Food Irradiation: Australia and Beyond

From Narangba to the Cold War and Back

Released in conjunction with the National Food Irradiation Awareness Tour and International Anti-Food Irradiation Week

Public Citizen

Energy and Environment Program

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Public Citizen, founded by Ralph Nader, is a non-profit research, lobbying and litigation organization based in Washington, DC. Public Citizen advocates for consumer protection and for government and corporate accountability, and is supported by more than 150,000 members throughout the United States.

Executive Summary

The battle of Narangba, where a cobalt-60 food irradiator recently opened, has introduced a new element to Australia and New Zealand's vigilant struggle against things nuclear.

Food irradiation is an emerging international issue that, try as one might, cannot be distilled into sound-bites. To understand it means to have a grasp of related issues that do more than just put food irradiation into perspective, they explain its very existence.

Food irradiation is a process by which food is "treated" with high-energy ionizing radiation in the form of gamma rays from radioactive cobalt-60, X-rays, or electron beams. Irradiation was largely inspired by U.S. President Dwight Eisenhower's "Atoms for Peace" speech to the United Nations in 1953, in which he proclaimed that "the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life."

As is often the case with scientific advancement, irradiation was a solution looking for a problem. With their short wavelengths and high frequencies, gamma and X-rays have the triple-threat ability to eliminate bacteria, extend shelf life, and kill invasive pests – by disabling everything in their path.

Excitement from nuclear physicists – not so much from food scientists – built seemingly forever to the point that irradiation is now legal in about 60 countries, including Australia and New Zealand. The United States, a leader of the irradiation movement since the beginning, now allows irradiated ground beef to be fed to schoolchildren.

Yes, irradiation works, to the extent that at high enough doses it can kill most food-borne bacteria, though enough survive to warrant concern. It can extend shelf life of meat and produce, though your pork might look a little red and your strawberries may be mushy, and they'll both be vitamin depleted. And it can kill or sterilize fruit flies, weevils and other invasive pests, though some critters might slip through still fertile.

Under a closer look, the downsides of food irradiation quickly appear.

A lot can happen to food that, in the case of frozen beef, has been dosed with ionizing radiation equal to 233 million chest X-rays – all at once.

Given the counterintuitiveness of placing food and radioactivity near each other, it should come as no surprise that mice, rats, monkeys and other lab animals fed irradiated foods have experienced a variety of unpleasant health problems, including premature death, mutations, fetal death and other reproductive problems, immune system disorders, fatal internal bleeding, organ damage, tumors, stunted growth and nutritional deficiencies.

In contrast to false claims by governments and the industry, irradiation significantly alters the composition of food. Radiation cannot kill bacteria while dancing around food molecules and leaving them unaltered. Chemicals have been found in irradiated foods that do not occur naturally in any foods. Called 2-alkylcyclobutanones, or 2-ACBs, these compounds have been linked to cancer development in rats and genetic damage in human cells.

Many other harmful chemicals are formed by irradiation, including several known or suspected to cause cancer and birth defects, such as benzene and methyl ethyl ketone.

Irradiation also destroys vitamins – up to 80 percent of vitamin A in eggs and 48 percent of beta carotene in orange juice. Protein, essential fatty acids and other nutrients are disrupted.

Further, irradiation masks the filthy conditions in slaughterhouses and food processing plants that cause meat to be contaminated with food-borne pathogens. Irradiation does nothing to remove the feces, urine, pus and vomit that often contaminate beef, pork, chicken and other meat. People do not want to eat feces, whether it's been irradiated or not.

Moreover, several deaths and numerous injuries have occurred at irradiation facilities throughout the world. Dozens of mishaps and acts of misconduct have been reported, some of which have led to criminal convictions of company executives.

In the face of life-threatening risks, U.S. government and corporate scientists have not given up on irradiating food with cesium-137, an extremely high-level radioactive waste generated by the manufacturing of nuclear bombs during the Cold War.

Irradiation also has the potential to cause profound economic and social effects.

Because it can increase the shelf life of food and utilize centralized facilities, irradiation will likely further stimulate the globalization and consolidation of food production, distribution and retailing. Due to these existing trends, multitudes of family farmers and ranchers have been forced out of business, product diversity has been reduced, and rural economies have been disrupted.

Australia and New Zealand recently joined the community of nations that, officially speaking, see a big future in irradiated foods. A 10-year moratorium was lifted in 1999. Since then, the government has legalised irradiation for tropical fruit, herbs and spices, and has approved an irradiation facility near Brisbane that uses radioactive cobalt-60. Protesters maintained a ten-month vigil at the facility, which opened in July 2003.

The government and the industry speak of irradiation as a way to expand overseas markets for tropical fruit that serve as hosts for fruit flies, weevils and other invasive pests. Irradiation, they say, will take care of this problem with one quick zap.

But Australia might have a much bigger problem on its hands.

Over the past decade, the federal government has transferred much of the responsibility to ensure the safety of the meat supply from government inspectors to "quality assurance officers" hired by private corporations. Predictably, many of the results have been discouraging if not disgusting.

Feces contaminates up to three-fourths of carcasses at some slaughterhouses. Head meat covered with feces now regularly goes into meat pies, as does old "black" meat. Pools of bloody, red fecal soup lie on the floor. Bile, urine and pus fly all over the place, and onto workers, many of whom don't change clothes one day to the next.

Fat, rotting meat, blood and grease accumulate on infrequently cleaned equipment. Facilities are covered in greenish-black mold, swarming with flies and infested with rats – in the case of rats, because the government stopped providing baited traps.

Standards have dropped so low that some facilities that slaughter horses and donkeys for pet food are cleaner than meatworks producing food for people. As a result, several large-scale food poisoning outbreaks have occurred.

Irradiation can kill *E. coli*, *Salmonella*, *Listeria* and other food-borne bacteria common in meats. As of today, however, the irradiation of meat is not legal in Australia or New Zealand. There has been virtually no public talk about irradiating meat. But unless the makers of contaminated meat have an epiphany and start placing quality before quantity, the industry may turn to irradiation – a band-aid at best – to solve their bacteria problem. This could lead to the worst of both worlds: a meat industry unwilling to clean up its operations, and a populace increasingly exposed to dirty meat.

In the Trenches

For 10 months, hundreds of people stood in protest at a nuclear-fueled food irradiation facility being constructed in Narangba, north of Brisbane. The community erected a permanent camp. They blockaded the facility, stopping work for days at a time.

Some went on hunger strikes. Some were arrested. Some were abused by police. Some were assaulted by construction workers. A bomb was thrown at them, albeit a dud. The protesting community, who have attracted an international spotlight, were finally evicted by the police in March 2003 in rather alarming fashion.

At the same time, the Australian and New Zealand governments have legalised irradiation for tropical fruits, spices, herbs and other foods. In doing so, a 10-year moratorium on irradiated foods in the countries was swept away. One of the companies wanting to irradiate food, Horticulture Access Solutions, is tied to an American company that has connections with the U.S. military industry.

All of this is happening amidst growing global interest by corporations to irradiate food and ship it around the world, and escalating opposition among consumer, food safety and environmental advocates who harbor many serious reservations about the technology.

This dynamic took shape recently in the U.S., when the celebrated appearance of irradiated ground beef was met by a stiff consumer backlash that led to a market failure.

Though irradiation dates to the 1920s, is legal in about 60 countries, and has been endorsed by dozens of medical and scientific organizations throughout the world, it has yet to penetrate the shield of consumers who are becoming more savvy about what they eat and how food is produced.

These concerns ignited in Australia and New Zealand on 3 August 1999, when the countries lifted a moratorium on irradiated foods instituted in 1989. Australia reportedly feared the ban violated free trade rules and would expose the country to legal action. Ironically, the very company that recently opened the Narangba facility played a big part in the ban being put in place.

For more than 30 years, Steritech Pty Ltd of Melbourne has been irradiating medical supplies, cosmetics, wine corks, beehives and animal feed at its facilities in Dandenong, near Melbourne, and Wetherill Park, near Sydney. During the mid-1980s, Steritech wanted to build two new facilities, one in Rocklea near Brisbane, and the other in Auckland.

The Rocklea plant was halted due to mass opposition, which led the Australian government to ban irradiated foods in 1989. Officials feared the country's overseas reputation for producing safe, nutritious food could be blemished. The Auckland plant was scuttled after a variety of environmental concerns were raised. New Zealand also issued a ban in 1989.

In 1999, with the moratorium on the verge of being overturned, Steritech returned with plans for a new facility. Disgraced Queensland Deputy Premier Jim Elder, also the state's Development Minister, reportedly invited Steritech to the area.

Behind closed doors, Steritech representatives presented their ideas for the new plant to the Caboolture Shire Council in April 1999. The public did not become aware of the plant until July, according to protesters.

Perhaps by design, there was little time to mount opposition. The Council approved the facility one month later, in August – the same month that the irradiated food ban was lifted. It was also in August that the Council helped

Steritech by rezoning property from "light industries" to the substantially more lenient category of "noxious, hazardous and offensive industries," protesters say.

Seemingly as much as the irradiation facility itself, residents took issue with the process by which it was approved. The public initially was told the facility would not be "nuclear" and would not be handling food. No public meetings or hearings were held. No environmental study was conducted, even though the facility is located in an endangered, protected paperbark wetland that flows into Moreton Bay.

Further, because the Council found "no significant risk" from the radioactive cobalt-60, no preliminary disaster plan was written. Disaster planning was acknowledged by authorities only after the plant came on line. And, it was the community that initiated the process, which threw state and local governments into a flurry of confusion as to who was responsible for what.

And, though Caboolture Shire is a Nuclear Free Zone, the Council bent the rules for Steritech by literally redefining what a "Nuclear Free Zone" is – a decision the Council made, ironically, on World Environment Day, 5 June 2001.

It got worse. The land was sold to Steritech by the Queensland state government under Premier Peter Beattie, who said publicly that he wouldn't feed irradiated foods to his own children. The sale occurred despite the Queensland Labor Party's formal stance against nuclear-fueled irradiation facilities.

Ground zero is Lot 14, Potassium Street, at the Narangba Industrial Estate, Deception Bay, about 40 km north of Brisbane.

Organizations including the East Narangba Community Action Group, Friends of the Earth, Everyone for a Nuclear Free Future (ENuFF), and the Stop Food Irradiation Alliance started protesting at the site 6 June 2002, the day after earthwork at the site began. A week later, about 20 protesters linked arms and blocked several trucks carrying dirt for the facility's foundation from entering the facility. Work was stopped for several days.

Arrests soon followed. Over the next two weeks, more than 10 people were arrested for various charges, including obstructing the police. Among them were Queensland Greens spokesperson Drew Hutton, ENuFF spokesperson Robin Taubenfeld, and Greg Brown of the Refugee Action Collective.

Some were fined, including Hutton, an Australian Greens co-founder. He was fined $150 even though a Caboolture Shire judge said the seven had a "right to protest." They had to move, though. A day after the arrests, a fence was built around the Steritech site and authorities moved protesters to state-owned land across the street.

Reports of police abuse were common. "Never in my life have I witnessed such violence as I have from police towards the community," says Fran Jell of the East Narangba Community Action Group. About 30 people have been charged with criminal offenses, including one man for tooting his horn to say goodbye to the protesters – an "unlawful use of a warning device," in the opinion of police. He has refused to pay a $120 fine.

The situation took a frightening turn when the *Sunday Mail* reported on 7 July that threats had been made against the protesters. Five days later someone threw a supposed bomb into the camp. It did not explode.

Among many types of harassment, protesters reported receiving death threats, being followed to their homes and watched for hours at a time, receiving threats to burn down their homes, and getting numerous anonymous phone calls. More than a dozen assault complaints have been lodged against a construction company employee.

For its part, the company says its people have been threatened and harassed, as well. One had a cup of coffee thrown in his face by a protester. The company claims that protesters have caused $250,000 to $1 million worth of damage to the facility.

A national day of protest against Steritech was staged on 7 August. More than 200 people

showed up, blocking heavy equipment from entering the site for a week. A Steritech employee allegedly punched a protester in the face, one of several such reported assaults, many of them against women.

Ugliness continued into January 2003, when police sent dogs to attack the protesters. One protester had his nose broken and bloodied by an officer. Others suffered wrist injuries from excessively tight handcuffs. Queensland officials filed an eviction order for 10 February against the twice-arrested Taubenfeld, who the government chose because she was the "organiser and representative of all those in occupation of the camp site."

Some protesters unwilling to go lightly dug holes and tunnels to hide in, and said they would chain themselves together if necessary.

In an historic civil liberties victory for all protest movements, the State Supreme Court threw out the eviction order and ordered state officials to pay legal fees. New South Wales Greens senator Kerry Nettle said the government's treatment of protesters recalled the "shameful days of the Bjelke-Petersen regime."

Despite the court victory, about 50 police officers stormed the site on 6 March with horses, trail bikes, dogs, paddy wagons, barricades, shields and batons. The incident drew comparisons to the raid of the Cedar Bay commune in 1976. Little did the police know, however, that an eavesdropping protester overheard officers discussing the action the night before, allowing nearly all of the protesters to get out early.

At the height of the protest, a 24-hour vigil was maintained. In a scene that's been compared to *Mad Max*, protesters built a 12-foot-tall "Deception Castle" with colored flags as signs of protection for the area's bushland ecosystem. They built 8-foot-tall "Nuclear Free Knights" in shiny, stainless steel armour made of recycled metal salvaged from the Narangba Industrial Estate itself.

They built a solar-powered kitchen and planted a vegetable garden. They sat around campfires, telling stories and singing songs. "The manifestation of the protest in the form of a camp shows the real creativity of the people involved," says Taubenfeld.

Thousands of people have signed petitions, and several appeals and lawsuits have been filed, though all have ended in defeat. "The authorities wore people down," says Jell. Some locals were so worn down that they simply moved out of Narangba. "People felt such disillusionment and betrayal from their government," says Taubenfeld.

The Web

The Steritech facility opened in July 2003, shortly after the arrival of the cobalt-60 rods. That same month, several people formed the "Fast Against Food Irradiation" and went without food for nearly a month while carrying the message, "We'd rather starve than eat irradiated food."

They also staged protests at all three Steritech plants. The strike spurred passage of a Federal Senate motion urging the Federal Government to research the health effects of irradiated foods and follow the European Union's lead in not approving additional foods

for irradiation until more research is conducted.

The opening of the facility marked a big victory for Steritech's chairman, Ian Millington Dicker. He is perhaps best known as the president of the Hawthorn Football Club, though this position has been shaky of late.[1] Lesser known are Dicker's other associations.

Dicker serves on the Board of Directors of Consolidated Paper Industries Pty Ltd (CPI), a half-billion-dollar-a-year company based in Braeside, Victoria, that sells paper, film, printing presses, cleaning chemicals and other industrial products.[2] Targeted by Friends of the Earth Australia and other groups, CPI is infamous for its mass production of paper in Indonesia, which is losing millions of acres of timberland per year.[3]

Dicker is also on the Board of Mackay Consolidated Industries Pty Ltd of Moorabbin, Victoria. The company makes parts and equipment for automobiles, trains, mines and various other industries including the military. Mackay manufactures silo covers for the Sea Sparrow Missile and wheels for armoured vehicles, among other products.

Steritech also won a major victory in September 2001 when the Australia New Zealand Food Authority (ANZFA) approved the company's application to irradiate herbs, spices and herbal infusions (leaves and flowers used to

From Cold Warrior to Cold Pasteurizer: Shining Some Light on SureBeam

Before making a decision about food irradiation, Australians and New Zealanders need to know about an American company that's been trying to make it a reality.

Founded 25 years ago by two physicists who sketched out their plans on a restaurant napkin, the Titan Corporation became a major player in former U.S. President Ronald Reagan's "Star Wars" missile-defence system in the 1980s. The end of the Cold War brought an end to Titan's gravy train, however, so company executives needed to figure out a way to replace millions of dollars in revenue.

Titan scientists learned they could use their linear accelerators, which fire electrons nearly to the speed of light, to irradiate food. Thus was born, in 2000, the SureBeam Corporation, based in San Diego, California. That May, SureBeam made national news when irradiated hamburgers "treated" with its linear accelerators went on public sale in five Midwest states, ostensibly chosen due to their large meat industries and beef-loving populace.

SureBeam grew quickly. The company received flattering media coverage from newspapers and television stations across the country. At the apex, SureBeam hamburgers reportedly were available in 5,000 stores in more than 40 states (though this could never be independently confirmed.) And they were served by major fast-food chain Dairy Queen.

Fueled by an international public relations campaign, SureBeam said it was building food irradiation facilities in Brazil, Malaysia, Saudi Arabia, the Philippines, Thailand and Vietnam – though only the Brazil plant ever opened. The company promised a gush of world trade in fruit and vegetables, both the everyday and the exotic – from Mexican mangoes to Australian rambutans. Multinationals Cargill, Del Monte, IBP, Kraft and Tyson signed on as clients.

SureBeam also became a political force. Gossip ran amuck when a Congress member from SureBeam's hometown killed a proposed study into the safety of irradiated foods. Any disturbing findings could have put a dent in SureBeam's business.

Once the self-professed leader of the food irradiation movement, SureBeam soon began to fall on hard times. SureBeam-backed efforts to weaken federal laws to allow irradiated foods to be labeled "electronically pasteurised" or "cold pasteurised" suffered a setback when government-funded

see "SureBeam," next page

make beverages excluding tea). This was the first approval since the two countries lifted the food irradiation ban in 1999. Steritech's request was granted despite the fact that 97 percent of citizens who wrote to ANZFA opposed the request.[4]

That same week, the Federal Environment Ministry gave final approval for the Narangba plant. Shortly thereafter, the state's sale of the Narangba property to Steritech was completed.

A year later, in December 2002, ANZFA approved a request by SureBeam Australia Pty Ltd to irradiate nine types of fruit: mango, longan, papaya, breadfruit, rambutan, lychee, custard apple, carambola and mangosteen. Ironically, this decision came the day after the European Parliament voted against legalising irradiation for additional types of food.

SureBeam Australia was established by the SureBeam Corporation, a company based in California, U.S., that itself was started by the Titan Corporation, a major military contractor. SureBeam irradiated food with linear accelerators originally designed for the "Star Wars" missile-defence system envisioned by former U.S. President Ronald Reagan in the 1980s.

SureBeam Australia joined Turners & Growers, New Zealand's largest importer of fruit and vegetables, to plan a $10-16 million irradiation plant for Cairns, Queensland. The idea is to irradiate fruit potentially infested with fruit flies

"SureBeam," from previous page

research found that consumers considered this "sneaky" and "deceptive."

Washington, DC-based consumer groups Public Citizen and The Center for Food Safety filed several complaints with federal trade and securities officials concerning SureBeam's persistent use of the phrase "electronic pasteurization" to describe its technology, which uses electrons, not heat.

In an April 2002 *Forbes* article that would cause great embarrassment, SureBeam's "accounting acrobatics" – such as its way of handling invoices and revenue – led the magazine to say the company "needs a little disinfectant on its balance sheet."

Things completely unraveled in 2003. SureBeam reported an annual loss of U.S. $35 million. Its chief executive officer and three vice presidents resigned. The sacking of two outside auditors in quick succession spawned whispers of "another Enron." Several investors filed class-action lawsuits over alleged accounting irregularities. In the ultimate humiliation, the company was kicked off the NASDAQ stock exchange.

SureBeam announced on 12 January 2004 that it would file for bankruptcy.

In the end, SureBeam was unable to sign up enough grocery stores and restaurants quickly enough to support its accelerated growth strategy. The company opened five facilities, but the company wasn't irradiating enough food to keep even one plant busy. A company executive confessed to a business magazine that there is "no momentum at all" behind irradiated foods.

Before its demise, however, SureBeam reached across the Pacific and planted a seed called SureBeam Australia Pty Ltd (also known as SureBeam Biosecurity Solutions). Following yet another aggressive public relations campaign, SureBeam Australia in December 2002 won approval from Food Standards Australia New Zealand to irradiate tropical fruit. After its parent company declared bankruptcy 14 months later, SureBeam Australia became known as Horticultural Access Solutions. There are only rumors about the new company's ownership.

Today, you can still buy shares of SureBeam on a bottom-feeding stock exchange called the "Pink Sheets." And there's still an Internet chatroom for current and former stockholders. Some of what gets posted there by irate stockholders is too filthy to repeat. Most of the chatter is tabloidesque rantings about overbearing government regulators and pesky consumer groups. Occasionally, something sincere is posted.

"The lesson," wrote a stockholder who lost U.S. $130,000, "is that while companies in their formative years may eventually turn out to be gems, all too often they are fool's gold, which turn out to be worthless. To those of you who suffered losses, I share your pain."

and export it to New Zealand, as well as the U.S., Europe and some Asian countries.

SureBeam went bankrupt in January 2004 and the operation is now called Horticultural Access Solutions. The company is run by Michael Daysh, a former marketing expert with the Department of Primary Industries. Among other things, Daysh advised the government to irradiate tropical fruits.[5] He also researched new markets for rambutan and longan in the U.S., Canada, England and Japan.[6] In effect, Daysh is taking his taxpayer-funded training to benefit a private company.

It remains to be seen how many consumers in Australia and New Zealand, if any, would buy irradiated foods if they reach the market. A 2001 study found that many people are suspicious of irradiation and think it is dangerous, and that they do not trust information from overseas sources such as the U.S. Food and Drug Administration and American Medical Association.

Skirmishes over nuclear issues are brisk, sometimes violent in Australia and New Zealand.

Permanently etched into New Zealand history is the 1985 bombing and sinking of the Greenpeace vessel Rainbow Warrior by French Secret Service agents, which killed photographer Fernando Pereira.

Currently in Australia, anti-nuclear activists are bitterly opposing a replacement for the High Flux Australian Reactor (HIFAR), located in the Sydney suburb of Lucas Heights. Opened on Australia Day in 1958, the uranium reactor serves many functions, such as producing neutrons, manufacturing radioactive materials for sterilization and cancer therapy, irradiating silicon for computer chips, and studying the nature of matter itself. (It was originally intended to be a power plant.)

There are 1,200 cubic metres of short-lived waste and 370 cubic metres of long-lived waste currently being stored at the Lucas Heights reactor.[7] The Fed–eral government, stymied by court action in its efforts to dump the waste in Woomera, South Australia, wants to move the waste to an as-yet undetermined site on Commonwealth land. A committee of the New South Wales Parliament recently urged against moving the waste, however, as well as opposed the HIFAR replacement reactor and encouraged alternative sources of radioactive materials as needed.[8]

Meanwhile, New Zealand is under pressure from the U.S. government to allow nuclear-powered ships to enter its territorial waters. And, the New Zealand government itself is trying to block a proposed ban on nuclear shipments, mainly from UK, France, Japan and Australia.

Both countries are bound by the South Pacific Nuclear-Free Zone Treaty, which took effect in 1986. The 13 members – including New Zealand, Australia, Papua New Guinea and Samoa – agreed to ban possessing or testing nuclear weapons, dumping radioactive waste at sea, and providing fissionable material to non-nuclear-weapon countries. Adding a ban on nuclear shipments has been proposed by many elected officials and environmental groups.

Black Meat, Red Floor

Beyond issues of nuclear safety lie concerns about the quality of meat, whether it's been irradiated or not.

When 4-year-old Nikki Robinson died from eating *E. coli*-contaminated Garibaldi mettwurst in February 1995, a tragic message was sent to government regulators, industry executives, food workers and, yes, consumers that illness could strike virtually any of us at any time.

The Garibaldi outbreak came two years after the government began replacing its own meat inspectors with "quality assurance officers," neither working for nor getting paid by the public, but by private companies. Hundreds of inspectors were slashed from the government payroll, theoretically saving taxpayer dollars and streamlining operations, but at what cost? Officials with the Australian Quarantine Inspection Service (AQIS) reasoned that meat inspectors would be more diligent in protecting the food supply while working for a corporation rather than the government.

A study by the Government Accountability Project (GAP) of Washington, DC, suggests otherwise. The group interviewed 15 "whistleblowers" who left their AQIS inspector jobs to work for meat companies, only to resign when they were blocked from enforcing hygiene and sanitation laws.

The findings are wretched. Feces contaminates up to three-fourths of carcasses at some abattoirs. Head meat covered with feces regularly goes into meat pies, along with old "black" meat. Pools of bloody, red fecal soup lie on the floor. Bile, urine and pus fly all over the place. Many gut-splattered workers don't change clothes one day to the next.

Fat, rotting meat, blood and grease accumulate on infrequently cleaned equipment. Facilities are covered in greenish-black mold, swarming with flies and infested with rats – in the case of rats, because the government has stopped providing baited traps.

Standards have dropped to the point that some facilities that slaughter horses and donkeys for pet food are cleaner than meatworks producing food for people. Several large-scale food poisoning outbreaks have occurred. Company inspectors are threatened with termination if they actually do their job.[9]

Don Ford of the Community and Public Sector Union, which represents AQIS inspectors, says the conflict of interest is as plain as day: "A company inspector is much less likely to say that an entire $800 carcass has to be discarded than a government inspector." Ford said he warned AQIS a year before Nikki's death that self-inspection would lead to problems.[10]

Despite Nikki's death, GAP's gruesome findings, and a string of food poisoning outbreaks, AQIS decided to expand the privatised meat-inspection system, known as HACCP. Facilities producing meat for the domestic market began the transition in 1993. Those producing meat for export began in 1996, under the "Meat Safety Enhancement Program."

AQIS got off to a poor start when, in 1998, the U.S. said the agency's "extreme reduction" in government inspection could make it more difficult to keep meat "safe and wholesome."[11] Three months later, someone at AQIS got the wires crossed and announced that the U.S. had conditionally approved Australia's privatised inspection of export facilities. A high-ranking U.S. government official publicly admonished Primary Industries Minister John Anderson, saying the affair "has caused great confusion" for the world meat industry.[12]

More trouble arrived in 1999, when U.S. agriculture officials inspected a meat exporting facility rated "marginal," due to problems with air control and condensation.[13] The U.S. eventually approved Australia's new system, the overall effects of which have yet to be determined.

In one case reported in November 2000, five shipments of Australian beef destined for Europe, Asia and the Middle East – ostensibly produced and inspected under the new privatised system – tested positive for *Salmonella*. Instead of defending the privatised system, AQIS meat inspection manager Brian MacDonald said straightaway that he wasn't surprised because there is always a chance that *Salmonella* can contaminate fresh meat destined for export.[14]

Unless the makers of contaminated meat have an epiphany and start placing quality before quantity, the industry may turn to irradiation – a band-aid at best – to solve their bacteria problem. This could lead to the worst of both worlds: a meat industry unwilling to clean up its operations, and a populace increasingly exposed to dirty meat.

Lessons Learned?

It is impossible to understand food irradiation without examining the misguided hype that surrounded the advent of nuclear technology. Its history is complex and surprising, and, like the technology itself, there is far more to it than meets the eye.

On 8 December 1953, U.S. 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 of nuclear technology:

> *The United States knows that if the fearful trend of atomic military build-up can be reversed, this greatest of destructive forces can be developed into a great boon for the benefit of all mankind. My country's purpose is to help us move out of the dark chamber of horrors into the light. 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.*[15]

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

It's True

The Atomic Age, which gave birth to food irradiation, began in Würzburg, Germany on Nov. 8, 1895, when German physicist Wilhelm Konrad Röntgen discovered X-rays - quite unintentionally.

David Dietz, a Pulitzer Prize-winning journalist and a fellow with the American Association for the Advancement of Science, took matters to an absurd extreme:

> *When the day comes that atomic energy is available in unlimited quantities, mankind will move into an era as different from the present as the present is from ancient Egypt. The Era of Atomic Energy will see artificial suns mounted on tall steel towers. No airplane will bypass an airport because of fog. No city will experience a winter traffic jam because of heavy snow. The old dream of the alchemist to turn base metals – iron and lead, for example – into gold will come true.*
>
> *Universal perpetual peace will reign. With energy as abundant as the air we breathe, there will be no longer be any reason to fight for oil or coal. By using atomic energy to mine the ocean, every nation will be able to obtain easily all the raw materials that it needs.*[16]

Popular science writer David O. Woodbury also entertained notions of a nuclear-powered car, which he nicknamed the "atom-auto." He readily confessed, however, the impracticality of such a thing:

"Our atom-autos are going to be embarrassingly heavy, carrying 50 tons or so of lead or pig iron to save us from being rayed to death by our engines." In a blithe suggestion characteristic of the day, though, he wrote: "But suppose they do find a weightless shield through a loophole in physics."

Woodbury managed to marry the nuclear craze with another hysteria of the day: "If one is to believe in flying saucers, it is necessary to assume some form of atomic engines."[17]

At the time, the U.S. Atomic Energy Commission (AEC) was headed by Glenn Seaborg, among the 20th century's most accomplished scientists and a Nobel Prize recipient for his discovery of plutonium and other radioactive elements. He developed the plutonium used in the atomic bomb dropped on Nagasaki.

It was once said of Seaborg, an almost larger-than-life figure: "He sincerely believed that the AEC was serving the public interest. He thought his word should be taken as gospel without public discussion."[18]

Seaborg's achievements were perhaps unparalleled, though he held many dubious ideas that serve to explain why his food irradiation research was called into question.

Among his more bizarre notions, Seaborg believed that nuclear bombs near seismic fault lines could forestall earthquakes; that bombs could close the Mediterranean Sea, turning it into an irrigation source for the Sahara Desert (though Venice and other coastal cities would be swamped); and that bombs could be used to extract coal, copper, water, natural gas and other underground resources.

Perhaps most oddly, Seaborg imagined a future with "Experimental Cities":

> *If we follow the workers (they are few in numbers and well paid for their 20-hour week) home after their workshift, we travel via high-speed electric train or compressed-air-tube vehicle through an underground channel to a city of tomorrow. There would be no combustion engine automobiles on the streets. Ground-level transportation would be via small, electric, computer-controlled "pods" that would take people directly where they want to go, silently and without delay. A good portion of the city would be under a huge dome and would be climate controlled throughout the year.*[19]

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

On 9 May 1955, shortly after the Korean War ended, a group of U.S. Army brass told Congress members about a new technology that could solve the age-old problem of keeping soldiers fighting in far-flung places well fed.

Maj. Gen. Kenner Fisher Hertford told Congress that nuclear technology – which helped bring an end to World War II – could also bring an end to the military's difficulties in sending food to troops fighting halfway around the planet. Hertford held up a picture of a normal-looking beef tenderloin that had undergone "radiation sterilization."[20]

It took more than a decade, but eventually, the Army managed to send a few thousand pounds of irradiated bacon to military personnel in Vietnam during the mid-1960s.

In 1968, however, five years after the Army won permission from the U.S. Food and Drug Administration to irradiate bacon, FDA officials revoked the permit after finding secret Army documents showing that lab animals fed irradiated food suffered premature death, a rare form of cancer, reproductive dysfunction and other problems.[21]

In response to the unearthed documents, one Congress member said, "We were told several years ago that bacon was all right. We proceeded to eat it." Another said, "We were guinea pigs."[22]

Later attempts by the Army to demonstrate that irradiated food was safe for human consumption ended in failure. After 27 years and more than $50 million, the Army ended its food irradiation program in 1980.

Though the bacon fiasco marked, in the words of one government official, the "low point" for food irradiation, international interest in the technology had grown significantly by the late 1960s.

It's True

An Australian company once asked SureBeam to irradiate the rear-ends of sheep to keep wool from growing where the sheep's defecation was sticking and causing infection. The work was never done.

Flawed Thinking

In Brussels in 1961, three very powerful organizations convened to discuss the safety of irradiated foods.

They were the International Atomic Energy Agency (IAEA) and two divisions of the United Nations, the Food and Agriculture Organization (FAO) and World Health Organization (WHO). Officials from the three agencies listened as researchers raised some serious questions about the safety of irradiated foods.

In experiments, irradiated foods caused lower white blood cell counts in rats and chromosomal aberrations in plant cells. "They may be one link in the chain of events leading to cancer," a Swedish biochemist remarked.

Irradiation had also been shown to destroy amino acids, deplete nutrients and generate potentially harmful free radicals.[23]

Three years later in Rome, however, the three agencies turned away from questions of safety and toward questions of legality. Their solution was to "influence legislation in various countries and thus, through a common approach to legislation, facilitate international acceptance of the process."[24] In 1969 the three agencies reconvened in Geneva – this time, specifically to address the wholesomeness problem. Like in Rome, however, evidence suggesting the unwholesomeness of irradiated food was downplayed.[25]

As a result of six major conferences held in Europe between 1972 and 1980, the international standard for irradiating food was set at 1 million rads – a dose far beyond what the U.S. Food and Drug Administration had ever considered to be safe.

In 1976, the IAEA, WHO and FAO endorsed irradiation of eight common foods, including rice, onions, chicken and strawberries, despite disturbing evidence. Several types of animals developed genetic damage after eating irradiated foods. Ovary damage was observed in rodents fed irradiated potatoes.

Four years later, the three agencies said that *any* food could be irradiated up to a certain dose and still be safe to eat. Despite a vast and growing amount of data to the contrary, the agencies said: "All the toxicological studies have produced no evidence of adverse effects as a result of irradiation."[26]

By the 1980s, it was clear that international deliberations over food irradiation had very little to do with safety, and very much to do with the proliferation of irradiated foods throughout the world. The IAEA brought in a consultant to help.

Crucial to the effort, the consultant announced at a 1982 meeting in Vienna, was keeping people in the dark about what they would be eating: "Any word or statement containing the word 'radiation' or 'radiate' would inspire fear and therefore will cause the product to be avoided. *Identification of the process should not be required on the label.*" (Emphasis in original.)

Absurd suggestions to call irradiated foods "processed with electrons" or "gammatized" were entertained.[27]

Also speaking at the 1982 meeting was an executive with a large South African retailer whose propagandist notions bordered on the Orwellian:

> *We have to know and understand the ordinary people. We must confer with experts in the various fields of advertising and psychology to put the public at ease, and develop a more friendly feeling to irradiation. Symbols must be developed not to look like radiation symbols. Names must be simple and not necessarily related to the words irradiation or radiation.*[28]

The IAEA, WHO and FAO ultimately endorsed the irradiation of all foods at any dose, no matter how high, a monumental decision that was handed down in 1997. But just as problems plagued the research conducted by the Atomic Energy Commission and the Army, the endorsement of irradiation by the three international agencies was also flawed.

In the WHO report that announced the endorsement, 32 experiments that revealed health problems in lab animals that ate irradiated foods were actually classified as "negative" – meaning that, in the opinion of the IAEA, WHO and FAO, no problems were actually detected. In truth, the health problems cited in these 32 experiments include increased mortality, fatal internal bleeding, decreased fertility, mutations, liver damage and stunted growth. The organizations have failed to publicly explain this startling inconsistency.

Further, the WHO has discounted the recent discovery that chemicals 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.[29]

Though listed side by side, the FAO, IAEA and WHO have not stood on equal footing. In 1959, the WHO signed over to the IAEA "the primary responsibility for encouraging, assisting and coordinating research on, and development and practical application of, atomic energy for peaceful purposes throughout the world."[30]

After a 15-year hiatus, the U.S. Food and Drug Administration reentered the picture in 1983, when it legalized irradiation for spices. Over the next 17 years, the FDA went on to legalize irradiation for beef, pork, poultry, fruit, vegetables, eggs and sprouting seeds.

However, these approvals – like those issued by the IAEA, WHO and FAO – were severely flawed. In the course of legalizing the irradiation of fruit, vegetables, poultry, beef and eggs from 1986 to 2000, the FDA relied on 79 research studies that the agency's own expert scientists had declared deficient.

Further, none of the key seven studies that an FDA panel identified in 1982 as definitively illustrating the safety of irradiated foods met the FDA's own protocols for how food safety studies should be conducted. In two of the studies, researchers added vitamin E and other nutrients to lab animal diets for the *specific* purpose of reversing the harmful effects of consuming irradiated foods. And, inexplicably, the FDA did not translate into English three studies that were written in French.[31]

Meanwhile, the 1970s saw pressure mount on U.S. Department of Energy (DOE) officials to solve their radioactive waste problems, particularly at two nuclear bomb factories – Hanford in Washington and Savannah River in South Carolina. Half of the radioactive "heat" at the two facilities is generated by cesium-137 – some 77 million curies of which (enough for at least 10 irradiation plants) was extracted from Hanford's underground waste tanks from 1967-84. As part of their "Byproducts Utilization Program," DOE officials saw food irradiation as an answer to their waste problems. (They also suggested feeding irradiated sewage sludge to cattle and sheep, and adding it to fertilizer.)[32]

A high-ranking DOE official made the department's intentions known to Congress in 1983: "The utilization of these radioactive materials simply reduces our waste handling problem, in that we get some of these very hot elements like cesium and strontium out of the waste. I frankly would like to see us use everything, including the squeal, if you want to refer to pork, we possibly can."[33]

Like the Army, DOE has failed to bring its food irradiation program to fruition. On 6 June

It's True

People experienced blood problems and a genetic abnormality in three of the six known experiments in which humans were fed irradiated food. The medical establishment has never assessed the significance of these findings.

1988, a leaking cesium-137 capsule – one not designed for commercial use – contaminated a medical equipment irradiation facility near Atlanta, Georgia.

Radioactive material leaked into a water storage pool. Contaminated water splashed onto food and medical packages being irradiated for mass distribution. Some of the workers carried radioactivity into their homes and cars. The taxpayer-funded cleanup cost more than US $40 million. The accident scotched plans for cesium-137 irradiators in Alaska, California, Florida, Hawaii, Iowa, Oklahoma and Washington state.

Plans to use nuclear bomb wastes for food irradiation are still percolating, however. The U.S. Department of Agriculture (USDA) is assisting GrayStar Inc. of New Jersey to design a cesium-137 irradiator. Until his death in 1999, former AEC Chair Glenn Seaborg invested in GrayStar and promoted the idea, which has also drawn the attention of the McDonald's fast-food chain. "I am convinced that this concept is important," Seaborg wrote to then-DOE Secretary Hazel O'Leary.[34]

How It Could Harm

The scientific community is in agreement that food irradiation is among the most thoroughly researched food-related technologies of the 20th century. Where there is no agreement, however, is whether "treating" foods with high doses of ionizing radiation to kill pathogens and extend shelf-life poses health risks to the people who eat these products.

The available evidence suggests that these risks are real.

Over the past 80 years, dozens of foods – bananas, ground pork, onion powder, papayas, beef stew, clams, potatoes, apricots and many others – have been irradiated and fed to many types of animals, mainly rats, mice, dogs, monkeys and hamsters.

At least six experiments involving humans – including one involving children – have been conducted.

Virtually every biological assessment of test subjects has been made: animal fetuses have been dissected, biopsies have been taken, DNA and chromosomes have been examined, red and white blood cells have been counted, enzyme levels have been measured, and so on.

Dozens of studies have found no apparent negative health effects associated with irradiated foods. Dozens of others, however, have turned up problems, many of them quite serious.

Whether food was exposed to gamma rays, X-rays or electron beams, frightening health problems have been observed, including premature death, mutations and other genetic damage, fetal death and other reproductive problems, residual radioactivity, immune system dysfunction, fatal internal bleeding, a rare form of cancer, organ damage, blood disorders, tumors, nutritional deficiencies and stunted growth.[35]

Here are some noteworthy examples:

• A chromosome abnormality called polyploidy – which has been associated with leukemia and direct exposure to radiation – was detected in children who ate recently irradiated wheat.[36] Polyploidy and a blood disorder were

detected in men and women who ate a variety of irradiated foods.[37]

• The cancer-development process was promoted in rats fed chemicals called 2-alkylcyclobutanones (2-ACBs), which are formed in many irradiated foods, and which do not occur naturally in any food.[38]

• "Considerable amounts of radioactivity" were detected in the liver, kidney, stomach, gastrointestinal tract and blood of rats fed irradiated sugar.[39]

• Rats fed irradiated beef died from internal bleeding.[40,41] Others suffered "general incoordination, spastic [walking] and sometimes complete loss of movement with dragging hindquarters. Those most severely affected often became completely prostrated a short time before death."[42]

• In U.S. Army tests, young dogs and rats died, dogs gained less weight, and a rare form of cancer developed in rats.[43]

• Mice fed recently irradiated food produced dead embryos and fetuses,[44,45] and died prematurely.[46]

Additionally, mutations developed in fruit flies,[47,48] which are often used as a bellwether to determine whether substances could be harmful to humans.

Moreover, human blood cells exposed to irradiated food components have undergone genetic damage, including "grossly damaged" chromosomes, and "considerable inhibition of [cell division] and chromosome fragmentation."[49,50]

Many of the researchers who observed health problems in animals said these problems could not be attributed to irradiated foods. Instead, they often made unsubstantiated claims that the problems were due to dietary factors or experimental anomalies.

In many other cases, researchers who documented health problems in their raw data simply failed to mention these problems in the summaries and conclusions of their reports. Abnormalities in reproductive performance, blood counts, enzyme levels, organ function, weight gain and other measurements have been recorded, only to be ignored in summaries and conclusions.

This phenomenon led prominent Swedish radiobiologist and chemist Göran Löfroth, a pioneering DDT researcher, to tell U.S. federal government health officials: "In my studies of the literature, I have often found a credibility gap between observed [abnormalities] and the recurring conclusions that there is no apparent toxic hazard involved in the ingestion of irradiated food."[51]

By downplaying and ignoring raw data suggesting that irradiated foods may not be safe for human consumption, scientists from a wide variety of universities, institutes, organizations and agencies have deprived government officials, the food industry, food scientists and, ultimately, consumers of the complete picture of the potential health problems associated with these products.

In turn, these scientists have ignored seemingly minor health problems that, in the long term, could result in more serious effects – particularly if multiple problems work in combination, or if problems fester unnoticed for months or years.

Furthermore, irradiation results in the formation of dozens of chemical compounds, many of which have toxic properties. This is no secret: the scientific record of these chemicals dates back 50 years. During this time, many notorious chemicals associated with cancer and birth defects have been detected in irradiated foods. Among these are benzene, toluene, methyl ethyl ketone, octane, acetone, ethanol, hexane, heptane and pentane.[52] A "safe" level for these

It's True

U.S. food irradiation pioneer Martin Welt (founder of Radiation Technology Inc.) fell from valor when he was sent to federal prison in 1988 for lying about accidents at his cobalt-60 facility in New Jersey.

chemicals – if there is such a thing – has yet to be determined.

Recently, 2-ACBs were shown to promote cancer development in rats, and to cause genetic damage in rats and in human cells. These chemicals have never been found to occur naturally in any food anywhere on Earth. The French and German scientists who conducted the research wrote: "Since our results point toward toxic, genotoxic and even tumor promoting activity of certain 2-ACBs, we strongly recommend to carry out further research. Numerous questions still remain to be answered, and much research is left to be done, before a qualified risk assessment can be performed."[53]

A 2003 study commissioned by Public Citizen and The Center for Food Safety detected 2-ACBs in fresh irradiated ground beef sold in stores in Washington, DC, and New York City; in frozen irradiated hamburger patties from a store in Florida; and in cooked irradiated hamburgers from a fast-food restaurant in Minnesota. No 2-ACB were detected in non-irradiated beef that was purchased. The fatty acids that serve as precursors to 2-ACBs occur in virtually all foods that contain even a small amount of fat.[54]

The toxicity of 2-ACBs led the European Union to decide in December 2002 to reject expanding irradiation for several types of food, including shrimp and cereals. Further, the EU, citing concerns over 2-ACBs, formally opposed a Codex Alimentarius Commission proposal to allow any food to be irradiated at any dose, no matter how high. Under this pressure, Codex delayed the proposal but eventually approved it in 2003.

The decision is significant to say the least: Codex sets food-safety standards on behalf of more than 160 countries representing more than 90 percent of the world's population. Codex standards are enforceable under World Trade Organization rules. Any country that implements a stricter standards runs the risk of being challenged through the WTO.

In retrospect, the 40-plus-year history of analyzing the safety of irradiated foods has been compromised to the extent that a complete reassessment is required in order to protect the health of the hundreds of millions of people throughout the world where irradiated foods are legal. This reassessment should take the form of published, peer-reviewed research in the areas of toxicology, food science, radiation chemistry, nutrition and other relevant fields.

Going Global

What is good news for the food irradiation industry is usually bad news for farmers and ranchers in both the global South and North.

With the potential to further stimulate the industrialization, consolidation and globalization of food production and distribution systems, irradiation stands as yet another threat to the autonomy and security of farmers everywhere – even in developed nations that have already seen adverse effects of "harmonization," "free" trade agreements, and emerging technologies such as genetic engineering.

Around the globe, multinational corporations such as Cargill/Excel, Del Monte, IBP, Philip Morris/Kraft and even Mitsubishi are planning to use irradiation to increase their global reach.

Why?

Irradiation can double or triple shelf life, thus allowing food to be shipped longer distances before rotting – though depriving food of

nutrition and taste.

Irradiation can kill fruit flies, weevils and other exotic pests that currently pose barriers to trade – though they can still pose infestation dangers.

And, irradiation can mask the filth and contamination on meat resulting from factory-style production, slaughtering and processing – though failing to encourage meat companies to improve conditions in their facilities.

With irradiation in its toolbox, multinational food corporations are driving to raise more livestock, and grow more fruits and vegetables in the global South, primarily in Asia, Africa and Latin America – where labor is cheap and unorganized, and where agricultural chemicals are, in many cases, virtually unregulated.

At the top of the list are Argentina, Brazil, Chile, China, Hungary, Mexico, South Africa, Thailand and the Philippines. Developed nations are also being eyed for the production of irradiated foods, including Australia, Canada, New Zealand and the United States.

Irradiation is a vital tool in this drive. A high-ranking official with the U.S. Department of Agriculture went so far as to say that irradiation is "absolutely necessary" in order to maximize the global trade in food. Irradiation, in fact, is even viewed as a mechanism to strengthen or establish not just economic ties, but diplomatic and political ties among nations. The new maxim expressing this goal – as comical as it may seem – is "détente through dosage."

If permitted to thrive, however, irradiation – which is already legal in about 60 countries for hundreds of types of food – will enable large corporations to gain even more command and control over the world's food supply and those people who produce it.

Meanwhile, family farmers and small food producers will not be able to compete with giant plantation-style operations, which drive prices below the cost of production of small farmers. Their land and labor will thus become susceptible to growing cash crops and livestock for export, instead of essential staple items.

Thousands of displaced farmers will have little choice but to move to cities, where they will almost certainly live in poverty and most likely work in sweatshops – if they work at all. Women – marginalized, underrepresented and overworked in most societies – often bear the brunt of such economic, political and social turmoil.

Industrialized farming also adds stress to the environment as more forests are logged, waterways are polluted with more chemicals and waste, and land is deprived of the subtle nourishment and maintenance provided by diverse planting and traditional farming methods.

Contrary to proclamations by corporate agribusiness that food irradiation will help "feed the world" and create economic opportunities for farmers and ranchers everywhere, irradiation is a sly maneuver to increase profits at the expense of people's livelihoods.

Under new Codex rules, member nations are now allowed to irradiate food at any dose, trade it "freely" with any other country (whether they want to import it or not), and serve it to people who might not know the food they're eating has been "treated" with enormous amounts of ionizing radiation.

Created in 1963 by the WHO and FAO, Codex is an unaccountable international body whose members – usually government officials and industry executives – are neither elected nor subject to removal by citizens. Under the innocuous-sounding policy of "harmonization," Codex is "harmonizing" regulations, breaking down trade "barriers," and promoting "free" trade in agricultural products.

Under harmonization, Australia, for

It's True

The first known commercial use of irradiated food was in West Germany in 1957, when "treated" spices were added to sausage. Controversy led the government to ban the practice just one year later.

example, would not be allowed to block food imports from France if its own food safety laws are stricter and are not supported by "science."

In the case of food irradiation, the U.S. is trying to lower the standards of countries that ban or strictly limit the production, sale or importation of irradiated food, such as Japan and most member nations of the EU.

Globalization means that citizens will have little control over the food they eat. In the name of promoting free trade, hard-fought consumer protections will either be weakened or eliminated entirely.

Some countries, fearful that their consumers might be forced to eat irradiated, genetically modified and other harmful foods, have called for the implementation of the "precautionary principle" as a way to protect their sovereignty over food safety issues.

Amid all of the drawbacks of irradiation, many countries are looking to plug into the global trade matrix.

• China is reportedly the world's irradiated food leader, irradiating about 100,000 tons of food per year, much of which is garlic.

• The U.S. irradiates about 100,000 tons of food a year, nearly all of which is spices and seasonings, with a small amount of ground beef and papayas.

• Japan irradiates 15,000-20,000 tons of potatoes per year to inhibit sprouting, which the country pioneered in 1973.

• Belgium, France, the Netherlands and South Africa each irradiates more than 10,000 tons of food per year.

• Onions are irradiated in Argentina, Hungary, the Philippines and Thailand.[55]

It's True

Early interest in food irradiation did not come primarily from doctors, public health experts or nutritionists, but from nuclear scientists, government bureaucrats and the U.S. Army

Gathering at the "First World Congress on Food Irradiation" in Chicago, U.S., in May 2003, more than 200 food industry executives and government officials from the U.S. and 16 other countries ushered in what they described as a new era of food irradiation – of expanded global trade, of nation after nation legalising irradiation, of increased consumer acceptance, and of public and private sector cooperation for the united purpose of making irradiation a global, mainstream phenomenon.

Featured speakers revolved around several common themes, comprising a "Global Action Plan":

• "Educating" consumers, government officials, academics, public health officials and consumer organizations throughout the world that irradiation is effective, practical and safe.

• Stimulating trade, mainly with Africa, Asia and South America. Singled out were Brazil, Chile, Mexico, South Africa and Thailand.

• Downplaying evidence that irradiated foods are not safe for human consumption.

• Harmonizing labeling laws, which would likely remove the labeling requirements for irradiated foods in the U.S., Canada and many other countries.

• Pushing irradiation not just as a food-safety treatment, but also as a phytosanitary treatment (killing invasive pests).

Above all, conference participants urged that a new international agency be formed, comprised mainly of government officials and industry executives, to hasten the global spread of irradiated foods and the technology itself.

This new agency – the International Council on Food Irradiation – would be open to input from consumer organizations. This has been pledged, despite the fact that the old agency – the International Consultative Group on Food Irradiation (ICGFI) – has been largely closed to outside voices. For example, a Public Citizen representative was barred from attending an ICGFI conference held in Geneva in November 2000.

The Future

The big picture, envisioned by global food producers and traders, is one that includes irradiation as a tool to further industrialize, consolidate and globalize food production and distribution systems.

It is one that includes multi-billion-dollar, multinational corporations utilizing labor and land in the global South to produce their wares; one that has little concern for local economies that have relied on agricultural systems that date back hundreds or even thousands of years; and one that will worsen trends that have already harmed agriculture producers throughout the word.

The momentum behind the irradiation movement has never been greater. Fifty years after it was championed by President Eisenhower's "Atoms for Peace" program; 30 years after waning interest in the technology was reborn; and 20 years after the current wave of approvals began, food irradiation finally may be on the verge of a breakthrough.

At the very minimum, the proliferation of this technology and these foods must be closely monitored, and any health or safety problems must be brought to the attention of government agencies and non-government organizations. Ideally, however, farmers, health organizations, consumer groups and any organizations concerned about the preservation of sustainable food production methods should raise awareness about the potential dangers of food irradiation and block its expansion.

Leaders of the global food irradiation movement are growing in confidence, almost on a day-by-day basis. Their enterprises should be met with a strong and consistent opposition. Narangba serves as an example for the world.

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