

Irradiated food

Irradiation of food is a practice which eliminates bacteria that may lead to food poisoning. This page details the irradiation process and how it is not harmful to consumers.

Irradiation is a technique used in food production. It can be used to kill bacteria that cause food poisoning, such as salmonella, campylobacter and E. Coli. It also helps to preserve food and reduce food waste. Irradiation can be used to control invasive species by removing insects from imported shipments of food.

During irradiation, food is exposed to electron beams, X-rays or gamma rays. The effect is similar to other preservation methods, such as pasteurisation or cooking. The appearance and texture of the food changes less during irradiation than other preservation methods.

Irradiated food has been exposed to radiation but does not become radioactive itself.

Safety of irradiated food

Irradiation has been used to keep food safe in many countries around the world since the late 1950s. Decades of research have shown that irradiation of food is a safe and effective way to:

- kill bacteria in foods
- extend the shelf life of food
- remove insects from shipments of food.

How irradiation changes food

Irradiation changes food in similar ways as other preservation techniques, such as cooking, canning and pasteurisation. Some vitamins may be reduced but this happens whenever foods are preserved or stored long-term. There is no evidence that any of the changes caused by food irradiation are a risk to the health of consumers.

The law covering food irradiation states that irradiation can only be used where it is of benefit to the consumer. A company that wants to irradiate a food product has to be able to show that the benefits of irradiation outweigh any negative aspects.

An example of the benefits of irradiation is reducing the risk of foodborne illness.

This will vary between different foods and will mean that the use of food irradiation is more suitable to some foods than others.

Categories of foods that could be irradiated and sold

There are seven categories of food that may be irradiated in the UK.

These are:

- fruit
- vegetables
- cereals
- bulbs and tubers
- dried aromatic herbs, spices and vegetable seasonings
- fish and shellfish
- poultry

These categories of food can also be irradiated and used as ingredients in other food products.

Knowing that a food has been irradiated

Foods that have been irradiated must have one of the following on the food labels:

- irradiated
- treated with ionising radiation

Where an irradiated food is used as an ingredient in another food, these words must appear next to the ingredient in the list of ingredients.

If irradiated food is not pre-packed these words must appear on a display or notice above or beside the container in which the food is placed.

How irradiation works

FSA Explains

When food is irradiated, it absorbs energy. This absorbed energy kills the bacteria that can cause food poisoning in a similar way that heat energy kills bacteria when food is cooked. They can also delay fruit ripening and help stop vegetables from sprouting.

Once the irradiation treatment has stopped, the food quickly loses this absorbed energy in the same way that cooked food quickly cools down.