

Course: Biology	Grade Level: 11/12
Type: Argumentation	Structure: Analysis
Teaching Task 2: Should industry continue to produce genetically modified crops for human use by utilizing genetic engineering? After reading several popular and scientific sources, write an essay that addresses the question and support your position with evidence from the text. Be sure to acknowledge competing views. Give examples from past or current events or issues to illustrate or clarify your position.	
Performance Level: Meets Expectations	

Genetically modified organisms, or GMOs, are organisms that have different, specific genes added to their genetic code in order for them to show certain characteristics. Around the world, GMOs are being created to give food certain qualities that are beneficial for their survival and taste. For example, corn is given genes that allow it to create its own, specialized pesticide to prevent insects from eating it. There are many ways in which genetically modified foods can help society, and I believe it is a scientist's moral obligation to continue this research and spread the benefits of GMOs globally.

GMOs are made for singular purpose of creating a greater supply of nutritious food. Papayas are becoming disease resistant, corn is making its own pesticides, and tomatoes are staying ripe longer. All of these changes are allowing for consumers to have more food available to them. Food is even becoming healthier, with "Golden Rice" a prime example (Schneider and Schneider, 2002). This rice is being grown in developing and third-world countries where rice consists of the greatest part of inhabitants' diets. This "Golden Rice" is a source of Vitamin A and Iron that helps citizens gain the nutrients their diets are severely lacking. The invention GMOs is science's closest step in ending hunger and malnutrition.

GMOs not only help to provide better food, they also help make this food cheaper. With the costs of pesticides and fertilizers being rendered a thing of the past, food prices will decrease, and in an uncertain global economy, every cent saved is worthwhile. Also, genetically

modified foods create bigger animals and crops, meaning bigger portions for those who need them. This means the average consumer is getting more food for a cheaper price due to GMOs.

Now, in society there is an unflattering stigma about genetically modified foods. People are concerned for their impact on humans as well as the environment. Genetically modifying organisms can have disastrous effects on the environment. In most species, size is an indicator of reproductive fitness, and in genetically modified organisms, size is usually manipulated. If a genetically modified fish were to enter the wild, it may mate many times and reproduce a lot because sexual partners would think he is the most genetically fit, yet the offspring might not be the fittest and might die off. This could very well end with the extinction of the species ("Harvest of Fear," 2008). This is one out of many ways that genetically modified organisms can disrupt an ecosystem.

While understandable, many "naysayers" of GMOs do not know the steps that companies take to make sure the foods that they are creating are safe for man as well as the Earth. An example of company precautions is with genetically modified fish. They make sure that the confines for the fish are properly maintained and that it is very unlikely the fish could escape, and that if they do they could not reproduce with other, natural fish to harm their populations ("Harvest of Fear," 2008). Companies that produce GMOs, such as Monsanto, recognize the impact their science can have on the environment and have a plethora of safety measures to prevent anything from happening.

Another fear that revolves around GMOs is the fear that they will cause harm to those eating them. Since this technology is fairly recent, the long term side effects of eating genetically modified foods have not been documented enough to rule out the possibility that GMOs can cause harmful side effects if eaten. Many health concerns have risen in the last 20 years, and many people are wondering if GMOs are the cause, but there are many other more likely causes of these health problems, such as childhood obesity and cancer.

Yet despite this fear, no evidence has been shown to support this fact. Charles Arntzen, researcher at Cornell University, went even as far to say that not one person has even gotten as

much as a headache from GMOs ("Harvest of Fear," 2008). If there were evidence to show that GMOs are harmful, then I would understand the negative stigmas that are attached to GMOs, but until there is, I will support them.

I am in support for advancement of genetically modified foods in everyday society. They offer many new opportunities for the future and can help end monumental problems such as global hunger as well as keep a few dollars in one's wallet. GMOs are quickly becoming ever more important in food, as it is estimated that 60 to 70% of food products sold in the U.S. contain GMOs of some kind (Schneider and Schneider, 2002). I believe that GMOs should be embraced as there have been no concrete facts shown about their "so-called harmful" side-effects, instead they are just helping people get the most plentiful and nutritious food possible.

Works Cited

Schneider, Keith R, and Renee Goodrich Schneider. "Genetically Modified Food." *IFAS*

Extension. University of Florida, Jan. 2002. Web. May 2011.

"YouTube- NOVA/Frontline Harvest of Fear 11112." *YouTube-Broadcast Yourself* Web. 8

Nov 2008. 25 May 2011. <<http://www.youtube.com/watch?v=cmlfx.WnzvDO>>.

Annotation		
Focus	3	The writer answers the question by arguing, “...I believe it is a scientist’s moral obligation to continue this research and spread the benefits of GMOs globally,” but does not fully address the requirements of the teaching task.
Reading/Research	2	The writer presents accurate details but limits reading and research to only two sources, one of which is YouTube.
Controlling Idea	3	The writer’s claim is credible. Some of the counter claims are not thoroughly developed. In the third paragraph, the writer states, “Also, genetically modified foods create bigger animals and crops, meaning bigger portions for those who need them.” This is not purposefully developed in connection to the claim.
Development	3	The development is appropriate and sufficient. Relevant connections are made; however, the connections lack detail and depth of reasoning. The writer needs to develop the idea of how GMO’s will reduce costs of pesticides and fertilizer to make food cheaper.
Organization	3	The writer uses the organization to present claims and counter claims in a way that reveals the reasoning and logic of the argument. Transitions are adequate to indicate the organizational structure.
Conventions	3	The writer demonstrates a solid command of Standard English. There are few mechanical errors. The tone of the piece is clearly argumentative. The writer needs additional instruction on where citations should be made (e.g., the decrease in food prices resulting from the elimination of pesticides and fertilizers).
Content Understanding	3	The writer demonstrates a sufficient understanding but does not convey in-depth knowledge.

This student would benefit from feedback, discussion, and/or instruction in the following areas:

- The features that make websites credible
- Selecting information relevant to the argument from a wide variety of reading materials