

California Seed Association Fact Sheet Series



Background

There is a great deal of confusion and misinformation about “biotechnology”, which is any method utilizing organisms or biological methods to achieve a specific purpose, including fermentation, brewing and other familiar processes. However, the term “biotechnology” has come to specifically refer to transgenics, or crops developed using recombinant DNA methods, also known as genetically engineered (GE) or genetically modified (GM) crops. There are many myths about these biotech crops, which are addressed here, and the best way to stay informed is to be sure that the information is peer reviewed and from a reputable source.

What is biotechnology?

Any technique that uses organisms or parts thereof to make or modify products, to improve plants or animals, or to develop micro-organisms for specific purposes.

Myths about biotech crops:

- 1. Biotech crops are not tested.** Food, feed, fiber and now fuel derived from biotech crops are the most highly tested products grown today. In the U.S., the Department of Agriculture ensures that biotech crops are safe to grow and requires that they are substantially equivalent to their non-biotech counterparts for competitiveness, weediness, etc. The Food and Drug Administration ensures they are safe to eat and requires data on nutrition, potential allergenicity or toxicity to humans and animals. The Environmental Protection Agency ensures they are not a threat to non-target organisms and the environment. Several years of research are required beyond product development to ensure that biotech crops are substantially equivalent to their non-biotech counterparts. Based on more than 80 studies from 400 research groups over 15 years, the European Commission and the U.S. National Research Council concluded that biotech crops are safe.
- 2. Biotech crops are products of corporations.** On a commercial scale, this is true. The only commercial biotech crop developed thus far in a public institution is virus-resistant papaya developed at Cornell University that saved the papaya industry in Hawaii. However, extensive research on biotech crops has been conducted in the public sector, but public institutions are prevented from commercializing them largely due to the regulatory requirements and costs involved.
- 3. All crops have biotech.** In fact, biotech varieties have been commercialized in only a few major crops, including soybean, maize, cotton and canola. However, as products made from these crops, including vegetable oils, are widely used in processed foods, it has been estimated that up to 70% of such foods may contain ingredients from biotech crops. The majority of the largest biotech crops, maize and soybean, are used for animal feed, including in countries such as the EU which do not allow production of biotech crops.
- 4. Only the U.S. produces biotech.** As of 2014, biotech crops were grown on over 180 million hectares in 28 countries, of which more than half the acreage was in 20 developing countries. More than 90% of the 18 million farmers producing biotech crops are small resource-poor farmers. (<http://www.isaaa.org>).
- 5. Genes will contaminate our food.** Genes are made of deoxyribonucleic acid (DNA), the biological blueprint for all living organisms. It is part of humans, animals and plants. It is in all foods derived from living organisms. Genes from bacteria, fungi, viruses, plants and animals are eaten every day in organic, conventional or biotech foods.

More Information

UCBiotech (<http://ucbiotech.org>)

USDA Biotechnology Regulatory Services <http://www.aphis.usda.gov/biotechnology>)

GMO Answers (<https://gmoanswers.com/>)

Academics Review (<http://academicsreview.org/>)

Miller JK, Bradford KJ (2010) The regulatory bottleneck for biotech specialty crops. Nature Biotechnology 10: 1012-1014 (<http://www.nature.com/nbt/journal/v28/n10/abs/nbt1010-1012.html>)

Seed Biotechnology Center (<http://sbc.ucdavis.edu>)

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