



GET TO KNOW THE HEALTH AND SAFETY OF GMOS



The health and safety of GMOs is a major topic of conversation today. With unsubstantiated claims that food from GM crops has less nutritional value than food from conventional or organic crops to false allegations that GMOs could somehow cause new diseases, consumers understandably have questions about the safety of the food on their dinner table and how it's grown.

We stand 100 percent behind the health and safety of GM crops and have always and continue to answer consumer questions on this topic. Using information that can be found on GMOAnswers.com, we developed this guide to address frequently asked questions about the health and safety of GMOs.

To learn more about GMO regulation, safety testing and the scientific and governmental bodies that have affirmed the safety of GM crops and foods, please visit GMOAnswers.com.

GMOS AND HUMAN HEALTH

Commercialized GMOs on the market today do not present any new health risks — there is no evidence that they cause new allergies, cancer, autism, or any other diseases or conditions. They are the most tested crops in the history of agriculture, and farmers have grown GM crops for about 20 years.

Scientific authorities around the world, such as the **U.S. National Academy of Sciences, United Nations Food and Agriculture Organization, World Health Organization, American Medical Association and the American Association for the Advancement of Science**, have analyzed thousands of scientific studies and concluded that GM food crops do not pose any more risks to people, animals or the environment than any other foods.

GENETIC ENGINEERING IS ONE OF THE NEWER TECHNOLOGIES AVAILABLE TO PRODUCE DESIRED TRAITS IN PLANTS AND ANIMALS USED FOR FOOD, BUT IT POSES NO HEALTH RISKS THAT CANNOT ALSO ARISE FROM CONVENTIONAL BREEDING AND OTHER METHODS USED TO CREATE NEW FOODS. (EXPERT CONSENSUS REPORT: SAFETY OF GENETICALLY MODIFIED FOODS, 2004) - NATIONAL ACADEMY OF SCIENCES

According to the **European Commission**, "The main conclusion after more than 130 research projects covering a period of more than 25 years of research and involving more than 500 independent research groups, is that biotechnology, in particular GMOs, are not *per se* more risky than conventional plant breeding technologies."¹ Products from GM crops have been imported into the EU in large quantities for about 20 years without interruption.

GM FOODS CURRENTLY AVAILABLE ON THE INTERNATIONAL MARKET HAVE PASSED SAFETY ASSESSMENTS AND ARE NOT LIKELY TO PRESENT RISKS FOR HUMAN HEALTH. IN ADDITION, NO EFFECTS ON HUMAN HEALTH HAVE BEEN SHOWN AS A RESULT OF THE CONSUMPTION OF SUCH FOODS BY THE GENERAL POPULATION IN THE COUNTRIES WHERE THEY HAVE BEEN APPROVED. (20 QUESTIONS ON GENETICALLY MODIFIED FOODS, 2013) - WORLD HEALTH ORGANIZATION

NUTRITIONALLY THE SAME AS NON-GM CROPS

GM crops on the market today have the same nutrition and composition as non-GM crops, despite false claims to the contrary regarding vitamin, mineral, and fiber content. Food from GMOs is digested in the body the same as food from non-GM crops. For example, GM corn is nutritionally the same and digested the same as non-GM corn. Additionally, a change can sometimes be made to intentionally enhance the nutritional profile of a crop. There are high-oleic soybeans, for example, that have been genetically modified to produce oil with more monounsaturated fat, less saturated fat and little-to-no trans fat. Other GM crops are still being developed for nutritional improvement, including Golden Rice, which includes β -Carotene that could deliver vitamin A to children in developing nations.

SAFETY TESTING AND REGULATORY OVERSIGHT

Before they reach the market, crops from GM seeds are studied extensively using an internationally-accepted approach to make sure they are as safe for people, animals and the environment as conventional crops. Today's GM products are the most researched and tested agricultural products in history.

Unlike foods produced by other methods, GMOs on the market today are tested for food safety, including for allergenicity, digestibility and toxicity. In fact, GM seeds take an average of \$136 million and 13 years to bring to market because of extensive research and regulatory reviews conducted by up to three U.S. government agencies, including the USDA, EPA and FDA, as well as numerous other regulatory bodies around the world.²



CURRENTLY AVAILABLE TRANSGENIC CROPS AND FOODS DERIVED FROM THEM HAVE BEEN JUDGED SAFE TO EAT AND THE METHODS USED TO TEST THEIR SAFETY HAVE BEEN DEEMED APPROPRIATE (THE STATE OF FOOD AND AGRICULTURE 2003-2004) - FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

NO LINKS TO OTHER DISEASES

Misinformation and false claims that GMOs cause a variety of health conditions and diseases – from celiac disease to cancer – have been spread widely throughout media and the Internet. Here are some of the most common questions we're asked on GMO Answers:

GMOs do not cause new allergies. Researchers developing new GM crops deliberately avoid using potentially allergenic proteins from milk, eggs, wheat, fish, shellfish, tree nuts, peanuts, and soy – the eight major foods accounting for most of all food allergy cases in the United States. In addition, researchers compare new GM crops under development to a database of thousands of known allergens and toxins to avoid possible links.

GMOs do not cause gluten intolerance or celiac disease. Beyond that, there is no GM wheat on the market.

GMOs do not cause cancer - there is zero reputable evidence that they do. Additionally, there are more than 1,080 studies about the health and safety of GMOs available at biofortified.org, and a decade of GMO research, funded by the European Commission, that find GMOs pose no greater risk than their conventional counterparts.^{3,4}

THE SCIENCE IS QUITE CLEAR: CROP IMPROVEMENTS BY THE MODERN MOLECULAR TECHNIQUES OF BIOTECHNOLOGY IS SAFE. (AAAS BOARD STATEMENT ON LABELING OF GENETICALLY MODIFIED FOODS, 2012) - AMERICAN ASSOCIATION FOR ADVANCEMENT OF SCIENCE

THERE IS NO EVIDENCE THAT UNIQUE HAZARDS EXIST EITHER IN THE USE OF RDNA TECHNIQUES OR IN THE MOVEMENT OF GENES BETWEEN UNRELATED ORGANISMS. (REPORT 2 OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTHY (A-12) LABELING OF BIOENGINEERED FOODS, 2012) - AMERICAN MEDICAL ASSOCIATION

[1,3] A decade of EU-funded GMO research 2001-2010. (2010). Retrieved from http://ec.europa.eu/research/biosociety/pdf/a_decade_of_eu-funded_gmo_research.pdf.

[2] McDougall, P. (2011). The Cost and time involved in the discovery, development and authorization of a new plant biotechnology derived trait. Retrieved from: http://www.biotech.ucdavis.edu/PDFs/Getting_a_Biotech_Crop_to_Market_Phillips_McDougall_Study.pdf

[4] Studies for GENERA. (2014). Retrieved from <http://www.biofortified.org/genera/studies-for-genera/>

LOOKING FOR MORE INFORMATION?

GMO Answers is a resource for information about GMOs and biotechnology in agriculture.

Explore: Visit the Explore the Basics section of our website, which offers information about GMOs and agriculture in a simple, visual and user-friendly format.

Ask: Visit our Ask section to submit a question and have it answered by an independent or company expert.

Engage: Join the conversation by posting a comment and participating in a constructive dialogue with other members of the community.

