

## You Are What You Eat

Genetic modification has long been a part of the way humans adapt to their environment. From selectively breeding cattle for the most meat to eliminating unsavory seeds to get the tastiest, reddest apples, people have been directly and indirectly engineering the genes of other organisms for centuries. However, in the past 45 years scientific advancement has produced a new breed of genetic engineering. Scientists are now able to actually insert genes from one organism into the DNA of another (Goldbas 20). While this has led to numerous beneficial foods, the modern genetically modified organisms (GMOs) are enveloped in controversy.

The food industry is under great pressure as the world population sky rockets. To many, the GMOs produced by biotechnology companies like Monsanto are welcome in the race to produce as much food as possible. The common stance perpetuated by media sources is that GMOs are good; they provide food for people around the globe. While the concept behind GMOs is redeemable, GMOs themselves do not quite live up to their expectations. Lack of regulation and a desire to make the most money has made the GMO industry corrupt. GMOs are not a trustworthy food option as long as they aren't held to strict regulations. Food is too significant to be left in the hands of companies who are afraid to be proven wrong. GMOs should not be legal in the United States until the companies that make them are held to higher standards.

The main argument for the GMO movement is that scientists believe that GMOs are as healthy as any other food option. According to a Pew study, "88 percent of these [American Association for the Advancement of Science] scientists believe that genetically engineered food products are safe to eat" (Koberstein 49). However, of those very same scientists only 68 percent think the same of "foods grown with pesticides" (Koberstein 49). This is ironic because all GMO

foods are grown with the use of pesticides. If the scientists properly understood GMOs, then the number for GMOs would be no greater than the number for pesticides. They contradict themselves by having a lower opinion of pesticide use than GMOs. Distinguished environmental journalist Paul Koberstein reports that GMOs are grown using “some [pesticides] which have been shown to be highly toxic to the environment and humans, like atrazine, chlorpyrifos, as well as potentially hazardous insecticidal proteins that are genetically embedded into the plant” (49). There is no logical world in which pesticide use is capable of being worse than GMO foods, as GMOs always involve pesticides. This situation is just the beginning of the GMO enigma, which involves simultaneously using and ignoring science.

Besides ignoring the correlation between pesticides and GMOs, the scientific community has proven the dangers of GMOs. The FDA, or Food and Drug Administration, allows companies that manufacture GMOs to determine the safety of their own products (Hemphill 8). While in theory the companies are supposed to only release products that have been properly tested, holistic nutritionist and health educator Melissa Diane Smith finds that “animal research points to serious health risks from eating GM foods, including infertility, immune system problems, gastrointestinal problems, organ changes, and tumors” (53). If the GMO manufacturers were conducting adequate studies of their products, scientists on the outside wouldn’t be able to discover adverse health effects. Improper testing might not be so impactful if it wasn’t involved in the food source for an entire nation and more. A small mistake could lead to health problems across the globe, since everyone has to eat food. Diet is one of the most important factors for a healthy life, and any fault in GMOs could have disastrous consequences.

One would think that if the GMO producers knew of the potential health risks, they would try to fix the issues with their products. However, studies prove that Monsanto's use of RNA interference (RNAi), a kind of genetically built-in pesticide, could lead to health problems in humans. When Monsanto was informed of this, they tried to discredit the scientists involved and ignored those they couldn't discredit. According to botany professor Vicki Vance, "from the viewpoint of Big Ag companies...these studies 'raise unfortunate questions about the safety of food crops that I think they would rather deny than address'" (Koberstein 51). Of course the companies being accused would want to protect their image, but that does not justify ignoring the scientific process. Monsanto justifies itself by claiming that if the public knew of a few *special cases*, then they would be unreasonably afraid to eat GMO foods. On the other hand, people have the right to be unsure of companies that refuse to recognize issues for the sake of propriety.

It is possible that companies like Monsanto are not trying to be deceptive. For instance, when entomologist Wayne Hunter was sharing the long process of developing RNA molecules that could act as a "biopesticide" (Regalado 29) for a plague of insects on Florida citrus groves, he admitted that "That is a problem with this technology. Around here, there is an enormous amount of pressure to come up with a solution" (Regalado 30). Manufacturers are faced with a choice between a well-tested solution and a quick one. It is a difficult choice, since it is either no food or a possibility of unhealthy food. Many companies could be tempted to take the fastest route, by no means plotting to poison the food supply. It is less of a malevolent act and more a case of trying to please everyone as soon as possible. Most people would prefer having unhealthy food to starving to death.

Be that as it may, there is a less sympathetic side of the companies that produce GMOs. In fact, “Chemical companies have been purchasing more of the world’s seeds, genetically modifying them, and patenting them, so a handful of companies control our seed and food supply—and farmers can no longer save and pass down those patented seeds” (Smith 53). They are creating a kind of food monopoly, which allows mistakes made in the rush of things to go unchecked. No one is there to stop them. On top of that, the GMO seeds are designed to produce plants that only yield one harvest and then die. Farmers now have to purchase new seeds each time they want to plant a crop, unlike the old days when they saved the seeds after each harvest. Samantha Fischer, editor of health magazine *Natural Solutions*, unveils that “Countless lawsuits have been presented by these corporations to small farmers claiming ownership to unsuspecting seeds and crops. This gives the independent farmer no choice but to either start buying GMO seeds, or lose everything they have to the seed giants through endless litigation” (Fischer 44). Due to cross-contamination from neighboring farms, struggling farmers have to pay for GMO seeds they didn’t even want in the first place. The lawsuits force farmers to conform to GMO crops in order to avoid further confrontations with the corporations, in turn extending the reach of GMOs and bringing profit to the corporations. This reveals the economic motivations of the manufacturers, and the entire food supply should not be in the hands of companies that seek excess financial gain. Of course the companies need a steady income to continue their research, but denying farmers the right to their own seeds is a little extreme. Economic motivation should only occur in moderation.

Regulation is the issue at hand, not genetic modification in its own right. With this in mind, Abbie Goldbas, an attorney currently working on a health psychology doctorate, reveals

that “the United States is one of the least regulated countries. U.S. federal regulations are minimal – companies can sell GMO products that pass ostensible tests for toxicity and allergenicity, and digestivity only” (22). It is only with improper regulation that GMOs become a problem. With extensive testing and research, GMOs could very well be the solution to world hunger. Still, testing takes time and money that companies like Monsanto don’t always want to sacrifice. The temptation to cut corners could be eliminated if the FDA itself enforced strict regulations that ensured each GMO food would not bring long-term harm to humans. As it stands now, GMO producers think they are helping the general population by making food production easier, even if there is what they consider a very small risk. Although they mean well, GMOs are too widespread to have even the possibility of negative side effects. As Goldbas writes, “GMOs appear beneficial but must be regulated and used with particular care” (21).

Messing with the genes of other organisms is a delicate dance. Any doubt about the safety of a GMO product should render it incapable of entering the market. Human beings are greatly affected by what they eat, so food needs to be held to the highest possible standards in spite of time and money concerns.

## Works Cited

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