

# Frequently Asked Questions about Food Irradiation

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## WHY SHOULD I BE INTERESTED IN IRRADIATED FOOD?

Irradiation improves food safety and quality. Even though the U. S. food supply has achieved a high level of safety, hazards exist. The Centers for Disease Control and Prevention has estimated that 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths occur each year due to foodborne illness. All are at risk, but children, people over age 55, diabetics, and those with a compromised immune system are especially vulnerable.

Irradiation provides protection against foodborne illness that is unavailable by any other means. Even when meat, poultry, and eggs are prepared with the most advanced sanitation measures, harmful bacteria may be present. Irradiation provides an additional safeguard for the consumer, destroying 99.9 percent or more of *E. coli* O157:H7, *Salmonella*, *Campylobacter*, *Listeria*, and other harmful bacteria that may be in raw food.

Good quality tropical fruits can be shipped to California and other states because irradiation destroys harmful fruit flies, such as the Mediterranean fruit fly, before they become an infestation problem.

Irradiation increases the shelf life of several fresh foods because it slows the ripening of fruit and prevents potatoes and onions from sprouting. Spices and herbs have been fumigated to increase safety. Irradiation can replace chemical fumigation, producing safe, high-quality spices and herbs.

The United States Food and Drug Administration (FDA) approved the use of irradiation to increase the safety of fresh sprouts because it can destroy harmful bacteria that may be under the sprout seed coat. The FDA may soon approve irradiation of prepared luncheon meats and other ready-to-eat products because the process can increase the safety of such prepackaged, perishable foods.

## WHAT IS FOOD IRRADIATION?

Irradiation exposes food to ionizing energy for a specific length of time, depending on the purpose of the treatment. This treatment complements good manufacturing practices and increases overall food safety.

Food is irradiated in a special processing facility where it is exposed to an electron beam, or X ray, generated from electricity or gamma rays produced from cobalt 60. The food is monitored to assure that the exact treatment level is achieved.

## IS IRRADIATED FOOD SAFE?

Yes. Irradiated foods are safe and wholesome. After reviewing hundreds of studies on the effects of irradiation on food safety and quality, scientists from the U. S. Food and Drug Administration, the U. S. Department of Agriculture, and health organizations, such as the World Health Organization, the American Medical Association, and the American Dietetic Association, have endorsed the safety of irradiated food. To ensure their health, astronauts have eaten irradiated food since the beginning of the space program.

## DOES IRRADIATION CAUSE CHROMOSOME DAMAGE, CANCER, TUMORS, OR OTHER HEALTH PROBLEMS?

No, this is a myth. The FDA has evaluated irradiation for 40 years and has found the process to be safe. Numerous scientific studies conducted around the world clearly confirm that there are no health problems or toxicity concerns associated with irradiation.

## DOES IRRADIATION MAKE FOOD RADIOACTIVE?

No. During the irradiation process, food moves through an energy field, but never touches the energy source and does not become radioactive. The amount of energy and type of radiation used to irradiate food is enough to kill foodborne bacteria, but it does not make the food radioactive, just as luggage does not become radioactive after passing through a security checkpoint at the airport.

Many common items, such as cotton balls, adhesive bandages, baby bottles, and medical supplies are irradiated for safety. None is made radioactive.

### SHOULD I HANDLE IRRADIATED FOODS DIFFERENTLY THAN OTHER FOODS?

No. Handle irradiated food as you would any other food. While irradiation destroys a very high percentage of harmful bacteria, it does not destroy *all* spoilage bacteria. Meat and poultry should still be refrigerated to slow the growth of spoilage bacteria and maintain food quality. Irradiation leaves no chemical residue in the food, so irradiated foods could be accidentally contaminated after treatment; therefore, proper handling and preparation should be followed to assure food safety.

### IF THOROUGH COOKING DESTROYS HARMFUL BACTERIA, WHAT IS THE ADVANTAGE OF IRRADIATED MEAT AND POULTRY?

Irradiation destroys harmful bacteria *before* they come into the kitchen. Eating irradiated foods should reduce foodborne illnesses resulting from accidental cross contamination or cooking at temperatures that are too low. Food irradiation provides an additional level of protection for consumers.

### IS IRRADIATED FOOD STILL NUTRITIOUS?

Irradiated food is nutritious and flavorful. Nutritional changes produced by the irradiation of food are less than or comparable to those produced when food is cooked or frozen. Thiamin is reduced when pork is irradiated, and some vitamin A is reduced when eggs are irradiated. However, the difference is so small that it has no effect on the American diet.

Changes in the nutritional value of fruits and vegetables are insignificant. Some irradiated fruits may even be more nutritious and flavorful because irradiated fruits can stay on the tree longer than those treated by other methods that guard against the accidental transport of tropical insects.

### IS FOOD IRRADIATION APPROVED BY THE GOVERNMENT?

Food irradiation was approved by the Food and Drug Administration after a thorough food safety review. Irradiation is the most researched food technology in U. S. history. Scientists with the FDA have evaluated numerous studies examining the safety and nutritional value of irradiated food. The U. S. Department of Agriculture has evaluated and approved irradiation of meat and poultry. Food irradiation has been approved by more than 40 countries worldwide and is endorsed for safety by the World Health Organization.

### HOW DO I KNOW FOOD HAS BEEN IRRADIATED?



Irradiated food carries this distinctive logo: In addition, the word “Irradiated” is on its packaging. Some may also describe the process as “cold pasteurized” or “electronically pasteurized.”

### ARE WORKER AND COMMUNITY SAFETY PROTECTED IN FOOD IRRADIATION FACILITIES?

Yes. Irradiation facilities are strictly regulated. Facilities using gamma rays must be constructed to withstand earthquakes and other natural disasters without endangering surrounding communities or workers. Electron beam and X ray facilities must follow the same safeguards used by hospitals. Workers are trained in the safe operation of irradiation equipment, and their personal safety is protected by a multifaceted protection system within plants. Companies must follow state and local government requirements as well as those issued by the U. S. Environmental Protection Agency, the U. S. Occupational Safety and Health Administration, and the U. S. Department of Transportation.

### WHO SAYS IRRADIATED FOOD IS SAFE?

U. S. Food and Drug Administration  
U. S. Department of Agriculture  
American Medical Association  
American Dietetic Association  
Centers for Disease Control and Prevention  
World Health Organization  
U. S. Public Health Service  
American Public Health Association  
California Environmental Health Association  
—and many more.

### WHERE CAN I GET ADDITIONAL INFORMATION ABOUT FOOD IRRADIATION?

Visit the websites listed below or call the Center for Consumer Research at the University of California, Davis, for more information (530-752-2774).

<http://www.extension.iastate.edu>

<http://ccr.ucdavis.edu>

<http://www.cdc.gov/ncidod/dbmd/diseaseinfo/foodirradiation.htm>

<http://www.fda.gov/search.html>

(Type *irradiation* in the search box.)

<http://www.health.state.mn.us/>

(Type *food irradiation* in the search box.)

<http://www.ific.org>

#### **FOR MORE INFORMATION**

You'll find information on many aspects of food safety and consumer issues in these titles and in other publications, slide sets, and videos from UC ANR:

*Food Choices for Good Health*, publication 5366

*Escoja alimentos sanos*, publicación 5366s (Spanish version of 5366)

*Pesticides, Food Safety, and Science*, video V90-V

*Biotechnology: A Better Understanding*, video V93-X

To order these products, visit our online catalog at <http://anrcatalog.ucdavis.edu>. You can also place orders by mail, phone, or fax, or request a printed catalog of publications, slide sets, and videos from

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Publication 7255

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