



# The History of Food Irradiation: The Story Behind the Hype

On Dec. 8, 1953, President Dwight Eisenhower stood before the United Nations' General Assembly and gave one of the most important speeches of the Cold War. His "Atoms for Peace" address was intended to usher in a new era marked by constructive, not destructive, uses for atomic energy:

"The United States pledges before you to devote its entire heart and mind to finding the way by which the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life."

The speech gave rise to a myriad of ideas for harnessing atomic energy, including nuclear power plants, airplanes, wristwatches, long-johns – even coffee pots that could boil water for 100 years without a refueling.

While most of these ideas are in the dustbin of history, the idea of using radioactive materials to "treat" food lives on.

The fact that food irradiation has nuclear roots is something the industry would rather not admit. As such, irradiation promoters prefer to use such misleading euphemisms as "cold pasteurization" or "electronic pasteurization." Instead of using heat, as is the case with pasteurization, irradiation zaps food with the equivalent to up to 1 billion chest X-rays.

## In the Beginning

Early research by the U.S. Army – using conscientious objectors – resulted in the Food and Drug Administration's approval of irradiation for bacon and other foods in the early 1960s. The bacon approval was withdrawn in 1968, however, when the FDA learned that test animals fed irradiated foods suffered serious health problems, including premature death, low weight gain, and a decline in surviving offspring. Other research was simply flawed. In 1980 the Army abandoned its efforts to demonstrate the safety of irradiated foods.

All the while, the International Atomic Energy Agency (IAEA), a United Nations agency that promotes nuclear technologies, was busy promoting the global acceptance of food irradiation.

In 1959 the World Health Organization (WHO) gave the IAEA the authority to oversee research on nuclear technologies. As a result, the IAEA has played a significant role in dismissing evidence suggesting that irradiated foods are unfit for human consumption, persuading countries to legalize irradiation, and orchestrating public relations campaigns based on biased information.

## Going Nuclear

Meanwhile, in the 1970s, interest in food irradiation was smoldering in the federal bureaucracy.

U.S. policy at the time permitted the reprocessing of fuel rods from nuclear power plants, which separates out radioactive isotopes including

cesium-137, which can be used to irradiate food. The Atomic Energy Commission launched the program but then-President Jimmy Carter stopped the plan by banning this reprocessing.

However, the operation moved to the Department of Energy. Thus was born the DOE's "Byproducts Utilization Program," which was designed to dispense of highly radioactive - "hot" - waste produced by nuclear bomb production by using it for food irradiation, and selling some of the waste to private companies.

At a 1983 congressional hearing, DOE officials admitted: "The utilization of these radioactive materials simply reduces our waste handling problem."

The DOE's scheme came to an end in 1988, when a serious accident occurred at a facility near Atlanta where cesium-137 was being used. Radioactive material leaked into a water storage pool, and contaminated water that splashed onto food and medical packages being irradiated for mass distribution. Some of the workers carried radioactivity into their homes and cars. The mess cost more than \$40 million to clean up, and taxpayers picked up the tab.

The cast of characters promoting food irradiation at the time included Martin Welt, president of Radiation Technology, which had irradiation plants in New Jersey and several other states. During the 1970s and 1980s, Radiation Technology was cited more than 30 times for various violations at its facility in Rockaway, NJ, including throwing out radioactive garbage with the regular trash and bypassing safety devices that protected workers.

Welt, a much-quoted advocate of irradiation, was convicted on six federal charges, including conspiracy to defraud the government and lying to federal investigators.

## Back on Track

In 1980, the WHO stated that any food could be irradiated with doses equivalent to 330 million chest X-rays and still be safe for human consumption. Three years later, the FDA issued its first irradiation approval in two decades, legalizing irradiation for spices. Over the next 17 years, the FDA went on to legalize irradiation for beef, pork, poultry, fruit, vegetables, eggs, and fruit and vegetable juices.

These approvals, however, were severely flawed.

The FDA relied on dozens of studies that the agency's own scientists had dismissed as deficient. Further, the FDA did not follow its own testing protocols in issuing these approvals.

Flaws were also pervasive in the WHO's 1997 endorsement of irradiation for any food at any dose. In doing so, the WHO - like the FDA - systematically dismissed evidence suggesting that irradiated foods may not be safe for human consumption.

Shockingly, the WHO also took research that found health problems in animals that ate irradiated foods, and stated that such research did not reveal health problems. Further, the WHO has discounted the recent discovery that chemical byproducts formed in irradiated foods called 2-alkylcyclobutanones (2-ACBs) promoted cancer development and caused genetic damage in rats, and caused genetic damage in human cells.

## The Present

Food irradiation today remains as closely connected to the nuclear weapons and atomic energy as it did in 1953. The list of advocates for food irradiation has grown to include companies such as Titan, a defense contractor that is using linear accelerators designed for the Star Wars missile defense program to irradiate food.

Despite earlier setbacks, irradiation is being touted more than ever as a way to rid food of harmful bacteria originating from feces, urine and pus. The technology got a shot in the arm in 1993, when four people died and hundreds of people fell ill after eating hamburgers contaminated with *E. coli* bacteria purchased from Jack-in-the-Box restaurants in Washington state.

By 2003, irradiated ground beef was reportedly available in more than 5,000 grocery stores and restaurants in the U.S., and the ban on serving irradiated meat to schoolchildren was lifted.

Given the lingering questions over the safety of food irradiation, however, more research must be conducted before foods "treated" with irradiation spread further throughout the U.S. and the world.



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