

NUCLEAR *facts*

Why food irradiation?

BACTERIAL INFECTION OR INFESTATIONS CAN CAUSE FOOD

TO SPOIL, MAKE US SICK, AND EVEN CAUSE DEATH.

Because of this, scientists from the food industry and government are continually searching for effective methods to reduce spoilage and make food safer, while keeping it wholesome for us to eat.

Food irradiation is a cold, non-chemical process that can virtually eliminate harmful bacteria such as *E. coli* O157:H7, from ground beef, *Salmonella* and *Campylobacter* from poultry, and *Listeria monocytogenes* from hot dogs and luncheon meats. Food irradiation techniques now make it possible to treat such

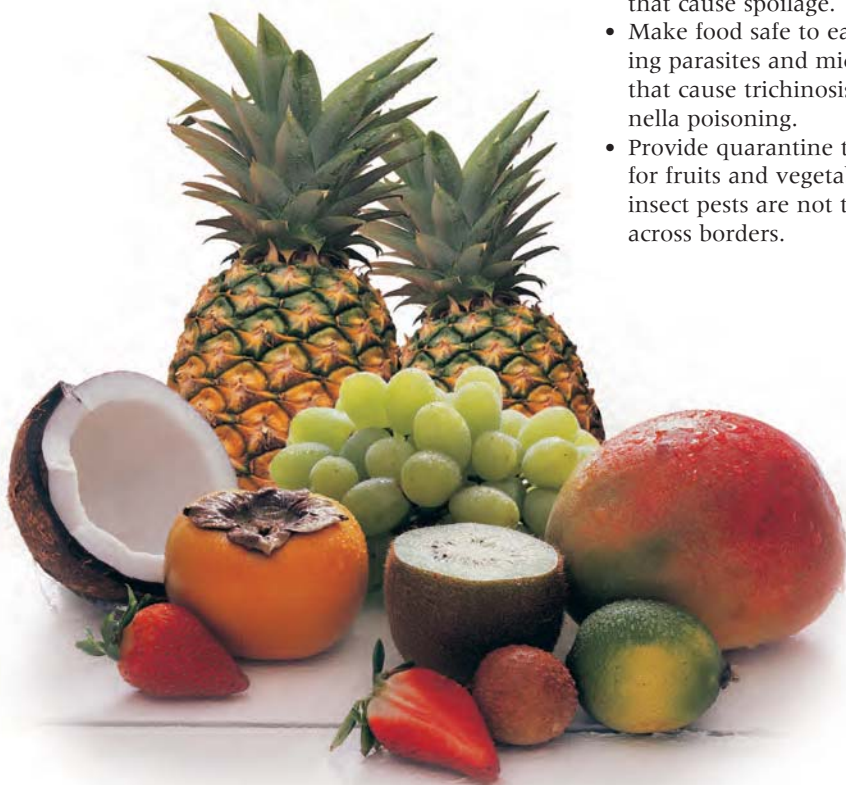
packaged or bulk foods with no significant change in taste or nutritional value.

Canada has conducted scientific research in the field of food irradiation since the 1950s, and the Canadian firm MDS Nordion has built many of the food irradiation installations around the world.

What can food irradiation do?

Food irradiation can:

- Extend shelf life of food by destroying the micro-organisms that cause spoilage.
- Make food safe to eat by destroying parasites and micro-organisms that cause trichinosis and salmonella poisoning.
- Provide quarantine treatments for fruits and vegetables to ensure insect pests are not transported across borders.



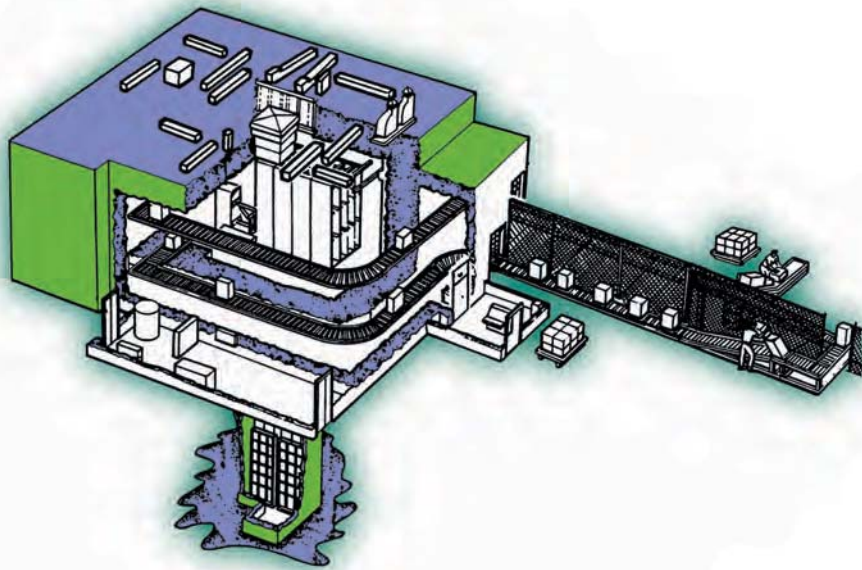
- Prolong the shelf life of foods by slowing the ripening process and inhibiting the sprouting of root vegetables like potatoes and onions.

Many studies have been conducted since the late 1940s to evaluate the nutritional value of irradiated foods and to determine the safety of the process. The treatment process can be designed and controlled so that the above benefits can be realized safely without any significant reduction in the nutritional value of the food.

How is food irradiated?

Food is irradiated similar to the way luggage is X-rayed at airports. The food is passed through a thick-walled chamber containing a source of ionizing radiation that passes through the food, destroying insects, bacteria and micro-organisms. Many irradiators use cobalt-60 as the source of radiation. Cobalt-60, a man-made radioisotope, is a radioactive isotope produced in CANDU reactors in Ontario and Quebec. It has a wide range of medical, consumer and industrial uses.

There are more than 200 gamma irradiators worldwide.



Is irradiated food radioactive?

No. Just as a dental X-ray does not make you radioactive, neither is irradiated food radioactive. The World Health Organization, the United Nations Food and Agricultural Organization, and the International Atomic Energy Agency have reviewed accumulated data from about 50 years of research. They found that irradiated food is as safe as food preserved with other techniques like freezing or canning.

The nutritional value of irradiated food was also found to be as good as food treated by these other processes.

Food irradiation has been studied and tested more extensively than any other food preparation or preservation process. Decades of testing using the most recent methods in toxicology have proven that foods treated with appropriate levels of ionizing energy do not have adverse effects on the consumer.

Where is food irradiation used now?

Today, food is irradiated in many countries around the world. It is approved for use in more than 55 countries worldwide and has been used over the past five decades. In France and the Netherlands, large quantities of seafood, vegetables, fish, and frog legs are irradiated. Other countries actively involved in food irradiation include Brazil, Mexico, Japan, Belgium and Israel. In the United States, irradiated hamburger patties are sold in every state. Papayas are irradiated in Hawaii and imported to the mainland.

In August 2008, the U.S. Food and Drug Administration approved the use of irradiation to control food-borne pathogens in iceberg lettuce and spinach, in addition to existing U.S. approvals for a variety of products, including herbs and spices, grains, poultry, ground beef, and seafood. Other countries continue to irradiate significant volumes of food for sanitary purposes, including spices, seafood, vegetables, grains, potatoes, sterilized meals and meats.

Food irradiation is a process that can make food safer by eliminating insects, bacteria and other microorganisms. It offers advantages over other conventional processing and additive techniques. Like pasteurization, irradiation can help ensure that our food remains wholesome and safe to eat. Properly labelled, irradiated food permits a better choice for the discriminating Canadian consumer.

See also the Web site of the *International Atomic Energy Agency* www.iaea.org

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