Public Awareness of Genetically Modified Foods
Biotechnology: The New Frontier

Introduction
Biotechnology and genetically modified (GM) foods are both important and controversial issues that many people, both nationally and internationally, are somewhat unaware of. Through the various studies that have been conducted on the impact of genetically modified foods, it is clear the public has strong opinions about biotechnology, although these opinions do not seem to be based on the level of awareness the public has on genetically modified foods. Biotechnology and genetically modified foods include any organisms that have been altered in any way either for nutritional value, the manufacturing of various products, or health reasons. Genetically modified crops “were first made available in 1996 to producers for use in major crops” (Anderson, Wachenheim & Lesch, 2006, p. 180).

Purpose
The purpose of this brief is to disseminate and analyze the results of five studies that have been conducted in order to measure the importance of public awareness toward genetically modified foods and the impact awareness has on the biotechnology community and economy. According to Bruhn, “frequent and effective communication that highlights potential benefits and addresses public concerns, is a prerequisite for increasing public acceptance” (Bruhn, 2003, p. E196).

Awareness and Biotechnology
Through five separate analyses and studies, the general method of research was conducting surveys. These surveys were sometimes conducted in person or on the phone in order to gain a basic understanding of the public knowledge of genetically modified foods in countries including the United States, Europe, Asia, and developing countries. In most surveys, the level of awareness was not directly related to the level of knowledge concerning biotechnology and genetically modified foods. Some, however, did see some correlation between the two. Americans were more open to the possibility of genetically modified foods being nutritious, while citizens of other countries in Europe
and Asia were more susceptible to viewing genetically modified foods negatively due to the unknown risks and implications related to biotechnology. “International differences in public opinion about GM foods represent a clash of cultures, politics, and policies” (Hebden, Shin, & Hallman, 2005, p. 246). The chart in Figure 1 shows the percentage of international land area used in planting biotechnology, totaling 167.2 million acres globally. It also shows the impact that biotechnology has globally.

![Figure 1](image.png)

**Figure 1.** Global land area used internationally by biotechnology.

**Public Opinion**
The public opinion of genetically modified foods and biotechnology varied from culture to culture. Consumer’s public opinion of genetically modified food was negative in countries in like Europe and Japan because of the unknown consequences of using these products (Curtis, McCluskey, & Wahl, 2004, p. 70). While these countries had a critical view of genetically modified foods, Americans viewed them differently. “Studies in the United States find consumers to be more accepting of genetically modified foods compared with consumers in Europe and Japan” (Curtis, McCluskey, & Wahl, 2004, p. 70). In China, consumer’s attitudes and beliefs were not necessarily based on their level of awareness but more based on the content of the genetically modified product, which is contrary to previous studies conducted in the country. “The results of this research indicate respondents to our consumer survey in Beijing, China, generally have a favorable view towards GM rice and GM soybean oil-two products that are staples of the Chinese diet” (Li, Curtis, McCluskey, & Wahl, 2002, p. 151).

**Advantages and Disadvantages**
Genetically modified foods have the ability to prevent and cure diseases, combat obesity, improve the environment by using a smaller amount of pesticides than traditional products, and can be more energy efficient.
However, the risks associated with the use of genetically modified foods are, for the most part, unknown. Because these risks are unknown, the public holds government-regulated labeling practices as a key determining factor on whether or not they would be willing to pay for genetically modified products. Figure 2 shows how the use of biotechnology in the development of antibiotics can be more energy efficient.

Figure 2. The energy efficiency of biotechnology in producing antibiotics.

Conclusion
The level of awareness of genetically modified foods certainly varied from country to country as did the perceptions of biotechnology. While citizens in Europe and Asia typically were critical of genetically modified foods, Americans were less apprehensive. Consumers usually based these opinions and beliefs on the inherent risks associated with biotechnology or the content of the genetically modified foods themselves. While some were open-minded about the nutritional value of genetically modified foods, most were skeptical of altering food to improve nutritional value because of the unknown risks associated with doing so.

Audience
This research is intended for government and scientific purposes, but may be adapted for analysis by consumers who may come in contact with genetically modified products, and markets that intend to sell them. Government includes any agency that would be involved in the production, research, or regulation of GM products and scientists would involve those related to the research in the biotechnology field, organic crop producers, and unmodified crop producers.

References