

OMG GMO's: How Can We Stop Rampant  
Miseducation from Hurting Agriculture?

Wyoming

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Agriculture is facing an unprecedented challenge. The world population is expected to reach 9.7 billion by 2050 (United Nations, 2015) and agriculturists must provide food and fiber for a swelling population with less resources than ever before. That statistic has become almost cliché among FFA members, as have some of the potential solutions to this challenge. Farmscrapers, warehouse farming, and genetically modified food may provide a solution to our crisis. Genetically Modified Organisms, or GMOs, is a new technology introduced to create more efficient crops and combat global hunger. GMOs tend to be so controversial that when someone says, "GMOs," someone else says, "OMG!" In these situations, much like the name, people tend to have their information backward. Due to rampant miseducation, a public relations and education campaign needs to be launched to improve perceptions of GMOs.

It didn't take much more than a late-night television skit to spark a question within me. The skit showed Jimmy Kimmel walking around a farmer's market asking if people avoided GMOs. Most people said, "Yes" without much thought. Then, when asked what a GMO was, most couldn't even define the acronym (What's a GMO?, 2014). That skit inspired me to do my own investigating. At the 2015 National FFA Agriscience Fair, my partner and I competed with a project that looked for a correlation between miseducation and negative opinions of GMOs. We used a survey to determine an individual's opinions regarding GMOs, and then tested their true knowledge of GMOs. On average, people with negative opinions of GMOs had less knowledge than individuals favoring GMOs. Surprisingly, the younger generation was more knowledgeable about the topic than older generations. This is most likely because GMOs

are a relatively new science with the first GMO patent was issued as recently as 1980 (Woolsey, 2012). Our research showed that education needs to increase drastically across all age ranges. Only 25% of those surveyed could identify the words comprising the acronym, GMO. About half of respondents could name the organism most subjected to genetic modification. 36% knew what percentage of processed foods in America were genetically modified. Much of the information that causes people to avoid GMOs has been disproven or is false information (Modern Food Biotechnology, 2015).

In an age where people tend to believe everything they read on the Internet, and when bias--both for and against GMOs--is rampant, the facts about GMOs need to be presented. Genetic engineering is the process of modifying the genome of an organism. One common approach to genetic engineering involves cloning a desirable gene from one organism and then transferring it into another organism's genome (Overview of the Process of Plant Genetic Engineering, 2001). Occasionally the gene comes from the same species, while other times it comes from a very different species. The organism is then strategically bred to make sure the gene contributes to the organism's phenotype. Much of the genetic engineering in the food supply today simply expedites the processes of genetic selection by introducing desirable versions of genes from the same species of organism. Other examples alter the organism beyond their normal genes. One example, would be introducing a salmon gene into a tomato plant to make it more cold-resistant. Although the technology is far from perfect, the World Health Organization has found no immediate health risks in eating GMOs (World Health Organization, Food Safety Department, 2005). They do, however, list a few potential long-term risks. It is possible that a gene isolated from a commonly allergenic organism

can introduce new allergens into the recipient organism. However, at this time, no GMOs have been found to contribute to allergens that are not in the natural organism (World Health Organization, Food Safety Department, 2005). "Outcrossing" is the fear that the genetic material of GMOs may contribute to the genetics of wild populations or seeds that are not modified. This may, in theory, have an adverse effect on not only the plant, but the entire ecosystem. One common misconception accompanying GMOs is their potential to contain carcinogens, or cancer causing agents. No GMOs on the market today have carcinogens not found in the natural organism. These minor and unproven risks cannot compare with the massive benefits that come with genetic modification. It is estimated that genetically modified soybeans increased the yield by 31%; virus resistant papayas in Hawaii increased in yield by 40%; and, cotton in India increased in yield by an average of more than 50% (Brookes and Barfoot, 2009). In addition to yield improvements, pesticide use on corn has gone down 20% since 1996 and the decrease in greenhouse gas emissions associated with GMO's are equivalent to taking half a million cars off the road. (Brookes and Barfoot, 2009). Monsanto has made a public commitment to double yields in key crops by 2030 and to do so with one-third fewer resources, such as fertilizer and water, per unit of output (Newsroom, 2012). The benefits cannot be ignored. The risks are hypothetical at best, but the public is blind.

The twenty-first century has provided agriculturists with the unique opportunity to reach all of their consumers very quickly. We've seen this in large public relations projects in beef, pork, dairy, and more. As a beef producer, part of my income goes to a beef checkoff program that funds research, product development, and promotion. It is

regulated by laws as to what it can fund and serves to better my image as a producer. The Checkoff program funds the classic advertising campaign, "Beef, it's what's for Dinner." The United States Department of Agriculture has such programs in place to educate a population whose average meal comes from 1500 miles away (Henne, 2012). Believe me when I say that the education gap that comes with GMOs makes that 1500 miles look small. By increasing seed prices slightly, the extra money could go to education of the masses and helping agriculture's image. Using the same fast-acting communication that spreads negativity about GMOs, we can show young and old alike that genetic modification could solve the hunger challenges of today and tomorrow.

Ladies and Gentlemen, I look to the future with great optimism; technology will help agriculture overcome the challenges of a new era. First, we must turn a skit full of mislead people into a nation full of informed consumers. We must continue to advocate for agriculture. If we can educate people on the benefits of GMOs and show that they outweigh the risks, we can create a world with full bellies and full brains.

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