

Additional facts:

GMO ingredients are found in 80% of packaged foods sold in the United States and Canada.

While GMO foods are currently grown in over 20 countries, the U.S., Canada and Argentina are the main exporters of GMO foods.

The United States and Canada do not require the labeling of foods containing GMOs. 40 nations, including Australia, Japan and the nations of the European Union have restrictions on the use of GMOs in food, as they are deemed as not yet proven safe.

A U.S. consumer could avoid GMO ingredients if he or she restricts him or herself to USDA Certified Organic Food or foods labeled NON-GMO Project Certified Product.

GMO FOODS – PROS & CONS – 12/2016



Genetically modified organisms (GMO) are organisms made with engineered material with the goal of improving the original organism. They can then be used, in some cases, to produce GMO foods.

GMO seeds are used in 86 to 93 percent of corn, soybeans and cotton grown in the United States, according to the Center for Food Safety. To avoid eating foods that contain GMOs, look for labels that specify that the food is "organic" or "USDA Organic."

While GMOs are developed with the goal of benefiting human health and the farming industry overall, there are some negatives. Whether the benefits will hold up long term is disputed by some and have not been proven by long-term objective independent testing.

First the pros:

1. Seeds are genetically changed for multiple reasons, which include improving resistance to insects and generating healthier crops, according to Healthline.com. This can lower risk of crop failure, and make crops better resistant to extreme weather. Improved crop productivity is expected to increase incomes in rural areas of developing countries.
2. Engineering can also eliminate seeds and produce a longer shelf life, which allows for the "safe transport to people in countries without access to nutrition-rich foods."

3. Environmental benefits. Less chemicals, time, machinery, and land are needed for GMO crops and animals, which can help reduce environmental pollution, greenhouse gas emissions, and soil erosion. Enhanced productivity because of GMOs could allow farmers to dedicate less real estate to crops. Also, farmers are already growing corn, cotton, and potatoes without spraying the bacterial insecticide *Bacillus thuringiensis* because the crops produce their own insecticides, according to the Food and Agriculture Organization of the United Nations.

4. Better nutrition. By modifying some GMO foods in terms of mineral or vitamin content, companies can supply more necessary nutrients and help fight worldwide malnutrition, according to The Food and Agriculture Organization of the United Nations. For example, vitamin A-enhanced rice, or "golden rice," is helping to reduce global vitamin A deficiencies.

5. The use of molecular biology in vaccination development has been successful and holds promise, according to the Food and Agriculture Organization of the United Nations. Scientists have engineered plants to produce vaccines, proteins, and other pharmaceutical goods in a process called "pharming."

Now the cons:

1. GMOs can pose significant allergy risks, according to a Brown University study. Genetic enhancements often combine proteins not contained in the original organism, which can cause allergic reactions for humans. For example, if a protein from an organism that caused an allergic reaction is added to something that previously didn't, it may prompt a new allergic reaction. Food allergies in children under 18 spiked from 3.4 percent in 1997-99 to 5.1 percent in 2009-11, according to the National Center for Health Statistics, which may be linked to the increase in GMO foods.

2. Lowered resistance to antibiotics. Some GMOs have built-in antibiotic qualities that enhance immunity, according to Iowa State University, but eating them can lessen the effectiveness of actual antibiotics.

3. Genes may migrate. According to The Food and Agricultural Organization of the United Nations, "Through 'gene escape,' they can pass on to other members of the same species and perhaps other species. Genes introduced in GMOs are no exception, and interactions might occur at gene, cell, plant, and ecosystem level. There is scientific consensus that once widely released, recalling transgenes or foreign DNA sequences, whose safety is still subject to scientific debate, will not be feasible.

4. The most damaging impact of GMO in agriculture so far is the phenomenon of [pesticide resistance](#). Millions of acres of U.S. farmland are now infested by weeds that have become resistant to the herbicide glyphosate. Overuse of Monsanto's "Roundup Ready" trait, which is engineered to tolerate the herbicide, has promoted the accelerated development of resistance in several weed species. Looking for ways to fight back against these "superweeds," farmers are now turning to older, more toxic herbicides such as 2,4-D and dicamba. As if on cue, agribusiness companies have begun to develop new

GMO crops engineered to tolerate these older "herbicides" with no guarantee that the Roundup Ready story will not repeat itself, producing a new wave of resistant weeds.

Also, this issue is not confined to herbicides: recent reports suggest a growing problem of corn rootworms resistant to the insecticide Bt, which some corn varieties have been engineered to produce.

5. Farmers are not permitted to save GMO seeds, to start the next year's crop, which raises their costs to use such seeds.

6. Some long term studies have shown mature lab animals to have health problems that are likely the result of the consumption of GMO foods over multiple years.

Sources: NewsMax "Health"; Union of Concerned Scientists; Healthline; Health Research Funding; Food & Agricultural Organization of the United Nations; Alliance for Natural Health USA.