Frankenfoods or False Information: The Truth Behind GMO's

Colorado

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Last summer, my family took a trip to visit Yellowstone National Park. We were sitting on the bleachers, awaiting the eruption of Old Faithful, when my eight-year-old brother, Levi, began reading the back of his snack bag. He asked me about a word that he couldn't pronounce, and when I looked over, I understood why. In large, colorful letters on the back of the package, a label boldly stated that the contents of the bag were certified by the Non-GMO Project. I explained the label to my brother, and then he asked me the inevitable question: What's a GMO? As I sat there explaining to Levi what a Genetically Modified Organism (GMO) was and how they were important to agriculture and the world, I began to sense a rather large disturbance in the force. Looking back over my shoulder, I found a middle-aged woman that had evidently been listening to every word I said. Though Levi appeared to believe me, the expression on this lady's face was unbelievably cynical. I couldn't help wondering whether the ripples that I had unwittingly caused would spread to Levi, or would result in tumultuous waves. In response to this, I hurriedly began to explain to my brother that some people were opposed to GMO's; but Levi stopped me in my tracks with one question: why are people opposed to GMO's if they are the very thing that lets us feed world?

It is my intention to answer that question. Quite simply, consumers are not well-informed on this topic; and, as a result, they leap to the conclusions that GMOs are unnatural, unsafe, and cause genetic monsters. It is because people are uninformed on this topic that they fail to realize that GMOs have the ability to positively affect the world and environment by increasing yields and requiring less land for cultivation (Vietmeyer, 2012).

One of the hottest debates in the GMO spectrum is the hybrid seed debate. Many people claim that a hybrid seed, or a seed produced through cross breeding, is not a GMO. Kristen Michaelis of Food Renegades sums up this belief well. She states that "unlike hybrid seeds, GMOs are not created using natural, low-tech methods. GMO seed varieties are created in a lab using high-tech and sophisticated methods like gene splicing" (Michaelis, 2013).

To those well-informed about GMO's, the holes in Michaelis' argument become immediately apparent. To begin, she has the wrong definition of GMO. According to the USDA's Biotechnology Glossary, a GMO is any organism created through genetic engineering or through traditional crossbreeding methods ("Biotechnology Glossary," 2013). A hybrid seed has necessarily been genetically modified because any hybrid offspring will differ from the parents in phenotype (physical appearance) as well as genotype (genetic makeup). Michaelis is referring to a Genetically Engineered Organism (GEO). Genetic engineering is classified as the process of taking genes for a specific trait from one organism and transplanting them into another, usually to boost crop yields or to decrease the amount damage due to pests ("Biotechnology Glossary," 2013).

However, for the sake of argument, suppose that Michalis is correct and that hybrids are not GMOs. Would it then be unprecedented to have a GEO occur naturally? Indeed not. Take the sweet potato. It is a naturally occurring GEO that has existed for approximately 8000 years (Kincaid, 2015). The International Potato Center in Lima, Peru, has discovered 291 separate varieties of sweet potato (Kelly, 2015). When inquiring as to what caused this diversity, the International Potato Center found that

“agrobacterium in the soil were responsible for changing the genetic structure of a wild sweet potato into the edible root we know today” (Kelly, 2015). Already present in the soil, this agrobacterium inserted its own DNA into that of the sweet potato, thus genetically modifying it (Kincaid 2015). As this research shows, cross-kingdom genetic modification does occur in nature. Clearly GEOs and hybrids are both forms of genetic modification, and GMOs formed by either method are just as natural as any other organism. Simply put, the truth about GMOs is not at all what the public believes it to be.

Another hot topic concerning GMOs is the formation of so-called “superweeds.” Ever since crops have been genetically modified to resist herbicides, concerns have arisen that these herbicide-resistant crops will cross-pollinate with weeds, and as a result, herbicide-resistant weeds will form. These weeds would then have the ability to survive several bouts of herbicides. This fear is not unfounded; herbicide-resistant (HR) weeds have formed. However, GMOs are not strictly the cause of HR weeds. As Justin Gardner of Middle Tennessee State University says, “what’s going on is natural selection. Weeds were resistant long before GMOs” (Brazeau, 2014). Because of natural selection, any weeds will gain resistance to any weed control system (Brazeau, 2014). The truth is, “Superweeds” are not monstrous, invincible creations leaving carnage in their wake as righteous retribution of Monsanto’s sins, they are simply a result of natural selection. In fact, a short-stemmed dandelion is considered a superweed; it has developed a resistance to lawn mowers.

In the modern day, the general public has become a figurative dog, lunging at and attacking any new and controversial subject that arises. Unfortunately, the chains of

self-restraint have grown weak over time, and far too often, potentially life-saving technology is smothered by hype before it can make a positive influence on the world. It is clear that the public doesn't know the truth about GMOs, because if they did, they would know that Monsanto introduced its Bt Cotton to Indian farmers in 2002, those farmers saw yields increase by 21 percent, and profits climb by a stunning 68 percent (Gilbert, 2013). There are those who complain about the use of pesticides, but won't eat GMOs because they don't realize that GMOs reduce pesticide use by 37 percent (Qaim & Klumper, 2014). If the world knew the truth about GMOs, they would know that without GMOs, agriculturalists would have to cultivate an additional 7.4 trillion acres, an area approximately twice the size of South America (Ausubel, 1996). Those who complain about GMOs being a threat to the environment don't realize that without GMOs, the Amazon Rainforest and other conserved lands will have to be cultivated in order to feed the global population.

That day at Old Faithful, Levi learned some quick facts about GMOs, just as you have today. However, what I learned that day is paramount even to that. It was on that day that I realized the effects that I, as the stone, have on the bodies of water around me is limited to the extent of the ripples. If I have made the slightest ripple, or even a turbulent wave, in any of you today, I ask you to remember one thing. As consumers, producers, agriculturalists, and particularly as FFA members, it is our job to inform the public about agricultural issues like GMOs, because, as E.M. Tiffany said, that is our part in the inspiring task (Tiffany, n.d.). It is for this reason that I, Wade Yoder, challenge you to go out and do the research, to keep an open mind, and to find the truth because GMOs are a topic about the world needs to know the truth.

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