

K-State Research and Extension News for Jan 13, 2021

## **GMO Foods: Friends or Foes?**

*Submitted by Franny Eastwood, Extension Agent*

GMO foods have been available to consumers since the early 1990s. Over the years, there has been much speculation on how safe they are for consumption. How much of this speculation is based in research? What do we know for sure? Despite there being a wide range of foods—GMO and non-GMO—available to consumers, there is confusion around what GMOs are and how they are used in our food supply.

A GMO (genetically modified organism) is a plant, animal, or microorganism that has had its genetic material (DNA) changed using technology that involves the specific modification of DNA, including the transfer of specific DNA from one organism to another. Scientists often refer to this process as genetic engineering.

"GMO" has become the common term consumers and popular media use to describe foods that have been created through genetic engineering. This term is NOT used to refer to plants or animals developed with *selective breeding*, like the common garden strawberries available today that were created from a cross between a species native to North America and a species native to South America. While "genetic engineering" is the term typically used by scientists, you will start seeing the "bioengineered" label on some of the GMO foods we eat in the United States

Only a few types of GMO crops are grown in the United States, but some of these GMOs make up a large percentage of the crop grown (e.g., soybeans, corn, sugar beets, canola, and cotton). Most GMO crops are used in food for animals like cows, chickens, and fish. They are also used to make ingredients that are then used in food products like cereal, snack chips, and vegetable oils. Even though you won't find many GMO fruits or vegetables in the produce section of your grocery store (apples, papaya, potatoes, and squash), GMOs are a common part of today's food supply.

Humans have used traditional ways to modify crops and animals to suit their needs and tastes for more than 10,000 years. Cross-breeding, selective breeding and mutation breeding are examples of traditional ways to make these changes. These breeding methods often involve mixing all the genes from two different sources. They are used to create common crops like modern corn varieties and seedless watermelon.

Modern technology now allows scientists to use genetic engineering to take just a specific beneficial gene, like insect resistance or drought tolerance, and transfer it into a plant. The reasons for genetic modification today are similar to what they were thousands of years ago: higher crop yields, less crop loss, longer storage life, better appearance, better nutrition, or some combination of these traits.

GMO foods are as healthful and safe to eat as their non-GMO counterparts. Some GMO plants have been modified to improve their nutritional value. An example is GMO soybeans with healthier oils that can be used to replace oils that contain *trans* fats. Since GMO foods were introduced in the 1990s, research has shown that they are just as safe as non-GMO foods. Since then, the U.S. Food and Drug Administration (FDA), U.S. Environmental Protection Agency (EPA), and U.S. Department of Agriculture (USDA) have worked together to ensure that crops produced through genetic engineering are safe for people, animals, and the environment.

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