Genetically Modified Organisms. The Future of our Growing Population!

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Figure 5

Executive Summary

GMO stands for genetically modified organisms. Science and technology have allowed us to discover new methods for increasing crop production. Scientist have discovered that they can take a desired gene from one plant and transfer that gene to another plant. This process is known as genetic engineering. They have genetically modified different plant species to make them more drought tolerant, resistant to certain insects, resistant to colder germination temperatures, and made them more nutritious. Scientist have used GMO's to help feed a growing population. Genetically modified crops has allowed the world to produce higher yields on less land. Urbanization is on the rise and the amount of available farmland is decreasing globally. So, the need for science and technology advancements are critical. GM crops were a critical scientific advancement. They have improved crop yields and allowed us to grow crops in areas that could not support crop growth before. GM crops are a widely used today because of the benefit they provide. According to the Food and Agriculture Organization, "40% of the worlds genetically modified crops are grown in the U.S." (Diouf, p.2). The use of genetically modified crops has allowed us provide food at cheaper cost to consumers and continue trade globally. However, over the past few years people have become more concerned with the use of GMO's. The public has blamed many health concerns with GMO's. Scientist have researched and preformed lab studies with GMO's and found no health concerns. The issues that are associated with GMO's were formed by opinion and skepticism. So, if your one of those people that don't support the use of GMO's read along and you'll see the benefits of using them.

Figure 1

The Health Concerns that People Associate with GMO's

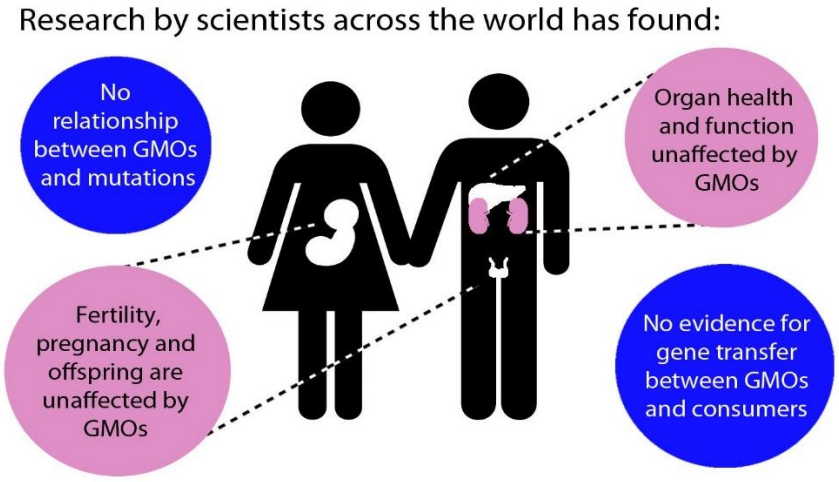

Figure 2

According to an article wrote by Melissa Smith a non-GMO supporter, "health risks associated with eating genetically modified foods, include infertility, immune system problems, accelerated aging, disruption of insulin and cholesterol regulation, gastrointestinal problems, and organ damage" (Smith, p.48). If the consumption of GMO's caused these issues, then the government would not allow the use or consumption of genetically modified plants. These health issues are myths and are not proven with research. There are many invalid arguments and negative publications about GMO's. GMO's were discovered in 1994 and no deaths or illnesses have been associated with them over the past 20 years. The production and distribution of GMO crops is highly researched and regulated by The United States Department of Agriculture Animal and Plant Health Inspection Service, Environmental Protection Agency, and the Food and Drug administration. The government spends over 3 million dollars annually to research GMO's because they are a large part of the food sector.

GMO's Have Improved the Nutritional Quality of Certain Foods

"Approximately 140 million children in low-income countries are deficient in Vitamin A" (Jamil, p.71). Vitamin A is essential and is needed for vision. The children in these low-income countries like Africa and Southeast Asia go blind form the lack of Vitamin A in their diet. The mortality rate for the children with Vitamin A deficiency is extremely high in these low-income countries. However, technology advancements and the use of genetic engineering has allowed scientists to create golden rice. According to an article by the Food and Agriculture Organization, golden rice is genetically engineered by the insertion of three genes (from daffodil and bacteria). These genes generate enzymes in grains and stimulate the production of beta-carotene. The human body converts beta-carotene into Vitamin A (Diouf, p.5). Golden rice saved many lives by providing a source of vitamin A to these low-income countries. In addition, scientist have genetically engineered a corn variety known as Bt corn. Bt corn is resistant to fungi. According to FAO, "reducing fungi attack in corn limits the exposure to mycotoxin contamination and mycotoxins are carcinogenic" (Diouf, p.5). The Bt corn decreases the risk of fungal infection and lowers the risk of exposure to mycotoxins a cancer-causing agent. GMO's provide many health benefits that people are unaware of.

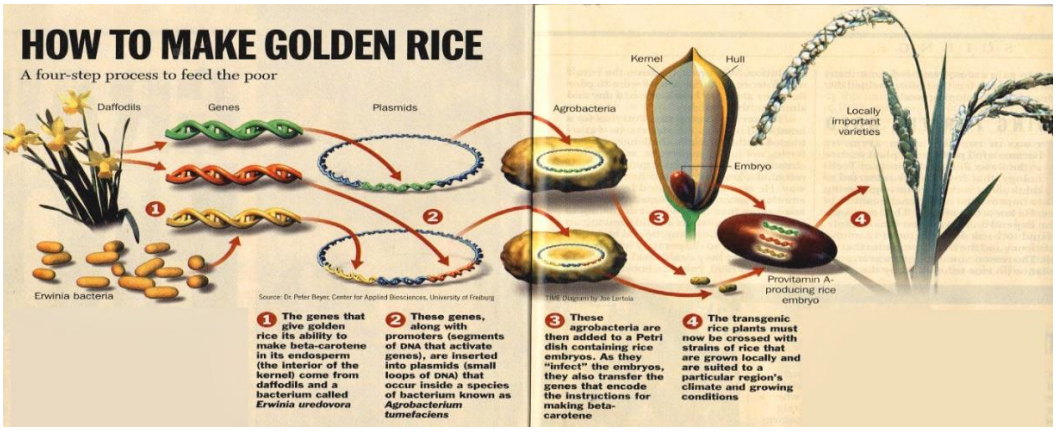

Figure 3

GMO's Allow Us the to Feed a Growing Population and Contribute to a Healthier Environment

According to Food and Agriculture Organization, "By 2050, it is projected that there will be 9.2 billion people on the planet, and recent estimates suggest that food production will have to increase by 70% if we are to feed everyone" (Diouf, p.2). We will have to feed more people with less arable farmland. The amount of available farmland is declining due to urbanization. GMO's are designed to improve yields significantly. We will have to improve and sustain crop yields to help feed a growing population. Scientist have taken plants that are drought resistant and extracted the drought stress gene. They then insert the drought tolerant gene into different plant varieties. These newly derived plants varieties can now be grown in areas of the world that are below adequate amounts of rainfall or have soils that hold little to no moisture. In addition, scientist have also extracted genes from plants that are tolerant to certain types of insects. They have used this gene to create plant varieties that are not affected by insect infestation. This lowers the use of insecticides and eliminates a potential loss in yield to insect infestations. Farmers also save money and protect the environment by planting crops that are resistant to insects. When famers spray these chemicals on their crops, the chemicals that aren't absorbed by the plant runoff in the ground water. The runoff pollutes local water sources and kills organisms and animals living in the water.

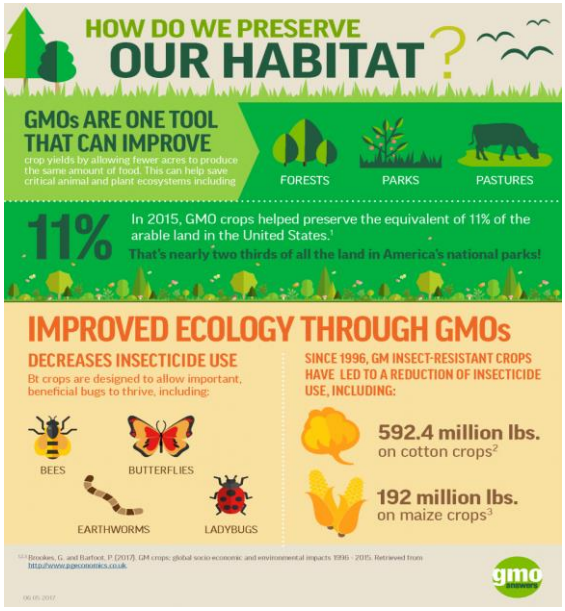

Figure 4

Conclusion

GM crops are not proven to bad for your health. They are highly regulated and researched by the government for our protection. GM crops make food sources healthier and provide ways to make food more nutritious. They help feed a growing population and insure crop yields. Genetically modified crops are good for the environment and reduce the use of potential chemical pollutants. The benefits of using GMO's are far better than the risks. Research proves that GMO's do not cause any health problems. So, stop spreading false information about GMO's and start advocating for the use of GMO's! Educate yourself on the use of GMO's, and we can eliminate the negative connotation associated with GMO's.

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Pictures

Figure 1. https://images.dailykos.com/images/98316/story_image/keep-calm-gmo-safe.png?1407193024

Figure 2. http://sitn.hms.harvard.edu/wp-content/uploads/2015/08/toxicity-graphic-edit.jpg

Figure 3. http://media2.policymic.com/551cfef69a55dac2656ef63ac13eaed5.jpg

Figure 4. https://gmoanswers.com/sites/default/files/GMO_Infographic_Habitat Preservation_v8_7.27.16%5B1%5D%5B1%5D.jpg

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