

From Harvest to Home

How Radiation Improves Food Safety and Production
(and Helps the Environment!)



Radiation technology is used in a wide variety of ways to improve our quality of life, including the food we eat. In fact, radiation processes not only improve food production and ensure ready access to more healthful food that stays fresher longer, they also care for the environment!

Protecting the Environment

- **Saving Water** – Neutron moisture gauges improve irrigation methods and reduce water consumption in food production. Reducing the need for irrigation causes the soil to be less salinized (salty) and more suitable for growing crops while preserving water for other uses.
- **Increasing Crop Production** – Radioisotope tracers are attached to fertilizers so we can track how plants absorb them and determine if there are any nutritional deficiencies. This reduces the amount of fertilizer required to yield large crops, increasing productivity per acre.
- **Reducing Environmental Stress** – The more efficient the food production process, the less stress is placed on the environment.

Keeping Food Safe

Irradiation technology is used in more than 40 countries, including the United States, to preserve food, protect against contamination, and eradicate insects without using potentially harmful chemical pesticides.

Food irradiation extends shelf life by destroying disease organisms such as E.coli, Listeria, and Salmonella. It has been approved for use on more than 60 kinds of food such as spices, grain products, fruit, vegetables, and meat.

Irradiated food does not
become radioactive.



It is safe and healthy!

Maximizing Crops

By selectively breeding irradiated plants and seeds we can create new species over time that grow larger yields, increase disease resistance, and enhance nutritional value. Radiation has been a factor in creating 89 percent of the new crop varieties developed in the last 70 yearsⁱ. This should not be confused with Genetically Modified Organisms (GMO), which is a different processⁱⁱ.

Controlling Pests

Radiation is also beneficial in eliminating unwanted pests that can lead to the destruction of crops and devastating livestock diseases. Crop losses can be between 25-30 percent in developing countriesⁱⁱⁱ. Pesticides can destroy beneficial insects such as bees and leave a toxic residue. Instead, through a method known as Sterile Insect Technique (SIT), male insect pests are sterilized through irradiation to effectively control large populations of unwanted insects.

Enhancing Livestock Productivity and Health

Radiation processes are used to provide valuable information to maximize production and minimize problems with animals that provide food, wool, leather, and other resources. For example, radioisotope tracers are used to follow the path of the food in animals' digestive systems and helps determine the nutritional value of the feed.

Radiation is also used to pinpoint and prevent the spread of diseases by diagnosing harmful pathogens early. This saves herds from unnecessary destruction and prevents the spread of disease to humans.^{iv}

Some of the ways food irradiation is used in the U.S.

- Food for astronauts on space missions
- Meals for open-heart hospital patients
- In school cafeterias
- Meals on international flights

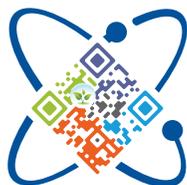
Improving Our Lives

With over 7 billion people in the world, the unprecedented demand for food supplies will continue to grow. Radiation has had a dramatic impact on the world's ability to provide access to healthy food for everyone. The contributions of radiation in crop production, animal improvement, pest control, and food irradiation for safety and freshness will continue to expand and improve the quality and quantity of food available for people on our planet.



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To learn more go to www.NuclearConnect.org.

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