BIOTECHNOLOGY: A SENSIBLE CHOICE

WHAT DOES BIOTECHNOLOGY REALLY MEAN?
Biotechnology is simply the manipulation of genes to provide improved crops or livestock. It is a more complicated and scientific approach than traditional selective breeding or cross pollination. Biotechnology, sometimes referred to as genetically modified organisms (GMOs), has allowed for the modification of plants for insect resistance or chemical tolerance and animals that produce more milk, have more muscle, or possess other attributes. As the technology advances, scientists are producing foods that have added nutritional benefit or have improved quality, such as an enhancement in flavor.

• Introduction of lab-created plants into the environment will change the ecosystem
• Lack of data on long-term environmental hazards and benefits

So far, none of these have proven to be a problem, and biotechnology is closely watched by three different agencies in the United States: the Food and Drug Administration (FDA), Environmental Protection Agency (EPA), and Animal and Plant Health Inspection Service (APHIS). Modified plants and animals may improve their environment, though, because fewer chemicals are needed to maintain crops or livestock. Biotechnology has proven not to pose any health hazards for human consumption.

IF THIS IS TRUE, WHY ARE THERE NOT MORE OF THESE FOODS IN GROCERY STORES?
Despite the fact that modified plants pose no risk, many consumers are not convinced. Most people have little or no knowledge about these products. Those who have been informed about biotechnology may have received their information from a number of biased sources, such as opposing environmental groups.

The bottom line is that consumers associate a risk with genetically modified foods and do not see a clear benefit for buying them, as seen in Figure 1, taken from a nationwide survey asking whether biotechnology was beneficial or harmful. Most of the advancements in biotechnology have benefited the farmer, such as insect resistant plants. As biotechnology advances and food products are available with longer shelf lives, more nutrients, or other valuable qualities, consumers will be more accepting of biotechnology.

Source: http://corporate.basf.com/basfcorp/

ARE BIOTECHNOLOGY PRODUCTS SAFE FOR CONSUMERS AND THE ENVIRONMENT?
Because biotechnology has only been around for a few years, the scientific community is aware that there is not adequate information. Dr. Sandra Batie, a professor at Michigan State University, wrote that an “uncertainty exists surrounding the environmental impacts associated with the wide-scale adoption of [genetically modified plants].” Some major concerns are:

• Genes from modified plants will be picked up by other wild plants
• Insect resistance will decrease the populations of beneficial insects
• Harmful insects will develop a resistance to modified genes

The bottom line is that consumers associate a risk with genetically modified foods and do not see a clear benefit for buying them, as seen in Figure 1, taken from a nationwide survey asking whether biotechnology was beneficial or harmful. Most of the advancements in biotechnology have benefited the farmer, such as insect resistant plants. As biotechnology advances and food products are available with longer shelf lives, more nutrients, or other valuable qualities, consumers will be more accepting of biotechnology.

Source: National Science Foundation

Figure 5. Biotechnology: Benefit or Harm
Source: National Science Foundation

Additional information about this Fact Sheet may be obtained from:
Levi Estes
someone@neo.tamu.edu or (xxx) xxx-xxx
WHY DO FARMERS, AND EVEN RANCHERS, USE GENETICALLY MODIFIED ORGANISMS?
Biotechnology saves time and money for farmers and ranchers through:
- Less spraying for insects
- More effective control of weeds
- Less chemical use
- Less chemical exposure to farm workers
- Fewer laborers needed
- Greater weather tolerance
Modified crops and livestock have the potential to reduce many costs, but some expenses increase. Seed for genetically modified plants are more expensive, and several technology fees may be charged to farmers who choose to use biotechnology.

Right now, a trend has developed toward separating conventional foods and genetically modified foods to give customers a choice. This would increase a number of costs in the processing area, among them transportation and testing to make sure there is no mix up between modified and non-modified products.

CONCLUSION
Despite the obstacles, 109 million acres in 12 countries are planted with genetically modified seed. Especially in developing countries, biotechnology has increased yields and profitability. The genetically modified arena has many risks and benefits which must be carefully weighed before producers can make a decision on whether or not to use biotechnology.

Biotechnology allows for the incorporation of some of nature’s best qualities into a single product, and scientists have not even begun to delve into this exciting frontier. Genetically modified plants and animals are already providing greater productivity and will eventually have significant effects on quality, making it an ideal product for most consumers. As it gains acceptance, biotechnology will be used to improve many commodities, and it will allow the world to feed a growing population.

REFERENCES


