



Leader's Guide

Is it safe? Information on genetically engineered foods for consumers

**Londa Nwadike, Kansas State University/
University of Missouri Extension Food Safety
Specialist**

Introduction

Consumers are increasingly interested in where their food comes from, and may be concerned about the health and safety implications of various food production methods. With many different terms, such as "organic," "natural,"

and "GMO-free" being used today in food marketing, it is very confusing for consumers to know how they should spend their money when purchasing foods. This fact sheet provides consumers with an introductory overview to genetically engineered (GE) foods (commonly referred to as GMOs- genetically modified organisms), as well as safety information on these products. Information on labeling of GE foods is also included. The term "genetically engineered foods" or "GE foods"

UNIVERSITY OF MISSOURI
M Extension

an equal opportunity/access/affirmative action/
pro-disabled and veteran employer

is used throughout this fact sheet as this is one of the terms that the US Food and Drug Administration (FDA) states is scientifically accurate for these types of foods.

GE foods are a very controversial and oftentimes misunderstood topic, with only 37% of US adults saying that they think GE foods are safe, compared to 88% of scientists who are part of the American Association for the Advancement of Science (AAAS; Pew Research 2015). For many consumers, the issue of the safety of GE foods is tied together with many other issues, such as environmental concerns and concerns about the industrialization of agriculture and corporate control of our food supply.

Tips for communicating difficult topics

As indicated, this lesson covers a very controversial topic. Therefore, the presenter must understand that there will likely be a wide variety of opinions amongst the participants and be prepared to communicate on a difficult topic. The following tips may be helpful in communicating this lesson:

- The presenter must ensure that they recognize and care about the concerns of the various participants in the lesson. It is important to understand the participant's perception of risk and their background, and then tailor the message accordingly.



- The presenter must be sure to provide science-based information. There are a number of different opinions on this topic, but we must rely on providing accurate, science-based information. As Extension personnel, our job is not to change peoples' minds, but simply to provide science-based information. Although it may be difficult, it is important to not argue or get defensive if confronted with different opinions.
- If participants ask questions about the credibility of USDA and FDA's regulatory process, Extension personnel can discuss that even though the regulatory system may not be perfect, consumer and other groups also have opportunity to make comments to these regulatory agencies to ensure that all opinions on various topics are being brought up in the regulatory process.
- The presenter should establish their own credibility, which can be done by sharing personal stories related to this topic.
- It is important to recognize that some uncertainties exist on this topic and if the presenter does not feel like an expert on a particular portion of this topic that should be stated as well.
- We should recognize that almost everything has some level of risk and that most people prefer certain risks over others. In general, the following table describes most peoples' risk preferences:

Generally preferred risks	Less preferred risks
Familiar risks	New risks
We can control	We have no choice or control

Objectives:

- Participants will gain a general understanding of GE foods
- Participants will understand the general safety record of GE foods



- Participants will gain an understanding of the issues related to labeling of GE foods
- Participants will gain information to make informed decisions when purchasing food

Intended Audiences:

Groups of adult consumers interested in learning more about GMOs

Before the Lesson:

1. Review this leader's guide and the fact sheet (#1309).
2. Check listed references for more information.
3. Assemble materials including the following:
 - Pens or pencils
 - Copies of the fact sheet
 - Copies of the evaluation to be distributed following the program

During the Lesson:

1. Give each participant a copy of the fact sheet and a pencil and allow a few minutes for each person to review the sheet.
2. Allow 45 to 50 minutes to teach the lesson. You can determine if you want to try to answer questions as you go along or wait until the end.
3. Begin by asking for a show of hands of how many participants have heard about GMOs

or GE foods. You could also ask for a show of hands of how many participants have heard a variety of facts and opinions on GMOs.

4. Discuss the introductory paragraphs from the fact sheet. Be sure to clarify that the term "genetically engineered foods" or "GE foods" will be used throughout the lesson as this is recognized as a more scientifically accurate term for these types of foods, even though many consumers call these foods "GMOs".
5. Discuss that there may be a variety of opinions on this topic, but you are planning to present scientific information, focusing on the safety of these food products.
6. Utilize the accompanying PowerPoint presentation (including photos on slides) to discuss some of the key points from the fact sheet.
7. Depending on your audience and your comfort level, you could ask participants which food products in the US food supply they think are GE.
8. Depending on your audience and your comfort level, you could ask participants if they have any concerns with GE foods, or what concerns they have heard others express.
9. Ask the participants to fill out an evaluation for the program.
10. Thank the audience for their participation.

References:

- Funk, Cary and Lee Rainie. 2015. Public and scientists' views on science and society. <http://www.pewinternet.org/2015/01/29/public-and-scientists-views-on-science-and-society/>.
- Nicolia, A, A. Manzo, F. Veronesi and D. Rosellini. 2013. An overview of the last 10 years of genetically engineered crop safety research. *Critical Reviews in Biotechnology*. 34:77-88. ISSN: 1549-7801.
- GMO Answers. <http://www.gmoanswers.com>.
- FDA. AquAdvantage Salmon. <http://www.fda.gov/AnimalVeterinary/DevelopmentApprovalProcess/GeneticEngineering/GeneticallyEngineeredAnimals/ucm280853.htm> (accessed December 23, 2015).
- FDA. 2015. FDA takes several actions involving genetically engineered plants and animals for food. <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm473249.htm>.
- Crop Biotechnology and the Future of Food: A Scientific Assessment. CAST Commentary QTA 2005-2 October 2005.
- Safety of Meat, Milk, and eggs from Animals Fed Crops Derived from Modern Biotechnology. CAST Issue Paper Number 34, July 2006.
- Evaluation of the U.S. regulatory process for crops developed through biotechnology. CAST Issue Paper Number 19, October 2001.
 - Note: CAST is Council for Agricultural Science and Technology. This nonprofit organization has a main objective is to communicate sound science and presents all sides of an issues to help educate the policy makers and the public. More can be learned by visiting <http://www.cast-science.org/>

Sources for Further Information:

- IFIC www.foodinsight.org
- GMO Answers www.gmoanswers.com
- Genetic Literacy Project www.geneticliteracyproject.org
- Colorado State University- GMO labeling: www.ext.colostate.edu/pubs/foodnut/09371.html
- Process Labeling of Food: Consumer behavior, the Agricultural Sector, and Policy Recommendations. CAST Issue Paper Number 56, October 2015.
- The Potential Impacts of Mandatory Labeling for Genetically Engineered Food in the United States. CAST Issue Paper Number 54, April 2014.
- The Role of Biotechnology in a Sustainable Food Supply, Book search using title.

Author

Prepared by Londa Nwadike, Ph.D., Kansas State University/University of Missouri Extension Food Safety Specialist

Reviewers

- Karen Blakeslee, MS, K-State Research and Extension Rapid Response Center Coordinator
- Crystal Futrell, Johnson County Family and Consumer Sciences Agent
- Cary Rivard, PhD, State Extension Vegetable and Fruit Crop Specialist
- Curtis Thompson, PhD, State Extension Leader for Agronomy
- Sandy Procter, PhD, State Extension Nutrition Specialist



University of Missouri Extension

University of Missouri, Lincoln University, U.S. Department of Agriculture and Local Extension Councils Cooperating. MU Extension is an equal opportunity/access/affirmative action/pro-disabled and veteran employer.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Kansas State University, County Extension Councils, Extension Districts, and U.S. Department of Agriculture Cooperating. K-State Research and Extension is an equal opportunity provider and employer.