

Maggie Hall  
Thesis Prospectus  
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Student Awareness of Genetically Modified Foods and the Related Health Risks: Differences  
Between American and European Students

Statement of Problem and Research Questions

In the United States, it is readily noticeable that many individuals do not know what the acronym GMO stands for. “Genetically modified organisms” have become part of most Americans’ diets, but the citizens often do not understand what exactly a GMO is nor its effects on their bodies and the environment. The biotechnology industry has boomed during the last decades, resulting in a higher concentration of genetically modified foods in stores and supermarkets today and the FDA approval of 144 crops (Benson 18). As a consumer, the right to information, in order to make an educated choice, is important, meaning governments and producers should be committed to informing consumers about what they are eating.

In Europe, especially Germany, GMOs are highly regulated and consumers have a system of trust with the government, knowing that the government will not allow potentially harmful products to enter the food supply without consumer knowledge. This stance is considered “precautionary”; the United States, on the other hand, takes the approach of approving GMOs and waiting to see if they will have negative effects on humans and the environment. The US does not label products with genetic modification; it is left up to anti-GMO groups and organizations, such as the Non-GMO Project, to label the foods that do not contain GMOs.

As a result of cultural and political differences, the attitudes towards genetically modified foods, and the biotech industry, vary amongst citizens in Germany and in the

United States, especially the South. In my thesis, the perceptions of risk, benefit, labeling and regulations, and the term natural will be assessed. Culture and history, plus the driving ideals of the nations, are different, therefore, the reactions to and opinions of GMOs should also be different. I seek to answer the questions: Why and how do the perceptions of GMOs differ among students in Germany and in the southern United States? What are the factors, such as culture and political regulations, that contribute to the disparity?

### Literature Review

Since the biotech industry originated and started expanding, academics have created a range of research on how consumers respond to products with genetically engineered content. Previous authors, focusing on the perceptions of genetically modified foods, mostly concentrate on extracting consumer reactions and attitudes towards GMOs in general, plus labeling, risk and benefit, and knowledge and control. I will describe several methodologies that studies in this field utilized, the results yielded, and their implications. Concentrating on the common issues involved in my research throughout my review will help in developing my thesis in the future.

A collective topic of study in this field, which is used in many articles I have consulted, concerns labeling regulations and how they affect purchasing genetically modified foods. Teisl et. al. produced a study involving focus groups in three American cities and their responses to food labels. In the article, most respondents stated that they would not understand a GMO label or would ignore it because they were unaware of its implications (Teisl 7). Conversely, many participants claimed they would prefer visible and clear labeling because they have the right to know what they are consuming (Teisl 8). In the article authored by Hemphill et. al., it is made known that the Federal Department of Agriculture views genetically modified foods in the same way as conventional foods, no material differ-

ence is recognized; therefore the governing body in the United States does not observe a need for labels distinguishing GMO and non-GMO foods (8). Noussair et. al. realizes that it is difficult to quantify the demand for GMOs in the United States from market data, due to the lack of labels, but the information in the studies on GMOs shows that consumer perceptions are impacted by labels, with both positive and negative reactions (103).

Furthermore on the topic of labeling, Lezaun focuses his study on the traceability of GMOs in the European Union. He notes the creation of Regulation 1830/2003, which was inspired by a mystery DNA being found in Monsanto soybeans, and this policy will allow consumers to have the right to choice by knowing beforehand what is in the product (Lezaun 501). In Germany, labels representing GMOs are not common, similar to the United States, but the reason is due to regulations prohibiting most foods containing them. Respondents in a study conducted by Noussair et. al. in France associate the absence of a label on a product with a low likelihood of genetically modified content (113). As a result of the studies in both Europe and the United States, it is seen that labeling regulations play a role in the understanding of varying perceptions between people of differing cultures, and I expect to unearth more important regulations that have affected labels in the biotechnology sector, and as a result, influenced consumer reactions to GMO foods.

A theme recurrent in my research has been that buyers have little information about GMO products, as well as a prominent lack of knowledge about the subject of biotechnology as a whole. This theme is seen in studies both in Europe and in the United States. In the study conducted by Teisl et. al., participants in the United States showed concern that they did not know how wide the range of GMO products extended (7). In fact, approximately “70-80 percent of the processed foods that American consumers eat today contain plants that have been genetically engineered” (Hemphill 7). Consumers have the right of

knowledge and to a choice of whether or not they intake GMOs, but the “lemons’ scenario” exists worldwide (Noussair 104). This idea means that without labeling or given information, consumers cannot distinguish between the conventional lemon and the genetically modified lemon (104). One study conducted in the United Kingdom shows that participants mostly associated GMO foods with unnaturalness, but lacked the knowledge to explain why they are not natural (Frewer 64). The gap in the area of knowledge about GMOs falls into the questions of how consumers can get information and whose responsibility it is to educate individuals about GMOs: the government, the producers, or the consumers themselves.

Another recurring matter in studies about GMOs is the perception of risks and benefits associated with genetically engineered foods. Almost every study I have read concerning my research question has assessed the opinions of risks and benefits among consumers. Frewer et. al. included in their study questions about the tangible benefits and perceived risks of GMOs; future generations were considered to have the most benefit, but they were also seen to have the most potential risk (65-66). Additionally, Bredahl’s cross-national study with four European nations, including Germany, determines that any benefits associated with GMOs did not overcome the supposed consequences of GMO consumption, and GMO-containing products were correlated with inhibitions of personal life values (357-8). This study elaborates on how German citizens view GMO foods as risky not only to their health but also to their happiness; conversely in the United States, I have not found a study that considers risks other than to bodily health. I would like to further delve into these perceptions in Oxford and Potsdam in order to fill the gaps in the United States and expand on the information for Europe about risks and benefits to areas other than health, which will highlight cultural differences and reinforce the revealed attitudes towards GMOs today.

The common methodologies used in this field are surveys or interviews, focus groups, and mock auctions. Bredahl used a laddering interview technique to evaluate views in four European nations. The study is completed with figures showing phrases that consumers associate with natural and genetically modified yogurt and beer. Noussair et. al. utilizes the Becker-DeGroot Marschak mechanism, which is a type of auction. This method allows participants to place bids for products, and before each round of bidding, a new piece of information about the product is given. Focus groups are applied in the study authored by Teisl et. al. The groups were separated by level of education, and 'whether or not' was the basis of the questions.

The literature on genetically modified foods has shown that in order to understand consumer perceptions of GMOs, the focus of my research should be on labeling and policies, potential risks and benefits, and the knowledge GMOs, or lack thereof. Since GMOs have entered the global trade market, I believe it is important to consider the gap in literature pertaining to transatlantic nations. A comparison between the United States and Germany, representing the European Union, will help bridge this gap. Also, the reasons behind these perceptions has not been thoroughly researched, therefore assessing the cultures and political natures of the United States and Germany will prove beneficial to my study.

### Methodology

By comparing the students' perceptions towards genetically modified foods at the University of Mississippi and Universität Potsdam in Germany, I will shed light on how varying cultures can affect views about GMOs. In order to discover these perceptions, I will create a survey using the program Qualtrics, which will be sent to students in Potsdam and Oxford. The survey will display both qualitative and quantitative aspects, beginning with questions with response options varying from strongly agree to strongly disagree. Follow-

ing the quantitative responses, several open-ended questions will be asked, in order to further assess what aspects pertaining to GMOs is important to the students in both locations. I conducted a short pilot survey last year in Potsdam that will aid in the creation of the final survey. The questions will be about GMOs in general and about more specific perceptions, plus what affects them. The information gathered from these surveys will be read and analyzed in Qualtrics after the collection period.

As I continue the process of literature review, I will take note of the methods of research used. The studies that have been most notable to my research include the methods of surveys, focus groups or auctions. Surveys will definitely be used in my research, but I am also considering the use of a focus group or auction experiment, in order to expand the amount of feedback and information I obtain from students. More details about these methods are explained in the Literature Review.

Furthermore, I will read the laws and policies, plus their history, relating to the labeling and traceability of GMOs in the United States and Germany, as well as the European Union. Knowledge of the political sector timeline of the biotech industry in each nation will allow me to delve into how the results found in the survey are influenced and how the governments have chosen to treat the new field. I will compare these time lines to find any dissimilarity; hence I will see how they may have over time affected the perceptions of GMOs.

### Data Analysis

After collecting the data from the students in Potsdam and the students in Oxford, I will use the computer program Qualtrics, the same software used to create the survey, to analyze the data. Qualtrics will conduct a thorough report on the data after it is received. I will learn the basics of how to use Qualtrics and read the responses to the survey through

tutorials and help from my mentor and third reader in the coming weeks. Graphs and tables displaying the relevant and interesting results will be included in my thesis.

### Contribution of Thesis

Once completed, my thesis will contribute to the studies focused on genetically modified foods. The thesis, with focuses on political, cultural, and personal aspects, will add two clear dimensions to the field, university students and transatlantic. Not many studies have been conducted using specifically university-aged citizens, and since these students are the individuals entering the consumer market on a large scale, and continuing as consumers while GMO production and research is furthered, they are an important part in understanding the perceptions of GMOs in each culture. Furthermore, I have not found any experimental studies done on a transatlantic scale. There have been multinational analyses, for example a comparison of the United States and Canada and a study of four European nations, but concentrating on Germany and the southern United States will give insight into two regions of large potential disparity. I hope to achieve a contribution to the authentic differences in GMO perceptions in two nations important to the biotech sector.

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