



## What & How We Eat

### *Additional information*

#### **What should I know about GMOs (Genetically Modified Organisms)?**

- Scientists can isolate genes and insert them into plants in order to give crops certain desired attributes. The idea isn't entirely new: agricultural scientists have been exposing seeds to radiation and chemicals (called "mutation" or "variation" breeding) in order to generate desirable traits since the 1930s. And farmers have been cross-breeding crops effectively for hundreds of years. Modern gene modification is a bit different. Scientists can now introduce only one gene into a crop instead of several, and the gene can now come from a completely different species.
- State laws on GMOs differed widely for many years, making it complicated for companies to label and sell their products. President Obama signed Bill 764 in 2016, which created a federal standard: Companies using GMOs must now disclose it but not necessarily on the label. Companies may provide a link, phone number, or QR code that contains the information. For anyone avoiding GMOs, it is often simpler to find packaged food with a label that guarantees "non-GMO."
- The US Supreme Court held that the patented gene in genetically modified seeds does mean that the seeds with that gene are the property of the company that holds the patent (Monsanto). This means that farmers cannot save seeds bought from Monsanto, and farmers with adjacent property are responsible for making sure there is no cross contamination.
- Eighty-eight percent of American scientists surveyed in a 2016 PEW Research study answered that GMOs are safe to eat, while only 37% of American citizens answered the same.
- No study on GMOs can prove that they are safe, only that they have not been found unsafe. No widespread American study has yet been done, but the European Union spent \$300 million on a series of studies in 2010 and reported: "The main conclusion to be drawn from the efforts of 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, and in particular GMOs, are not per se more risky than e.g. conventional plant breeding technologies." A 2014 study in *Journal of Animal Science* noted that the health of 100 billion animals being fed on GMO crops from 1996–2011 increased or stayed the same.

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- Several genetically modified foods have been proven to have a higher yield or be higher in certain nutrients than before (notably golden rice) and have been cited as a possible solution to population growth and world hunger.
- Some GMOs are designed to be sprayed with and resist a greater amount of pesticide, and concerns about the health effects of those pesticides are still being explored (notably glyphosate when taken in unusually large amounts and herbicide 2,4-D). Herbicide 2,4-D has been connected in 45 studies from around the world to an increase in non-Hodgkin's lymphoma, dementia, and Alzheimer's disease.

## SOURCES

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