

Food Irradiation - The Next Step in Food Safety

Sharon E. Luchsinger and Elizabeth Boyle, Ph.D.
Department of Animal Sciences and Industry
Kansas State University
November 1995

Over the centuries, humans have used various techniques to preserve foods, such as the curing and smoking of meats, cheese production from milk, and freezing. While some of these processes work well in reducing spoilage, the potential exists for disease causing bacteria to remain. Since bacteria, including disease causing organisms, are a natural part of every day life, processes must be employed to limit their transmission to humans. Milk pasteurization and canning, which employ heat, have been used for years. However, not all food items can be heat treated to prevent disease transmission or to reduce spoilage. Raw meat can be easily contaminated with bacteria, and currently, no method is in use to control their presence until the final cooking step. A process that is relatively new to the consumer and has great potential to enhance the safety of meat and other foods is irradiation.

Food irradiation involves treating a food item with energy from electrons and gamma rays to prevent foodborne illnesses, spoilage, and insect infestations. Food does not become radioactive when treated with irradiation. This process is not a substitute for good sanitary practices, and it will not make a 'dirty' food clean. Food irradiation makes meat and food of good quality safer, plus increases the length of time food can be stored before it becomes spoiled. Organizations such as the American Medical Association and World Health Organization have endorsed the safety of irradiation for food. The Food and Drug Administration (FDA) requires that all foods which are irradiated for the consumer market be labeled with a green and white irradiation symbol. The FDA has approved irradiation of wheat and wheat flour to control insects, of white potatoes to control sprouting, of spices to kill insects and control bacteria, of pork to control trichinosis, of fruits, vegetables and grains to control insects and growth and ripening, and of uncooked poultry to control bacteria, particularly *Salmonella*. Currently, the FDA is reviewing a proposal to allow the irradiation of red meats to control bacteria.

Irradiation is not a technology that is unheard of in the United States. We come into contact daily with items that have been irradiated. Medical supplies, plastic food wraps, and tires are just some of the products that are manufactured using irradiation technology. Its use in the food industry will allow the production of a safer food supply. Several pieces of printed material are available on food irradiation. These include *Facts about Food Irradiation* by the World Health Organization, "Food Irradiation: A Hot Issue" in August 1992 *Harvard Health Letter*, "Food Irradiation, The Story Behind the Scare" in December 1992 *American Health*, and "Food Irradiation: Toxic to Bacteria, Safe for Humans" November 1990, *FDA Consumer*.