



## Food Irradiation

Food irradiation is a food safety technology that eliminates pathogens, including disease-causing germs, from foods. Like pasteurization of milk, and pressure cooking of canned foods, treating food with ionizing radiation kills bacteria and parasites that would otherwise cause food-borne diseases, a world-wide concern. For example, the food that NASA astronauts eat is sterilized by irradiation to avoid the possibility of food-borne illness in space.

According to the U.S. Department of Health and Human Services' Center for Disease Control and Prevention (CDC), studies clearly show that, when done correctly, food irradiation provides a number of benefits:

- reduces or eliminates disease-causing germs;
- does not make food radioactive
- does not change the nutritional value of the food.

However, food irradiation does not eliminate all food dangers and does create some problems:

- It does not inactivate dangerous toxins which have already been produced by bacteria prior to irradiation (in some cases, such as *C. botulinum*, it is the toxin produced by the bacteria, rather than the bacteria itself, which poses the health hazard);
- It does not prevent the aging of the fruit and vegetables that can lower their nutritional value, taste and flavors (irradiating fruit and vegetables to extend their shelf life can make "old" food look "fresh")
- Irradiation also unavoidably kills off bacteria that produce the smells that warn you when food is going "bad."

Three different irradiation technologies exist, each using a different kind of ray: gamma rays (from cobalt-60 sources), electron beams, and x-rays. All three methods use the same concept to accomplish food irradiation. When ionizing radiation strikes bacteria and other microbes, its high energy breaks chemical bonds in molecules that are vital for cell growth and integrity. As a result, the microbes die, or can no longer multiply causing illness or spoilage.

## Who is protecting you

### U.S. Food and Drug Administration (FDA), Center for Food Safety and Applied Nutrition (CFSAN)

FDA approves food irradiation techniques for a number of foods including herbs and spices, fresh fruits and vegetables, wheat, flour, pork, poultry, and red meat. FDA requires that irradiated foods bear both a logo and a statement that the food has been irradiated.

### U.S. Department of Agriculture (USDA)

USDA supports FDA in promoting appropriate uses of food irradiation. USDA also sets, defines and regulates the use and meaning of "organic" on food labels (irradiated food does not meet the definition of "organic").

## What you can do to protect yourself

The safety of irradiated food has been well researched and documented to kill harmful bacteria and control food spoilage. Food irradiation does not make food radioactive.

## Resources

You can explore this radiation source further through the resources at the following URL:

<http://www.epa.gov/radtown/food-irradiation.html#resources>

We provide these resources on-line rather than here so we can keep the links up-to-date.