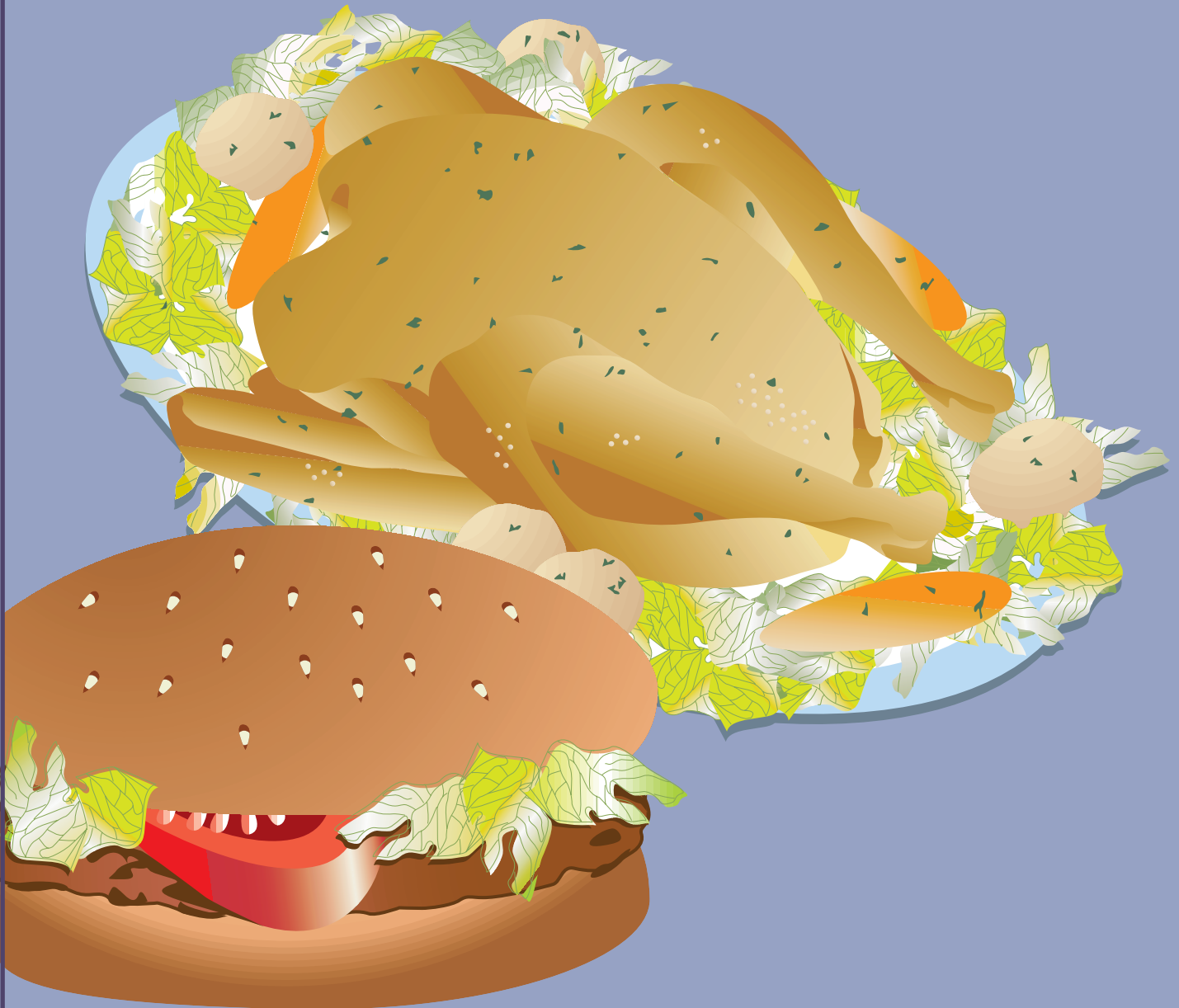




Irradiation of Raw Meat and Poultry

Questions & Answers



As part of its mission of preventing illness from the food we eat, the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) oversees the irradiation of raw meat and poultry. Irradiation can increase the safety of the food supply and help protect consumers from foodborne illness. However, this process is not a substitute for good sanitation and safe food handling from the farm to the table. Here is some information about this process that can make meat and poultry safer.

Q. What is food irradiation?

A. Food irradiation is a process in which products are exposed to radiant energy including gamma rays, electron beams, and x-rays in amounts approved by the Food and Drug Administration (FDA).

Irradiation is only one of many processes that can be used to prevent foodborne illness. It is not a substitute for good manufacturing practices. Establishments that use irradiation must meet the same sanitation and processing standards required by all meat and poultry plants.

Q. Why is food irradiated? What are the benefits?

A. Food is irradiated to make it safer. It can reduce the risk of foodborne illness by destroying harmful bacteria, parasites, insects, and fungi.

Irradiation does not destroy all pathogens (very tiny disease-causing organisms) in amounts approved by the FDA for refrigerated or frozen raw meat and poultry sold to consumers, but it does reduce their number. To sterilize food (destroy all pathogens), a higher amount of radiation must be used.

Hospitals have used irradiation for many years to sterilize food for cancer patients and others with weakened immune systems. Some perishable food taken into space by astronauts

is irradiated because the food must be guaranteed free of disease-causing organisms.

It also reduces spoilage. Like freezing, canning, and drying, irradiation can also extend the shelf life of perishable food products. For example, irradiated strawberries stay unspoiled in the refrigerator up to 3 weeks versus only 3 to 5 days for untreated berries.

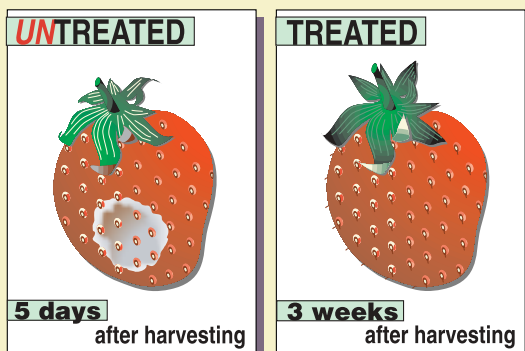
Q. Is irradiated food safe to eat?

A. Yes. Irradiated food is safe to eat. The FDA has evaluated the safety of irradiation over the last 50 years and found it to be safe. Food irradiation has been approved in 37 countries for more than 40 food products. The process has been endorsed by the United Nation's World Health Organization, Codex Alimentarius Commission, American Medical Association, and many others.

Q. How is food irradiated?

A. At a food irradiation plant that uses gamma radiation, food is irradiated in an area that is surrounded by concrete walls at least 6-feet thick which keep any rays from escaping. The radiation source, usually Cobalt 60, is held in a resting position in a pool of water. A conveyor system transports the meat or poultry product to the area. The radiation source is then raised out of the water, and the food is exposed for a defined period of time. When the source is raised, lights and alarms are sounded to make people aware that the product is being irradiated. Once the food is irradiated, the source automatically returns to the resting position, and the food leaves the area for further processing.

If a machine source (for example, electron accelerator) is used, electricity to the machine is switched on, and a beam of electrons passes across the meat or poultry.



Q. Which meat and poultry products may be irradiated?

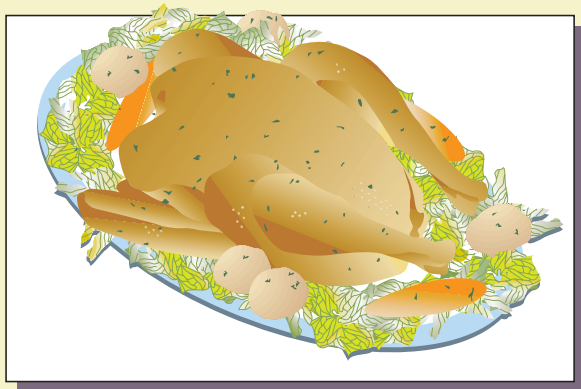
A. Only refrigerated or frozen raw meat and poultry products, meat byproducts, and certain other meat food products may be irradiated. Examples of meat and poultry that may be irradiated are whole or cut-up birds, skinless poultry, pork chops, roasts, stew meat, liver, hamburgers, and ground meat. Cooked meats and poultry products such as luncheon meats and hot dogs may not be irradiated.



Q. Are irradiated meat and poultry products inspected?

A. Yes. FSIS inspects all meat and poultry products, including those that are irradiated. Only USDA/FSIS federally inspected establishments and State-inspected facilities that meet the same requirements specified in the Federal regulations are able to irradiate meat.

Meat and poultry establishments that use irradiation must meet sanitation and Hazard Analysis and Critical Control Point (HACCP)



regulations. Additionally, FSIS conducts microbial testing to be sure plants are producing wholesome products and to verify any pathogen reduction claimed by the plant.

The irradiation facilities must obtain a grant of inspection, just like other meat and poultry plants, in order to irradiate meat. Additionally, the Nuclear Regulatory Commission (NRC) and the Occupational

Safety and Health Administration (OSHA) have regulations that all producers must meet who are using radioactive sources, including machine sources and gamma sources, to irradiate meat and poultry. In areas where the NRC and OSHA do not have offices, local governments have regulations for producers using machine sources or gamma sources.

Q. Are irradiated meat and poultry labeled?

A. Yes. FSIS requires that irradiated meat and poultry be properly labeled. And it's easy to see which packages have been irradiated. The "radura" logo (see symbol below) must be on the label of packages of product where the entire content was irradiated, as well as the phrase "treated by irradiation (or with radiation)."

If irradiated meat is used in a meat product such as pork sausage, the ingredient statement must list "irradiated pork" as an ingredient. FSIS makes sure that irradiated meat and poultry are sold with proper labeling.

If a producer uses the word "irradiated" in the product name, it is not necessary for the producer to place the phrase "treated by irradiation (or with radiation)" on the label. The "radura" logo must, however, be on the label.

Also, according to the USDA's Agricultural Marketing Service, foods labeled "organic" may not be irradiated.

RADURA SYMBOL

USDA/FSIS requires that all irradiated meat and poultry be labeled.



The international symbol for irradiation is called a radura. This symbol is accompanied by words such as "Treated by Irradiation" or "Treated with Radiation."

Q. Do you still need to cook irradiated meat?

A. Yes. Irradiation does not cook the meat or make it safe to eat raw. Eating raw meat (like “steak tartare”) or poultry is not safe.



Irradiation reduces the harmful bacteria; however, it does not make the meat or poultry product sterile (except for limited situations for the space flight program and for specific uses in health care institutions). The process does not replace proper cooking or food handling practices by producers, retailers, and consumers.

Since irradiated meat is still raw and requires cooking, it is not safe to leave it out of the refrigerator more than 2 hours because any harmful bacteria that survives irradiation could multiply. Also, bacteria from any raw, including irradiated, meat can recontaminate ready-to-eat food such as raw salad ingredients and cooked foods.

Q. Are irradiated foods still nutritious?

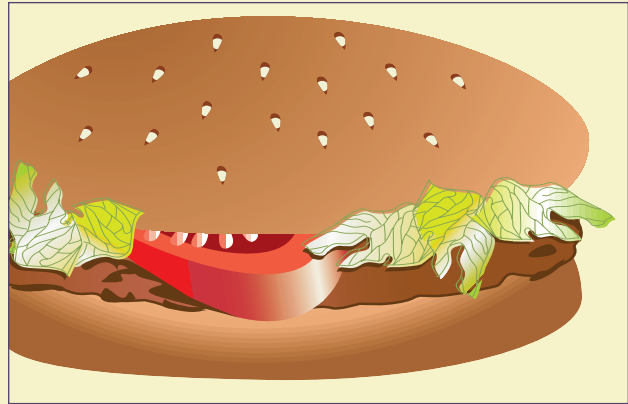
A. Yes. Irradiated foods are wholesome and nutritious because irradiation does not significantly change the nutrient content of food. It changes the nutrient value of food about the same as cooking or freezing does. Irradiation produces virtually no heat within food and changes flavor and texture very little.

Q. Will irradiated meat and poultry cost more?

A. Yes. The estimate is two to five cents more per pound. However, consumers may decide that the benefits from irradiation outweigh the extra cost.

Q. Are irradiation plants safe?

A. Yes. The irradiation plants themselves do not become radioactive. Medical sterilization facilities have operated in the U.S. for more than 30 years. There are now over 100 of these facilities and at least as many



medical radiation treatment centers and bone marrow transplant centers which use radiation for certain treatments.

Facilities using Cobalt 60 as a source need to replace it about every 5 years. When the solid metal cobalt “pencils” (radioactive sources) need replacement, they are shipped in special hardened steel canisters that are designed and tested to survive crashes without breaking. Because cobalt is a solid metal, even if something should break, it will not spread through the environment.

Q. What are other uses of irradiation in the U.S.?

A. U.S. food regulations also allow the irradiation of wheat and wheat powder; white potatoes; 38 spices and dry vegetable seasonings, and fresh fruits. Irradiation is used for the following non-food functions regulated by FDA: medical treatments; sterilizing medical products, such as surgical gloves, bandages, and gauze; destroying bacteria in cosmetics; making nonstick cookware coatings; and making tires more durable.

Material adapted from May 2000 Food Safety and Inspection Service consumer publication.

For more information, call:
USDA Meat and Poultry Hotline
1 (800) 535-4555
TTY: 1 (800) 256-7072

Web site: www.fsis.usda.gov

Other government sources of information:
Centers for Disease Control and Prevention
www.cdc.gov

U.S. Food and Drug Administration
www.fda.gov