Public Acceptance of Food Biotechnology;  
How does Information Matter?  
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Introduction:

Genetically modified goods have tremendous potential. Biotechnology can help make foods tastier, healthier, or safer. These are some tremendous benefits that could occur within the next few years because of the genetic modification of food. However, there are obstacles in the way before these goods become accepted across the country and world.

Recently, there have been some major issues with consumer acceptance of Biotechnology. In this country, the use of genetically modified organisms is not a major controversy. While there are some who are against the use of biotechnology in food, the United States seems to be somewhat accepting of biotechnology. There is a vastly different opinion towards biotechnology in Europe.

In Europe, there is far more controversy towards genetically modified organisms. Many Europeans are now demanding that goods that are genetically modified be labeled as such. Some European countries do not want any genetically modified organisms within their borders, and many European grocery stores do not want genetically modified goods. Americans are not too that point yet, but the acceptance of biotechnology varies greatly among Americans. This leads to the question, why do some consumers seem to welcome biotechnology and genetically modified goods, while other consumers are against the genetic modification of food?
This paper is going examine consumer acceptance of food biotechnology, and how information impacts the acceptance of genetically modified goods. First, some background information will be presented, mainly to inform of recent events that have occurred involving the acceptance of biotechnology. Next, an analysis of why opinions of biotechnology are so different among consumers and countries (and continents) will be examined. Third, the types of consumer differences will be discussed, and how consumer differences factor in the acceptance of genetically modified goods. Fourth, there will be a discussion of what types of genetically modified goods consumers would be more likely to accept. Finally, this paper will examine the future of the consumer acceptance of genetically modified goods. In all of these topics, we will pay particular attention to how information impacts the consumer’s decision to accept or reject biotechnology. Opinions on genetically modified goods vary from country to country all across the world, but to simplify the analysis Europe and America will be the main geographical regions analyzed.

**Overview and Different Opinions among consumers:**

Recently there has been an outlash against genetically modified goods in Europe. A few European countries, including Italy, have now banned Genetically Modified (GM) Organisms. In order to ban the goods and stay within union guidelines, they are using article sixteen of the European Union Treaty that allows members to back out of regulations if they fear a threat to health or national security. A committee of experts has decided that their action was inappropriate, but the fact that they initiated a ban in the first place shows some of the sentiments towards GM organisms. Even though only a
few countries tried to initiate bans of Genetically modified foods, most of Europe does not view biotechnology in a favorable way. Most of the largest European Grocery Stores have made public commitments to go “GM-Free.” These stores think that they would have more trust from consumers if they did not carry any goods that are genetically modified. Labeling of genetically modified goods is also occurring in Europe, especially with soybeans. In the United States, there has been far less hostility towards biotechnology. Several studies have shown that most Americans have a favorable view toward GM organisms, especially when the genetic modification makes the food healthier. That would lead one to ponder why Americans and Europeans have such different views on biotechnology.

While there isn’t one specific reason why Europeans are more opposed to GM organisms than Americans are, there are many possible reasons. One of the biggest reasons is the recent outbreak of Mad Cow disease. Many Europeans died in this, and a lot of distrust was built up towards European government about issues involving food safety. Americans have a higher trust level with higher level officials involved in food safety. Many people also claim that there are other various other reasons why Europeans are against GM food. Some reasons seem reasonable while others seem outrageous. Here is a list of some of the reasons people give for Europeans rejecting biotechnology more than Americans do:

- Because more Europeans buy their food at markets, they are more aware of how their food is produced
- Europeans remember Hitler trying to build the perfect race, and they are afraid of scientists developing better food
• Distrust for major agricultural companies like Monsanto

• Some claim that food tastes better if it is not genetically modified, and Europeans care more about taste.

• Americans are more accepting ways to make food healthier, so when biotechnology makes food healthier, Americans will accept that product more often than Europeans will.

While Americans are generally more accepting of Genetically modified organisms than Europeans are, there are many in this country who are against food being genetically modified. Many groups in this country, like those at Ben and Jerry’s Ice Cream, protest the use of biotechnology and try to inform as many people as possible about why they should not consumer genetically modified organisms. There are other people are quietly afraid of biotechnology. Several recent studies show that there are a sizeable number of people in this country who would pay more (if they had to) in order to insure that their food has not been genetically modified. With all of these differences of opinion towards biotechnology, even within a country, it seems relevant to ask why some in the United States accept biotechnology, while others oppose it.

Who is more likely to accept biotechnology?

Who would be willing to accept biotechnology? Many studies have been done about the consumer acceptance of various forms of biotechnology in this country, and most of the results seem consistent. Most Americans think that genetically modified
organisms do not pose any threat to society, and do not mind consuming genetically modified organisms. One example of this was in a study of milk from cows treated with the hormone bovine somatotropin, over 50% of the participants would not require any discount to drink milk from cows treated with the hormone (Fox et al). Many other studies have shown a sizeable majority of people would be willing to pay more money to get a product that has been genetically modified, if the genetic modification results in a safer product. Most of these studies do not that there are still many that would not want food that was genetically modified under any circumstances.

People with different backgrounds often have different views of the benefits (or negative aspects) of biotechnology. Three major differences in people that affect their view towards biotechnology are knowledge, attitude, and demographics. Of these, knowledge is more important than the other reasons. Increased knowledge about biotechnology correlates directly with lower risk perception of these goods. The increased knowledge does not seem to have any correlation with an increase in perceived benefits. In some American studies, people were introduced to a good and they were informed that the good was genetically modified. Without other knowledge, many were skeptical. Once they were informed about the impact of the genetic modification of the good, people were far more accepting of the goods.

People by nature tend to look at things from different aspects. Many people who accept biotechnology do so because they like their food healthier or tastier. For other people, they may reject the same product because they fear the product is unsafe, or that the genetic modification may have negative long-run consequences. Until everyone is
more educated on the benefits and risks of genetically modified goods, there will be
major differences in the acceptance of GM goods.

The background of consumers, and the knowledge they possess can be very
important in whether or not they accept genetically modified goods. However, it is not
the most important aspect in whether or not consumers accept biotechnology. The traits
that particular genetically modified goods possess, and the reason for their genetic
modification seems to be more important. The next section will discuss what types of
genetically modified goods are more likely to be accepted by consumers, and what types of
goods would more likely be rejected.

What types of Genetic Modification would be accepted?

In order to properly set up the discussion of food biotechnology, it is important to
discuss the possible benefits of genetically modifying organisms. There are many
different benefits that can occur from goods being genetically modified. The production
process can be modified in order to make it more efficient. An example of this would be
a product that is developed to prevent insects from destroying a crop. The genetic
modification could result in higher yields, which often decreased the price of products.
The final main way that genetic modification can be used is to improve the product. The
view that consumers have towards a particular genetically modified good depends greatly
on why the good was genetically modified.

In a major European study on the consumer acceptance of biotechnology, it was
discovered that Europeans are far more favorable towards biotechnology when it is used
to improve product quality, as opposed the other uses. There are also several other traits
that would make a European consumer more likely to accept GM organisms. According to this study, consumers are more likely to accept a good if it has a good taste, you can indulge in it, it is made safer, it is made healthier, and if it is produced in a sustainable way.

There are several traits that genetically modified goods may have that would make consumers less accepting of the goods. European consumers tend to accept biotechnology less if the genetic engineering is based on animals, as many view that as cruel. They are also less likely to accept a good if it does not have a clear consumer benefit, or if the only benefits are for the producer. European consumers will also be less likely to accept the good if the genetically modified product is identical to the traditional product, if the production of the good is expected to disturb the natural balance, or if there is a suspicion that the product will cause physical complaints. This study shows that the knowledge the consumers have about why the good was genetically modified can have a big impact on the product’s acceptance.

In this country, many studies have shown that many consumers will be willing to pay more for a genetically modified good that has a lower fat content. These findings seem to show that Europeans and Americans are similar on the acceptance of biotechnology, if they know the food is healthier. While many different American consumers would pay more for a genetically modified good that has a lower fat content, others would pay a premium to avoid the genetically modified good. There seems to be enough acceptance of genetically modified goods in this country in GM goods if the modification is made or product improvement that there could be a considerable market
for GM organisms. Also, there seem to be enough people who want no genetic modification of their food to have that as a niche market.

**Conclusion and the future of Biotechnology**

The acceptance of Biotechnology by consumers depends on many things. The consumer’s knowledge of biotechnology results in a lower risk perception. There have been several studies have shown that with more scientific knowledge available to the public about genetically modified goods there is wider acceptance of genetically modified goods. The acceptance of biotechnology also depends greatly on the region where the consumer lives. Europeans accept biotechnology relatively less than Americans do, with several European countries trying to ban any genetically modified goods from entering the country, citing safety reasons. The acceptance of a genetically modified good also depends greatly on why the good is genetically modified. A genetically modified good is more likely to be accepted if it is modified to improve product quality, as opposed to reducing the cost. The particular reason a good is genetically modified seems to have more importance than the consumer background in whether or not the genetically modified good is accepted.

In the future, the acceptance of biotechnology should increase, as consumers become more knowledgeable about genetically modified goods. The goods that are genetically modified to improve product quality will likely become accepted quicker than goods that are genetically modified to reduce costs or make the production process more efficient. Over time, as more research is done, more will be known about the possible benefits and risks of consuming genetically modified products. The acceptance in
Europe will likely take longer than in America, as there is currently more negativity towards biotechnology in Europe.

Companies with a vested interest in seeing genetically modified goods may want to advertise. Many studies have shown that with increased knowledge, there are less perceived risks. If companies like Monsanto, that desperately want consumers to accept genetically modified goods, want more people to accept biotechnology they may want to try a public relations campaign. Whether the campaign would involve television or radio commercials, printed ads, or some other form of advertising would need to be determined. Making people more knowledgeable could lead to a huge financial benefit to companies who depend on genetically modifying goods.

Overall, the long-term outlook for the acceptance of biotechnology looks good, but the short run outlook could be rocky. In the next year or two, countries may boycott GM organisms, and stores may claim to be GM free, but as more information about these goods is made available, it is likely that more people will start to accepting GM goods. As mentioned in the beginning of the paper, the possibilities for genetically modified goods are amazing, but genetically modified goods need to be accepted by the mainstream for the full effects to be realized.