**Technology and the Food Industry**

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It is no secret that technology has become essential in the increasingly globalized world that we live in today. Technology allows us to work with greater efficiency and increased productivity. While many benefits have arisen from the use of technology in our modern world, we must also acknowledge technology’s shortcomings and pitfalls so that we can work to build a better, more sustainable future for the generations to come. Within the consumer packaging and food processing industry there have been many beneficial innovations such as the creation of genetically engineered crops, and precision agriculture. Though these innovations are still far from perfect, they have come a long way in helping feed the world and create solutions for the increased demand for food.

Genetically engineered (GE) crops have not only been beneficial for the consumer, but for the farmer as well. Research from the National Academies Press highlights that “a majority of U.S. farmers have generally found GE varieties with herbicide-resistance and insect-resistance traits advantageous because of their superior efficacy in pest control; their concomitant economic, environmental, and presumed personal health advantages.”[[1]](#footnote-1) This new technology has allowed farmers to not have to worry as much about insects and herbicides ruining their produce because the crops are engineered to be resistant to their effects. Not only do genetically engineered crops reduce the number of ruined plants, but they also decrease the amount of pollution and contaminants that seep into the ground. Since the crops are resistant to insects there is less of a need for harmful pesticides--this improves both water and soil quality in the surrounding areas.  These benefits trickle down to the consumer as well. For instance, because of the reduced damage from insects the farmers are able to produce more crops. The increased production is not limited to GE farmers; it spills over to neighboring farms as the population of pests and weeds in the area decreases in what is commonly referred to as the halo effect. This increased production drives down prices and “represents real cost savings for consumers, and widely shared benefits to farmers and the environment worldwide”[[2]](#footnote-2), as stated by a recent analysis of the USDA’s report on GMOs by the Genetic Literacy Project. Overall, the use of genetically engineered crops has provided greater access to food for those that are economically disadvantaged and has helped alleviate some of the food insecurity that plagues the world today.

Technology has also paved the way toward precision agriculture, a new system of using “GPS tracking systems and satellite imagery to monitor crop yields, soil levels, and weather patterns to increase efficiency on the farm.”[[3]](#footnote-3) Once farmers implement precision agriculture they will be able to pinpoint exactly how productive an area of their land is. This means that instead of treating all of their soil as one piece of land, farmers can specialize and plant different crops where they will be most useful so that they don’t waste seed, fertilizer, or pesticides. This new specialization will allow farms to become more sustainable and require less maintenance. Farmers will now know exactly when to water crops and how much water is necessary. Recent studies have shown that precision agriculture has led to “a 15% savings on seed, fertilizer, and chemicals, increased yield by 16% and cut down water use by 50%.”[[4]](#footnote-4) Widespread implementation of precision agriculture would go a long way in preserving natural resources like water and providing more food for the growing population. This will be an essential tool as the world’s population grows exponentially within the coming years.

Despite the benefits that arise from technology in the food industry, there are still some critiques. For instance, there is concern related with the ecological effects of genetically engineered food. Some are afraid that since pests will no longer prey on the genetically engineered crops they will begin to die off and a minor pest species will increase and disrupt the food chain. While this does not mean that we should stop creating genetically engineered foods, it does mean that it is important to closely monitor the complex environments that surround these farms. Species biodiversity is essential for maintaining a balance in the habitat, so farmers need to be aware of the changes they are making, and to be careful not to make any irreversible changes or create problems that weren’t present before. After all we only have one Earth, we must make it our priority to preserve it.

Now with the burden of producing enough food to feed 9 billion people by the year 2050 the food industry must be more productive and innovative than ever. It is essential that we continue to build onto our technological advancements while also addressing and fixing any issues that exist in the present. Dr. Lowell Catlett of New Mexico State University cites technology as the sole reason the United States has been able to “produce more calories than we can consume” and “help feed a hungry world.”[[5]](#footnote-5) This clearly emphasizes the role that technology plays in food production today—the world would be on the verge of starvation without it.

**Works Cited**

Giddings, Val. “USDA: GMOs Represent Cost Savings for Consumers and Benefits for Farmers, Environment.”

*Genetic Literacy Project*, Genetic Literacy Project, 12 Jan. 2018,

geneticliteracyproject.org/2016/03/04/usda-gmos-represent-cost-savings-consumers-benefits-farmers- environment/.

Gilpin, Lyndsey. “10 Ways Technology Is Changing Our Food.” *TechRepublic*, 13 May 2014,

 www.techrepublic.com/article/10-ways-technology-is-changing-our-food/.

Gilpin, Lyndsey. “How Big Data Is Going to Help Feed Nine Billion People by 2050.” *TechRepublic*, 2014,

 www.techrepublic.com/article/how-big-data-is-going-to-help-feed-9-billion-people-by-2050/.

National Research Council. *The Impact of Genetically Engineered Crops on Farm Sustainability in the United*

*States*. National Academies Press, 2010.

Reed, Kimberly. “The Future of Food: Food Production, Innovation, and Technology.” *FoodInsight.org*, 19 May

 2015, www.foodinsight.org/newsletters/future-food-food-production-innovation-and-technology.

1. National Research Council. *The Impact of Genetically Engineered Crops on Farm Sustainability in the United States*. National Academies Press, 2010. [↑](#footnote-ref-1)
2. Giddings, Val. “USDA: GMOs Represent Cost Savings for Consumers and Benefits for Farmers, Environment.” *Genetic Literacy Project*, Genetic Literacy Project, 12 Jan. 2018, geneticliteracyproject.org/2016/03/04/usda-gmos-represent-cost-savings-consumers-benefits-farmers-environment/. [↑](#footnote-ref-2)
3. Gilpin, Lyndsey. “10 Ways Technology Is Changing Our Food.” *TechRepublic*, 13 May 2014, www.techrepublic.com/article/10-ways-technology-is-changing-our-food/. [↑](#footnote-ref-3)
4. Gilpin, Lyndsey. “How Big Data Is Going to Help Feed Nine Billion People by 2050.” *TechRepublic*, 2014, www.techrepublic.com/article/how-big-data-is-going-to-help-feed-9-billion-people-by-2050/. [↑](#footnote-ref-4)
5. Reed, Kimberly. “The Future of Food: Food Production, Innovation, and Technology.” *FoodInsight.org*, 19 May 2015, www.foodinsight.org/newsletters/future-food-food-production-innovation-and-technology. [↑](#footnote-ref-5)