



Health & Biotechnology

First, a definition: “Biotechnology is the application of living organisms to develop new products or improve existing ones. Current biotechnology methods, which allow the transfer of a gene from one organism to another, involve the same basic scientific processes — crossbreeding and fermentation — people have used for centuries to increase crop productivity, improve the food supply and produce better foods.”¹

AGRICULTURAL BIOTECHNOLOGY APPLICATIONS

In the past 50 years, scientists identified the characteristics of DNA and began to see how genetic information is stored and duplicated. Beginning in the 1980s, advances in genetic engineering led to improved crop plants. Today, biotechnology allows growers to produce crops with specific beneficial traits, as well as eliminate undesirable traits.

Quality improvements such as nutritionally-enhanced fruits and vegetables, plants that provide processing advantages and oil seeds that produce oils with lower saturated fat content are some benefits of these advances.

By planting herbicide-tolerant crops created through biotechnology, including a major variety of soybeans, growers are able to lower total herbicide and pesticide use, reduce time and costs for herbicide/pesticide applications, enhance disease-fighting characteristics of certain crops and prevent crop devastation due to harmful pests.

Additional examples of crop improvements produced through biotechnology are genetic traits that control ripening of fruits and vegetables; vegetables with higher solid contents leading to reduced processing costs; vegetables with improved nutritional and/or fatty acid content; and naturally decaffeinated coffee.

AMERICAN DIETETIC ASSOCIATION'S POSITION ON BIOTECHNOLOGY

The ADA notes, “It is the position of The American Dietetic Association that biotechnology techniques have the potential to be useful in enhancing the quality, nutritional value and variety of food available for human consumption and in increasing the efficiency of food production, food processing, food distribution and waste management.”²

REGULATION AND LABELING

Biotechnology applications in food and agriculture are the subject of extensive regulatory review to protect against potential negative effects on food safety and the environment. Federal agencies involved in biotechnology regulation include:



- The U.S. Department of Agriculture (USDA), which evaluates whole foods and production processes.
- The Food & Drug Administration (FDA), which evaluates whole food, food ingredients and food additives.
- The Environmental Protection Administration (EPA), which evaluates production processes³.

New gene-splicing techniques permit the introduction of genes into a plant from essentially any organism. Such modifications may now be performed in a directed and predictable fashion, without the introduction of extraneous, undesirable genes. Producers of whole foods or food components produced through biotechnology must provide evidence that no safety issues are raised.

Although FDA evaluates food products and ingredients produced using biotechnology on a case-by-case basis, the labeling regulations bear out an historical whole-food approach: if the whole food is not materially different from its traditional counterpart, designating it as a product of biotechnology through mandatory labeling is not required and is, in fact, misleading unless accompanied by a statement clarifying that there is no difference in healthfulness between the two products.

The USDA, FDA and EPA have set demanding guidelines for regulating products of biotechnology. Roundup Ready soybeans, for example, were put through more extensive scrutiny than any other bean in history. Whether developed via new or traditional breeding techniques, new plant varieties routinely undergo years of testing and evaluation to determine that the plants behave as expected.

BIOTECHNOLOGY AND THE ENVIRONMENT

Greater food resources will be necessary to feed the world as the population grows. Biotechnology offers one way to meet that need while reducing the environmental impacts of agriculture. Biotechnology offers farmers ^{4,5}:

- Crop yield maintenance with less dependence on chemical pesticides, reducing the number and amount of pesticide applications.
- Herbicide use on an “as needed” basis when weeds emerge, rather than spraying preventively when no weeds are present.
- The ability to more readily implement soil conservation programs.
- Reduction in possible exposure of ground water to chemical pesticides.
- The ability to more easily implement Integrated Pest Management, a sustainable, ecological approach to pest control.



REFERENCES

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