Food Irradiation: 

Historical Milestones

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.
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.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1965</td>
<td>FDA approves irradiation to extend the shelf life of potatoes.</td>
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<td>1968</td>
<td>FDA and USDA rescind approval for irradiation of bacon granted in 1963.</td>
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<td>1976</td>
<td>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.</td>
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<td>1980</td>
<td>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.</td>
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<td>1983</td>
<td>FDA and Canada approve irradiation for insect disinfestation in spices and dry vegetable seasoning (38 commodities).</td>
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<td>1985</td>
<td>FDA approves irradiation to control <em>Trichinella spiralis</em> in pork and to disinfest dry enzyme preparations.</td>
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<td>1986</td>
<td>FDA approves irradiation to delay ripening (maturation) of some fruits and vegetables, and to decontaminate dry or dehydrated enzyme preparations.</td>
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<td>1990</td>
<td>FDA approves irradiation to control pathogens such as <em>Salmonella</em> in fresh and frozen poultry.</td>
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<td>1997(FDA) and 1999 (USDA)</td>
<td>Approval of irradiation to control pathogens in fresh and frozen red meats (beef, lamb and pork).</td>
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### Foods irradiated

At approved energy levels do not become radioactive.

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

### References:


