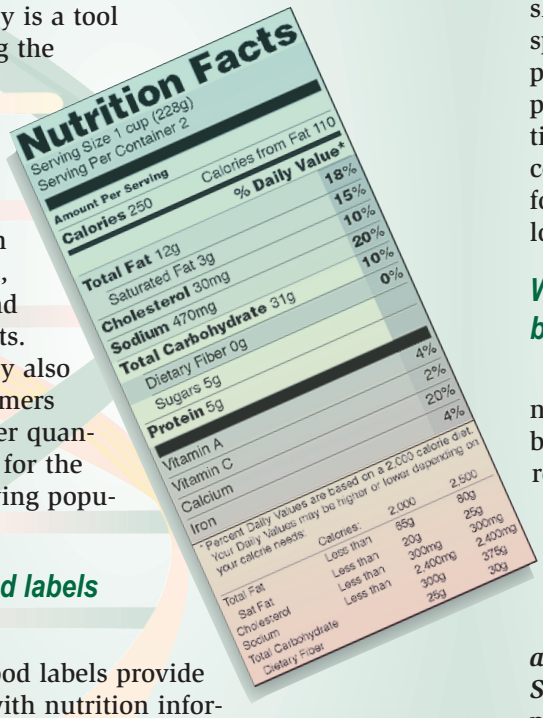
L-5410
9-02

AgriLIFE EXTENSION
Texas A&M System

Labeling of Foods Derived from Biotechnology

Biotechnology uses scientific processes to enhance or create products to benefit people.These processes include fermentation, selection and breeding, cloning, tissue culture, genetic engineering and DNA diagnostics (for example, studying chromosomes to diagnose diseases and find allergens or toxins in foods). Although biotechnology has existed since ancient times, some of the most dramatic developments have occurred in recent years.

Over the years, traditional breeding and selection techniques have resulted in plants and animals that are more productive and more useful to humans. Biotechnology is a tool for modifying the DNA of organisms so that they will produce safe and high quality foods, medicines and other products. Biotechnology also may help farmers produce larger quantities of food for the world's growing population.



What do food labels tell us?

Today's food labels provide consumers with nutrition information about most foods in the grocery store. The format of labels is distinctive and easy to read to help consumers quickly find the information they need to make healthful food choices. Labels must list food ingredients in order of descending weight and provide information on the amount per serving of saturated fat, cholesterol, dietary fiber and other nutrients of major health concern. Standardized serving sizes make it easier to compare the nutritional content of similar products.

Nutrient content, expressed as "% (percent) Daily Values," helps consumers see how a food fits into an overall daily diet. Uniform definitions for terms that describe a food's nutrient content, such as "fat-free," "low-sodium," and "high-fiber," ensure that such terms mean the same for all products on which they appear. Labels on juice drinks must show the total percentage of juice in the drinks so consumers know exactly how much juice they are getting. Labels must also report any relationship between a nutrient or food product and a specific disease or health condition. For example, calcium is helpful in preventing osteoporosis, and some studies have found a relationship between fat and certain types of cancer. This information helps people to choose foods that may help keep them healthier longer.

Which federal agencies regulate agricultural biotechnology?

The federal government maintains a coordinated system to ensure that new agricultural biotechnology products are safe for the environment and animal and human health. While these agencies act independently, they have a close working relationship.

1) The United States Department of Agriculture (USDA)'s ***Animal and Plant Health Inspection Service*** (APHIS) is responsible for protecting American agriculture against pests and diseases. The agency regulates field tests and ensures that new varieties are safe to grow.

2) The USDA's ***Food Safety Inspection Service*** (FSIS) ensures the safety of meat and poultry food products.

3) ***The Food and Drug Administration*** (FDA) governs the safety and labeling of drugs and our food and animal feed supply.

4) ***The Environmental Protection Agency*** (EPA) oversees the safety and safe use of pesticides in the environment.

5) The Department of Health and Human Service's ***National Institutes of Health*** has developed guidelines for the laboratory use of bio-engineered organisms. While these guidelines are generally voluntary, they are mandatory for any research conducted with federal grants. They are widely followed by academic and industrial scientists around the world.

When are biotechnology-derived foods labeled?

The FDA requires special labeling of foods if the absence of this "material" information is misleading to consumers. Material information includes cases where not labeling a food would: 1) pose health or environmental risks, 2) mislead consumers because of other statements on the label (i.e. nutrient content claims), or 3) cause consumers to mistakenly assume a food has positive attributes because it resembles another food.

In 2001, the FDA reaffirmed its decision not to require labeling of all bio-engineered foods, stating that the scientific evidence on biotechnology-derived foods or ingredients does not warrant labeling. According to the FDA, studies have concluded that foods derived through bio-engineering pose no added health or environmental risks and do not contain different nutrient composition or quality than foods already available to consumers.

All foods, including bio-engineered foods, must be labeled to reveal "material" facts about food. Thus:

- If a bio-engineered food is significantly different from its non-biotechnology-derived counterpart such that the common or usual name no longer adequately describes the new food, the name must be changed to describe the difference (for example, broccoflower).

- If there is any question or dispute about how a food or food ingredient is used or the consequences of its use, the label must describe the issue (for example, oelestra, a fat substitute in chips).

- If a bio-engineered food has a significantly different nutritional property (for example, a higher protein content than its non-biotech counterpart), its label must reflect that difference.

- If a new food includes an allergen that consumers would not expect to be present in that particular food, the presence of that allergen must be shown on the label (for example, "made with peanuts").

Do food manufacturers label all biotechnology-derived foods?

No. If none of the four situations above apply, then a manufacturer is not required to label a bio-engineered food. Labels are currently based on the characteristics of the food product, rather than the process of growing or manufacturing that food.

Some companies choose to voluntarily label their products. In that case, the FDA provides guidance, based on consumer comments from focus groups and other resources, to assist manufacturers in ensuring that food labels are based on "material" facts and are truthful and not misleading.

Would labeling that shows the presence or absence of biotechnology involved in production raise the price of all foods?

Yes. Laws may be enacted to require that non-biotech foods and biotechnology-derived foods be kept separate. Crop and food ingredient separation would increase the amount charged for a product. The price increase would also come from testing needed to verify that the new labels were correct. The tests would be performed at all stages of production—testing in the fields, in grain elevators, at the mill, at processing plants and at final product.

Have I eaten a biotechnology-derived food?

Almost certainly! According to the Grocery Manufacturers of America, in the year 2000, about 70 percent of all food in stores was made or manufactured using some form of biotechnology. Most bio-engineered foods and food ingredients originate from corn, soybeans and vegetable oil crops.

How long does it take to develop a new bio-engineered crop?

It takes a total of 7 to 10 years to get approval for a new bio-engineered crop. It takes about 2 to 5 years to develop a field test and an additional 5 years to complete the food, environmental, nutritional and allergy testing required by the FDA, the USDA and the EPA.

Are foods derived from genetically modified crops required to be tested for possible allergic reactions in people?

To alert consumers who may be allergic to certain substances, the FDA requires labeling on any food that contains a new protein that may be a food allergen. If the FDA finds that labeling will not adequately protect consumers, it will prevent marketing of the product.

On the other hand, however, biotechnology is now being used to modify proteins so that they do not trigger allergic reactions in humans, while retaining their desired characteristics. The first crop to have its allergenic proteins removed was rice.

For more information on biotechnology issues, see the other publications in this* Explore the Genetic Frontier *series :

"What is Biotechnology?"
"Biotechnology and Cotton—Texas' Biggest Crop"
"Developing Crops Resistant to Glyphosate Herbicide"

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This is a joint publication of Texas Cooperative Extension and the Center for Nutrition, Health, and Food Genomics at the Institute of Food Science and Engineering at Texas A&M University.

The publications in this series describe processes and products developed through rigorous scientific research and testing. Informed citizens are knowledgeable consumers and decision makers.