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## Food Irradiation: *Historical Milestones*

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### **Food irradiation**

can be used to destroy insects in cereal grains or spices, inhibit sprouting of potatoes, and pasteurize meat so that it is free of harmful bacteria.

**Radiation** approved for use on food is produced by decay of radioactive cobalt or machines.

**Food irradiation** is regulated as a food additive in the U.S.

Treating food with radiation so it keeps longer or is safer to eat has a long history of research supporting it.

- 1895 W. K. Von Roentgen discovers X-rays.
- 1896 H. Becquerel discovers radioactivity.
- 1896 F. Minsch suggests using ionizing radiation to kill microorganisms in food.
- 1903 M. Curie described 3 different types of radiation – alpha, beta and gamma.
- 1904 S. C. Prescott publishes effects of ionizing radiation on bacteria.
- 1905 U.S. and British patents are issued for the proposed use of killing bacteria in food with ionizing radiation.
- 1921 B. Schwartz, a researcher at USDA, publishes studies about the lethal effect of X-rays on *Trichinella spiralis* in pork.
- 1940s-1950s U.S. government, private industries and universities conduct research on food irradiation.
- 1943 Preservation of ground beef by exposure to X-rays demonstrated to be feasible.
- 1950 U.S. Atomic Energy Commission begins program using radioisotopes for food preservation. England and Europe begin food irradiation programs.
- 1953 U.S. Army begins food irradiation program.
- 1958 U.S. Federal Food, Drug and Cosmetic Act is amended, legally defining ionizing radiation as a food additive rather than a process. USSR approves irradiation for potatoes and grain.
- 1960 Canada approves irradiation for potatoes.
- 1963 FDA approves irradiation for insect disinfestation of wheat and wheat powder.
- 1964 FDA approves irradiation to inhibit sprouting in potatoes.

**The U.S. FDA**  
(Food and Drug Administration) began approving the irradiation of specific food products over 40 years ago.

**Foods irradiated**  
at approved energy levels do not become radioactive.

**Ground beef**  
pasteurized with irradiation is now available in some markets.

- 1965 FDA approves irradiation to extend the shelf life of potatoes.
- 1968 FDA and USDA rescind approval for irradiation of bacon granted in 1963.
- 1976 Joint FAO/IAEA/WHO Expert Committee on the Wholesomeness and Safety of Food Irradiation approves several irradiated foods and recommends that food irradiation be classified as a physical process.
- 1980 Joint FAO/IAEA/WHO Expert Committee concludes that any food irradiated up to a maximum overall average dose of 10 kGy presents no toxicological hazard and requires no further testing.
- 1983 FDA and Canada approve irradiation for insect disinfestation in spices and dry vegetable seasoning (38 commodities).
- 1985 FDA approves irradiation to control *Trichinella spiralis* in pork and to disinfest dry enzyme preparations.
- 1986 FDA approves irradiation to delay ripening (maturation) of some fruits and vegetables, and to decontaminate dry or dehydrated enzyme preparations.
- 1990 FDA approves irradiation to control pathogens such as *Salmonella* in fresh and frozen poultry.
- 1997(FDA) and 1999 (USDA)  
Approval of irradiation to control pathogens in fresh and frozen red meats (beef, lamb and pork).

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