>
<tr>
<td>Soybean</td>
<td>• Insect resistance&lt;br&gt;• Herbicide tolerance</td>
<td>• Livestock/poultry/fish feed&lt;br&gt; • Soybean oil&lt;br&gt; • Biodiesel fuel&lt;br&gt; • Soymilk, soy sauce, tofu and other foods&lt;br&gt; • Adhesives, pet foods, and printing ink</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>• Herbicide tolerance</td>
<td>• Animal feed</td>
</tr>
<tr>
<td>Canola</td>
<td>• Herbicide tolerance</td>
<td>• Animal feed&lt;br&gt; • Cooking oil</td>
</tr>
<tr>
<td>Potato</td>
<td>• Reduced bruising and black spots&lt;br&gt; • Non-browning&lt;br&gt; • Lower acrylamide levels</td>
<td>• Food</td>
</tr>
<tr>
<td>Apple</td>
<td>• Non-browning</td>
<td>• Food</td>
</tr>
</tbody>
</table>
GMOs are:

- Plants with one or more genetic characteristics that were inserted into the genome using biotechnology.

GMOs are NOT:

- Plants that were improved through artificial selection processes like cross breeding, hybridization, or mutagenesis.
Growing a GMO Crop

- Desired traits can be fairly quickly identified. (<10 years)
- Plants can become genetically resistant to disease or pests.
- Scientists can find a single specific trait and insert it into the DNA.

Growing a non-GMO Crop

- Desired traits can be identified. It may take a significant amount of time (decades) to find.
- Disease and pests are controlled with chemicals or other cultivation practices.
- Desired traits cannot be perpetuated individually.

- Desired traits can be identified and perpetuated.
- Life cycle and growth of plant is equivalent.
- Safety and nutrition of plant is equal.
GMO Regulation Process

- It takes many years for a new GM crop to be developed, tested, and finally approved for commercial release.
- Prior to the release of a new GM crop it is tested and monitored by three primary agencies in the United States.
  - Food and Drug Administration
  - United States Department of Agriculture
  - Environmental Protection Agency
FDA regulates the safety of food for humans and animals, including foods produced from genetically engineered (GE) plants.

Foods from GE plants must meet the same food safety requirements as foods derived from traditionally bred plants.
The USDA, EPA, and FDA work to ensure that crops produced through genetic engineering for commercial use are properly tested and studied to make sure they pose no significant risk to consumers or the environment.
The EPA focuses on reviewing environmental impacts of a GE crop prior to field testing and the commercial release of the seed.

They ensure there are no unintended consequences to honeybees, other beneficial insects, earthworms, fish, or the environment in general.

They also look for any impact they may have on other crops.
GMO Fact or Fiction?
Fact or Fiction?

GMOs are created by injecting chemicals into food AFTER it is harvested.

Fiction

GMOs are developed through genetic engineering where scientists identify and insert specific traits into the DNA of the seed before it is ever planted. The plant grows just like conventional (non-GMO) seeds. The transgenic trait is then transferred to other varieties through traditional cross-breeding.

See “The Life of a Seed-Jake, a GMO Seed”
Fact or Fiction?

After a GMO is developed, it is thoroughly evaluated by the USDA, FDA, and EPA to identify unintended consequences to the environment or to our health if consumed.

Fact

It takes many years for a GMO to be approved first for field testing and second for commercial production.
Fact or Fiction?

GMOs have bombarded the produce section of the grocery store. It is difficult to avoid GMO fruits and vegetables.

Fiction

There are only 10 approved varieties of GMO plants. Of those crops, 5 could be found in the produce section. They are sweet corn, papaya, potatoes, squash, and the Arctic apple. (The arctic apple won’t be available on store shelves for a few more years)
Fact or Fiction?

The bulk of GM crops that are harvested in the US are for the use of livestock feed.

Fact

GM field Corn, Alfalfa, Soybeans, and the by-products of sugar beets and cotton harvested in the United States are all used to feed livestock.
If I purchase food labeled with the USDA Organic seal, I know these products did not grow from a GM seed.

Fact

In addition to other growth and production requirements, foods with the “Organic” seal were not grown from GM seeds.
Fact or Fiction?

Using GM crop varieties in every country would be beneficial.

Fiction

Many third world countries do not have the technology and resources to utilize the benefits of GM crops. For example, if a farmer in another country does not have access to herbicides, using herbicide tolerant crops would not be beneficial.
Fact or Fiction?

The implementation of GM seeds over the last 20 years has increased the price of food.

Fiction

A study shows that the prices of corn, soybeans and canola would probably be 5-9% higher than if GM technology was not available to farmers.

_The Production and Price Impact of Biotech Crops_
Fact or Fiction?

Health studies about the safety of consuming GM crops are less than 20 years old.

Fact

GM crops have only been in production since 1996. While studies have shown they are safe, their scope is limited to the amount of time they have been in production and use.
Fact or Fiction?

GMOs are NOT directly linked to being a cause for cancer.

Fact

GM crop varieties pose no greater risk of increasing the risk of cancer than their conventional counterparts.

A decade of EU-funded GMO Research Compilation of Research on GM Crops
Fact or Fiction?

Studies show that GMOs are linked to an increase in allergies.

Fiction

90% of all allergies are caused by peanuts, tree nuts, milk, eggs, wheat, soy, shellfish, and fish. To date, only soy even has a GM variety. See more explanation:

Are GMOs causing an increase in allergies?
Fact or Fiction?

GMOs are contributing to the death of butterflies.

Fiction

Butterflies would need to eat the Bt found in GM crops to have it kill them. Butterflies are not pests, and therefore do not feed on the actual plants.

Dominic Reisig, North Carolina State University
Fact or Fiction?

There aren’t any known environmental risks to producing and growing GM crops.

Fiction

Potential environmental risks are known, which leads to monitoring and testing before approval of a new GM crop. Scientists monitor GM crops to watch for unintended consequences that could be seen long term such as herbicide tolerance, biodiversity concerns, and effect on non-target organisms.
If livestock eat genetically modified grain, will there be GMOs in my meat?

In the United States, livestock have been consuming feed made from GM crops for almost twenty years. More than two-thirds of GM corn and half of GM soybeans are used for livestock feed. In that time, GMOs have never been detected in the milk, meat or eggs derived from animals fed GM feed.

First, it’s important to understand that almost all the food that we (or animals) eat contains DNA and proteins. The DNA and proteins found in food, GMO and non-GMO, are released from the food and processed by the digestive system in our gastrointestinal tract. During digestion, GMO and non-GMO DNA is broken down into the four nucleotides that make up all DNA, and/or into small nucleotide fragments. Similarly, proteins, again GMO and non-GM, are broken down into one or a few of the 21 amino acids that exist in nature. Many, many studies have been conducted on the potential for GMO DNA or proteins to be transferred into animal tissues. No intact or immunologically reactive protein or DNA has been detected in animal tissue.

Therefore, as 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.” Additionally, Dr. Van Eenennaam states, “Genetically engineered DNA, or the novel proteins encoded in therein, have never been detected in the milk, meat or eggs derived from animals fed genetically engineered feedstuffs. Several studies have documented that small fragments of plant-derived, but not genetically engineered, DNA can pass into the tissues of animals that consume the plants.”

Are feeds made from GMOs safe for livestock?

GM crops, such as corn, soy and alfalfa, are commonly used for livestock, and more than 100 digestion and feeding studies have been conducted with food-producing animals, like beef cattle, swine, sheep, lactating dairy cows and chickens.

In a post for Facts About Beef, Ruth McDonald, professor and chair of food science and human nutrition at Iowa State University points out that “GM products have been in the U.S. food supply since 1996—hence we have years of practice that have shown no negative impact on animal or human health. Farm animals, the most carefully monitored animals on the planet, have been raised on GM corn and soybeans over several generations and there is no evidence of negative effects on growth, reproduction or disease. And there has been no documented case of human illness or allergen associated with GM foods.”
Week #9 - Are GMOs contributing to the death of bees and butterflies?

- Last week, we addressed the claim that GMOs are contributing to the death of bees; this week we’ll discuss the second half of the question about butterflies.

- There are a variety of factors impacting monarch butterfly populations, such as deforestation, parasitism, and ebbing populations of their host milkweed plants.

- There are claims that GMOs and herbicides (more specifically an herbicide called glyphosate) are contributing to the decline in milkweed – a primary food source for monarch larvae (caterpillars)— and that the butterflies have been harmed by eating pollen from GM Bt corn. GMO Answers experts address both of these claims.

- 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, including milkweeds.” This study he points to was conducted by USDA-ARS and Penn State scientists.

- What can be done? Shifting land management practices is one important factor affecting milkweed and other nectar plants that sustain monarchs. Researchers, conservation groups, government agencies and the agricultural community are identifying ways to reestablish functional habitat on the agricultural landscape while continuing to recognize the need for productive agricultural systems. Farmers have an important role to play in the conservation of monarch butterflies and can support a monarch recovery by helping to replenish milkweeds in rural areas. Similarly, everyone can support a monarch recovery by helping to establish butterfly gardens in urban and suburban areas. There are hundreds of these gardens that have been planted through efforts by groups such as Monarch Watch and the Monarch Joint Venture.

- With regard to pollen, we reached out to Dominic Reisig, an extension specialist and assistant professor of entomology at North Carolina State University, to further discuss the declining butterfly population. In this post he explains that “the butterflies need to eat the Bt in order to die. Only pest species, not non-pest species [such as monarch butterflies], eat GM plants. Therefore, the non-target pest species are not exposed to the Bt and do not die.” He concludes, “GMOs are not contributing to the death of non-pest species of butterflies.”

- The U.S. Department of Agriculture, has a website dedicated to its own research investigation into the claim that monarch butterflies might be harmed by eating pollen from Bt corn and found that “there is no significant risk to monarch butterflies from environmental exposure to Bt corn.” Additionally, a collaborative research effort by scientists in several states and Canada produced this report which found “no acute toxic effects at any pollen density that would be encountered in the field.”

- 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. This is part of the rigorous health and safety testing that GMOs must undergo before coming to market, which includes a mandatory review by the Environmental Protection Agency of GM plants that are insect resistant or herbicide tolerant to assess their environmental impact. This post by Steve Savage, discuss the extensive regulatory review process required for GMOs.
Week #9 - Are GMOs contributing to the death of bees and butterflies?

- This is a big topic, so we are breaking the answer into two parts. This week we’ll address to the first half of the question regarding bees, next week we’ll explore butterflies.

- The sudden and widespread disappearances of adult honey bees from hives, termed Colony Collapse Disorder (CCD), became a national concern almost 10 years ago. Claims have been circulated that insect protected GM crops harm bees, but these assertions have been refuted by the mainstream scientific community.

- GMOs are not believed to have much of any impact on honey bee populations.

- EPA et al recognize the 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, in this post.

- Paul explains that “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 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.”

- If a variety of factors are impacting bee health, could GMOs be one of them? Bee Ambassador for Bayer Chris Sansone, who has more than 30 years of experience as a professor and extension specialist at Texas A&M University, points to several scientific studies indicating this is not the case. He notes that “genetically modified plants and their impact on honey bees have been widely studied, and the results indicate that GM plants are not harmful to bees.”

- The insecticidal proteins produced by the currently available insect protected crops are derived from a common soil bacterium and all of the proteins used in insect-protected GM plants are tested for toxicity to honey bees. None of these proteins have provided any evidence of harm in either short or long term testing with both adult and larval honey bees.

- Additionally, in May 2013 the USDA and EPA released a comprehensive scientific study on the many factors that contribute to CCD - none of which are GMOs.
Cathy Enright, executive director for the Council for Biotechnology Information, describes the labeling we do support in this response, she states, “when it comes to safeguarding your health and nutrition, we support the mandatory labeling of food, including GMO food, if it raises a safety or health concern, for example, to alert sensitive populations to the potential presence of an allergen. We also support mandatory labeling of GMO food if there is a change to the food’s composition, nutritional profile, taste or smell, or any other characteristic that would make it different from its conventional counterpart.”

In the United States, foods are labeled according to FDA policy, which requires a label “anytime a food differs from its conventional counterpart in a meaningful way, such as a reduction in nutrients, the introduction of an allergen or even a change in taste or smell.” The purpose of mandatory food labeling is to convey information to consumers about the safety and nutrition of a product.

It is critical that labels be factual, verifiable, understandable and not misleading. As Enright 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.”

Enright 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.”

In this post, Greg Conko, senior fellow at the Competitive Enterprise Institute, discusses the “the unique ‘power and precision’ of genetic engineering” and the “intense scrutiny to which GM plants are subject by three different regulatory agencies in the U.S. alone.” He goes on to say, “Dozens of the world’s most prestigious scientific bodies, including the National Academies of Science, the American Medical Association and the World Health Organization, have studied genetic engineering for more than 30 years and concluded that such foods are at least as safe as, and often safer than, conventionally bred ones.”
Many consumers ask whether farmers who grow GMO crops are increasing their use of pesticides. Overall, pesticide applications have decreased, largely due to the adoption of insect-resistant crops, particularly in cotton (Agricultural economist Graham Brookes discusses in this post.)

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 also has translated into documented benefits to the environment including the reduction in greenhouse gas emissions, equivalent to taking 10.2 million cars off the road for one year (GM Crops: Global Socio-Economic and Environmental Impacts 1996-2011, Graham Brookes & Peter Barfoot).

Graham also describes the benefit of herbicide-tolerant GM technology, stating that the “volume of herbicide used in GM corn crops decreased by 193 million kg” from 1996 to 2011. That’s more than a 10 percent reduction.” The use of one herbicide, glyphosate has increased however, as farmers sought to adopt herbicide-tolerant crops and to use more benign chemicals on their farms. Although the use of one herbicide has increased, this has not led to an increase overall. This has also raised questions about weed resistance to glyphosate, which John Soteres addresses in this answer.

Let’s first explore why farmers use pesticides to better understand the role GMOs can play...

Why are pesticides used?

Farmers use pesticides to stop unwanted predatory insects and invasive weeds from destroying their crops. Just as gardeners deal with caterpillars that can wreak havoc on their fruits and vegetables, farmers manage for a variety of pests that interfere with crop production, reducing yield and increasing costs to the farmer and consumer. (Did you know that the same Bt pesticide you may use in your home garden is what helps insect-resistant GM crops fight pests?)

How do GMOs play a role in reducing pesticides?

Several GM crops have been developed specifically for insect resistance or herbicide tolerance, which allows farmers to use fewer pesticides on GM crops. For example, the European corn borer is one of corn’s primary pests. It can damage the ears and stalks of corn by chewing tunnels, damaging the plant and inhibiting growth. Farmers can control for this pest by planting GM corn resistant to the European corn borer, which reduces the need for pesticides and helps increase yield by preventing damage to the corn crop.

Agricultural economist Graham Brookes discusses insect resistance in GM crops in this post, stating that it “provides a form of protection against pests and often replaces insecticides as a form of control.” Brookes goes on to say that “the use of GM insect-resistant technology has resulted in major reductions in the use of insecticides that have been traditionally used to control the pests the GM technology now controls.”
Why aren’t long-term health studies conducted on GMO plants?

This might surprise you, but long-term health studies have been conducted on GMOs. Aside from the fact that GM foods have a long, safe track record (17 years in the marketplace), GM crops are repeatedly and extensively tested for consumer and environmental safety, and those tests are reviewed in the U.S. by the Department of Agriculture, Environmental Protection Agency and Food and Drug Administration, and similar organizations internationally. Tests are conducted by both industry experts and independent organizations. This link lists 1,785 GMO safety studies, including long-term studies, many of which you can download, and this link will take you to a list of 610 more.

On Biofortified.org, you can research a growing list of exclusively independent studies, and this link goes to an interesting blog post discussing the perceived bias of industry studies.

Furthermore, the European Union, which strictly regulates GM crops, has also conducted numerous studies on the safety of GMOs. You can find the results of those studies here. 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.”

In fact, every major scientific body and regulatory agency in the world has reviewed the research about GMOs and openly declared crop biotechnology and the foods currently available for sale to be safe.

Denneal Jamison McClung, associate director, UC Davis Biotechnology Program, also provides a full response on this topic here, where she explains that “from their introduction in 1996 until now, scientists have found, through repeated and extensive testing, that GMO foods are no more risky than comparable non-GMO foods, nor do they differ in nutritional value.”
Week #5 - Are GMOs contaminating organic food crops?

- The proper management of organic, conventional and GM seeds is an important issue.
- 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.
- Don Cameron, a farmer outside of Fresno, CA, grows conventional and GM seeds on the same farm. We asked Don to answer this question, and he explains what he does at the farm-level to avoid pollination from surrounding crops, and how different crop management systems play a role.
- Clean seeds are a concern for organic farmers before planting, as well as pollen drift from neighboring fields during cultivation. As Don explains, “Organic does not equal zero presence of a GM trait. Low-level presence of a GM trait in organic production is allowed as long as the grower has followed the organic process necessary for organic production.”
- Mary Mertz also farms with a combination of seed types—conventional and GM—and happens to do so next door to an organic farm. Mary 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.”
- Additionally, a report from the American Seed Trade Association explains that, “Building upon many generations of experience, coexistence involves agricultural best practices that bring the greatest benefit to all along the agricultural value chain from seed developers to farmers and from retailers to consumers — from field to fork.” The report reminds us that, “The coexistence of various production methods is not a new concept to the agricultural community,” and that, “Farmers are accustomed to producing different crops next to one another.” Read the full report for more information on the set of tools used to facilitate coexistence in the seed industry.
- NPR also explores the comingling of organic and GM seeds in this story and explains that, “Organic producers typically do try to minimize the presence of GMOs, because their customers don’t want them. It’s usually not too hard to keep contamination to a very low level.”
While the cost of food is impacted by various factors (the price of oil affects transportation costs; temperature changes can cause drought; etc.), GMOs play an important role in keeping those prices as low as possible. It’s estimated that corn-based products would be priced 6 percent higher and soybean-based products would be 10 percent higher if GM crops were not grown, according to a 2010 study by Graham Brookes et al.

But what role, exactly, does biotech play in the cost of food?

We reached out to Graham, who is an agricultural economist at PG Economics Ltd., U.K., to explain more about the complicated topic of food cost and explore the role GMOs play in the global food economy.

Key points from Graham’s response include:

- “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 122 million tonnes of soybeans, 237 million tonnes of corn, 18 million tonnes of cotton lint and 6.6 million tonnes of canola in the period 1996-2012.”

- “The real price of food and feed products has fallen consistently during the last 50 years. This has come about not ‘out of the blue’ but from enormous improvements in productivity by producers. These productivity improvements have arisen from the adoption of new technologies and techniques.”
Week #3 - Are big companies forcing farmers to grow GMOs?

- For this question, we reached out to Brian Scott, an Indiana farmer who grows corn and soybeans, to talk about his experience purchasing seed for his farm. He explains that "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."

- In another response, available here, Brian goes on to say that "each farmer should have the freedom to farm how he or she chooses."

- Jillian Etress, a high school agriculture teacher and family farmer from South Alabama, also offers her perspective in this post, where she 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, it is one of our five core principles—available here.
Week #2 - Are GMOs causing an increase in allergies?

- Lisa Katic, RD, shared her perspective on this question and 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.”

- In another post, Lisa goes on to say, “food allergies are mainly caused by eight major 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. First, it is important to note that only one of these 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.”

- It is important to remember that if a person is allergic to a non-GM plant, he or she will also be allergic to the plant’s GMO counterpart. But GMOs do not introduce any new allergens. In fact, researchers, academics and companies are working on new GMOs that have the potential to help people in this area—for example, peanuts with very low allergen levels that have the potential to eliminate life-threatening allergies to peanuts. More information is available here and here.

- Additionally, the U.S. Food and Drug Administration explains, “Evaluating the safety of food from a genetically engineered plant is a comprehensive process that includes several steps. Generally, the developer identifies the distinguishing attributes of new genetic traits and assesses whether any new material that a person consumed in food made from the genetically engineered plants could be toxic or allergenic.”
This is an extremely important question. Numerous questions similar to this and related topics have been submitted to GMO Answers, including questions about reports claiming that glyphosate causes breast cancer and about a Séralini study (now retracted) claiming GMOs caused cancer in rats, among others.

We know that consumers have concerns, so we reached out to Dr. Kevin Folta, University of Florida interim chairman and associate professor, Horticultural Sciences Department, for an answer. "The short answer is no, there is absolutely zero reputable evidence that GMO foods cause cancer," he writes.

Additionally, the health and safety of GMOs have been validated by many independent scientists and organizations around the world. For example, there are over 1,080 studies about the health and safety of GMOs, and a decade of GMO research, funded by the European Union, that finds that GMOs pose no greater risk than their conventional counterparts can be found here: http://ec.europa.eu/research/biosociety/pdf/a_decade_of_eu-funded_gmo_research.pdf.

In addition to Dr. Folta’s response, this study reviews seven cohort studies and 14 case studies and finds that there is “no consistent pattern of positive associations indicating a causal relationship between total cancer (in adults or children) or any site-specific cancer and exposure to glyphosate.”