

FAQs about GMOs

What tests are done before GMOs are approved for human or animal consumption?

Like any technology, GMOs have benefits and risks. Risk assessment is performed on GMOs to see if the benefits outweigh the risks. GMOs are tested for the risk of harm to human health; the risk to non-target organisms (like beneficial insects); the risk of potential movement of the novel gene to other crops or wild organisms; and the risk of evolution of resistance of target pests or pathogens. Management of some of these risks is dependent on farmers carrying out certain farming techniques.

Are GMOs safe to eat?

Yes. GMOs are extensively tested for potential toxicity before being approved by the US Department of Agriculture for animal or human consumption. **There have been no reported adverse health effects of any GMO on the market today.**

Do GMOs cause allergies?

No. GMOs are extensively tested for allergenicity before being approved by the USDA.

Do GMOs harm beneficial insects, such as monarch butterflies?

Not any more than conventional agriculture. The Bacillus toxin that is found in Bt corn and Bt cotton is toxic to several orders of insects, including pest insects and beneficial insects. Theoretically, Bt crops could kill beneficial insects if they ate them, but most don't like to feed on these agricultural crops. Monarch butterfly larvae feed exclusively on milkweed plants. Pollen from Bt corn or Bt cotton, which is toxic to monarchs, could theoretically drift onto milkweed plants, and kill monarch larvae feeding on those plants. However, the risk is very small. Pesticide use in conventional agriculture and habitat destruction kill many more monarchs than GMO crops.

Will genes from GMO crops contaminate wild populations of plants?

Closely related species of plants can cross-pollinate. Pollen from a GMO crop could potentially fertilize a non-GMO crop of the same type, or a close relative, and transfer the novel gene to the non-GMO plant through normal reproductive methods. To minimize this possibility, GMO crops are required to be grown certain distances away from non-GMO crops and from closely related plants. When farmers do not follow these rules, the risk of gene transfer increases.

Are GMO foods labeled?

In the US there are currently no laws requiring GMO-containing foods to be labeled. Several companies voluntarily label their foods as non-GMO. Food labeling bills have been on the ballot in several states, but none has been voted into law. For 'Organic certification' by the USDA, products cannot contain GMOs.

How are genes transferred into crop plants to make GMOs?

Many of these plants are made by using a naturally occurring bacterium that evolved a mechanism to transfer genes into plants. Scientists place the gene of interest into this bacteria and the bacteria then inserts the genome into the plant.

Links to internet resources

Monsanto's website describing their GMO crop products:

www.genuity.com

YouTube video about conventional plant breeding to combat a new bacterial disease in tomatoes:

<https://www.youtube.com/watch?v=mtVtpO7FOaA>

YouTube animated video comparing conventional plant breeding with GM technology:

https://www.youtube.com/watch?v=S36aE9_m_Xo

Union of Concern Scientists website about industrial agriculture, including GM technology:

http://www.ucsusa.org/food_and_agriculture#.VgqveLRVhHx

Website describing how corn, peaches, and watermelon have been modified from their wild varieties into the foods we know today:

<https://jameskennedymonash.wordpress.com/category/infographics/artificial-vs-natural-foods/>

Website of the International Service for Acquisition of Agri-biotech Applications (ISAAA). Has information about all approved GMO crops (US and international), including all that are approved but not commercially available:

<http://www.isaaa.org/gmapprovaldatabase/default.asp>

Article about safety studies on GMOs. The main website (geneticliteracyproject.org) has many links to articles about GMOs:

<http://www.geneticliteracyproject.org/2015/09/23/myth-busting-anti-gmo-activist-claims-no-long-term-safety-studies-demolished/>

Article about girl scouts refusing to remove GMO derived ingredients from their cookies, also from the geneticliteracyproject.org.

<http://www.geneticliteracyproject.org/2015/01/16/girls-scouts-reject-attempts-by-anti-gmo-parents-to-use-their-kids-in-fear-campaign/>

Three articles about the Innate GMO potatoes, which have decreased browning:

<http://www.npr.org/sections/thesalt/2015/01/13/376184710/gmo-potatoes-have-arrived-but-will-anyone-buy-them>

http://www.nytimes.com/2014/11/08/business/genetically-modified-potato-from-simplot-approved-by-usda.html?_r=1

<http://www.geneticliteracyproject.org/2014/11/09/mcdonalds-mulling-embrace-of-simplots-bruise-reducing-innate-gmo-potato/>