

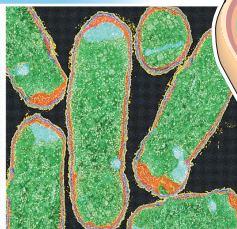
Zapping deadly food bacteria

Beef that is irradiated to kill deadly bacteria is set to appear in some U.S. stores in a marketing experiment to test the public's reaction to the treated meat. New rules allow the irradiation of raw beef, pork and lamb with either gamma radiation, X-rays, or high-energy electron beams

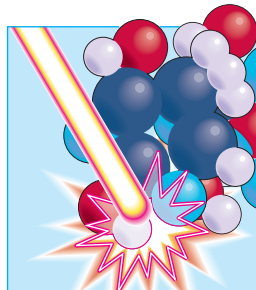
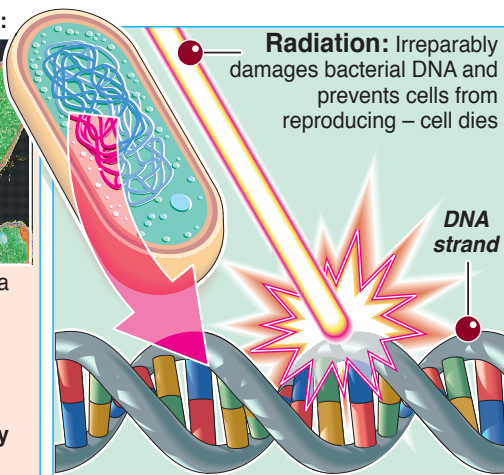
Pathogens causing food poisoning include:



Salmonella: Multiplies rapidly in intestines causing widespread inflammation. Symptoms include nausea, fever, diarrhoea, abdominal pain and cramps



E. coli 0157: Bacteria attaches to intestinal lining, emits poison causing bloody diarrhoea and flu-like symptoms. **Severe cases lead to kidney failure and death**



How it's done: Batch-loaded gamma irradiator

1: Racks of food are moved into irradiation chamber on overhead rail system

2: Workers leave and irradiation chamber is sealed

3: Cobalt-60 source is raised out of storage pool. High-energy gamma rays penetrate food.

Racks are automatically moved around source on track so that they are evenly irradiated on all sides

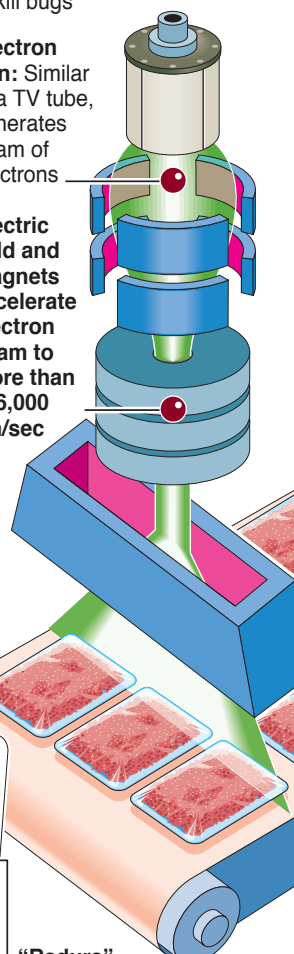
Thick concrete walls contain gamma radiation

E-Beam system:

Compact irradiation unit which uses electron beam or x-rays to kill bugs

Electron gun: Similar to a TV tube, generates beam of electrons

Electric field and magnets accelerate electron beam to more than 296,000 km/sec



Time and dose levels are strictly controlled. Workers are annually exposed to less than a third of that resulting from a chest X-ray

Storage pool: Radioactive cobalt-60 is stored in water-filled pit. Water absorbs radiation given off as the element decays

Sources: Sources: Food and Agriculture Organization of the United Nations, Iowa State University, WHO

© GRAPHIC NEWS



"Radura" International label which indicates food has been irradiated