Project 1: Annotated Bibliography

Fedoroff N V, Battisti DS, Beachy RN, Cooper PJM, Fischhoff DA, Hodges CN, Knauf VC, Lobell D, MazurBJ, Molden D, et al. Radically rethinking agriculture for the 21st century. Science Online. 2013.

This article brings up that one of the major challenges the world faces is food security. In other words, available food resources become more limited, and it is likely that future generations might face starvation as the global population increases substantially. As modernization and success depend on innovative techniques, the authors discuss how scientists investigate genetic modification in food to alleviate people’s concerns. The authors also mention several parties that are tightly connected with genetically modified foods, and the consequences if the crops are banned by society. All authors are advisors in the Office of Science and Technology in Washington; they also perform work in many other departments, including the Department of Environmental Earth System Science and the Program on Food Security. They also collaborated and published many articles related to the field they concentrate on. This article is useful because it informs readers that genetically modified foods are important due to food security problem. In particular, the article outlines the process of genetic modification, from the scientific technique to ways food gets to the market.

Wu Y, Xu Y, Du Y, Zhao X, Hu R, Fan X, Ren F, Yao Q, Peng R, Tang X, et al. Dietary safety assessment of genetically modified rice EH rich in β-carotene. Regulatory Toxicology and Pharmacology. 2017;88:66–71.

The authors of this article intended to reduce public skepticism on the safety and nutrition guarantees of transgenic golden rice. The authors demonstrated their arguments by conducting a 90-day research project. They compared mice’s behaviors and blood sample results after consuming transgenic rice diets with another control group. In the end, the data they received demonstrated that not only is transgenic golden rice just as safe and nutritious as traditionally-processed rice, but also contains richer amounts of B-carotene, which is an excellent source of Vitamin A. Those authors, who were PhD students from a renowned Chinese university, have published lots of researches that match their career field. The authors described a detailed procedure of their experiment and included a lot of experimental data to show their conclusion. In their article, the authors did not seem to show any bias, but explicitly elaborate on the results based on the data, that was provided in the article. This article will be a valuable source to utilize when reputing the opinion that transgenic rice should be banned due to safety and nutrition deficiency concerns.

Mannion A, Morse S. Biotechnology in agriculture. Progress in Physical Geography. 2012;36(6):747–763.

The main purpose of the article is to make the readers aware of the benefits of genetically modified (GM) crops. Initially, the authors introduced varied types and popularity of GM foods in the food market. Later, the article illustrates GM food have been widely acknowledged and made significant contribution to the society. They have many benefits including adjusting to harsh environments easily, becoming more resistant to herbicides, and increasing plants and hybrid productivity. Dr. A.M. Mannion, the author of this article, was mainly focused on investigating GM crops and seems to have profound scientific background in this field. Besides he was also involved in many research analyses including GM crops and other fields such as global ecology, life sciences and agriculture. Stephen Morse, the second author, is currently a law professor at University of Pennsylvania, but also focuses on neuroscience and society. The article heavily uses statistical data to indicate GM foods occupy a large portion of agricultural products. The article also analyzes reasons GM foods should be accepted more by the society. The authors express arguments based on the data mentioned in the article, which suggests they did not have any bias toward any side of the argument. Thus, this article provides sufficient arguments to state the benefits of GM crops.

Szabala BM, Osipowski P, Malepszy S. Transgenic crops: the present state and new ways of genetic modifications. J Appl Genet. 2014; 55:287-94

The authors of this article discuss multiple aspects of genetically modified foods, which guide readers to learn more about the subject. The article begins with the definition of genetic modification, which is to manipulate organisms’ original genetic information through the process of recombining genes. Similarly, the article also includes many data that illustrate widespread use of genetically modified foods, after explaining the basic scientific technique. On the other hand, there are many concerns, including people’s assumption that GM foods are toxic and can negatively affect people’s health. They believe that once the genes that are modified and get transferred to bacteria in our bodies, many harmful herbicides and insecticides remain in those crops, which can directly affect people’s health. All three authors were kind of new to this particular field. However, based on the data and clear description corresponding to each piece of information in the article, it is obvious that the authors devoted a lot of efforts to effectively write this article. More importantly, the article did not seem to show any bias on any opinion, as it includes equivalent amounts of both sides of the argument. This article is a practical source to receive a general introduction on genetically modified crops.

Wallace, J.S. Increasing agricultural water use efficiency to meet future food production.Agriculture, Ecosystems & Environment. 2013; 82:105-119

This is another article that concentrates on stating the advantages of genetically modified(GM) crops. Besides suggesting that GM foods yield greater crops to sustain more people, the article mentions another unique trait of the crops. Some GM foods have higher rates of photosynthesis, but lower rate of transpirations, which mean they are able to use natural resources more efficiently to produce energy compared to non-GM foods. James Wallace, the author of the article, is a professor in environmental engineering at University of Toronto with over 30 years of experiences. Unlike other resources, Wallace emphasizes the benefits of agriculture as a broader approach to exploring GM crops. He also utilizes a lot of advanced vocabularies that imply his knowledge. Again, this article is a great source for elaborating on the benefits of genetically modified crops.