Irradiation: Is it Consumer-Friendly?

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Introduction

It is close to noon on March 20, 2000, and Leo Altamari, CEO of Kutztown Meat Packing Corporation, has just come back from his Monday morning staff meeting. The major agenda item was the discussion on irradiation of meat products. Leo was only too aware of the recent events surrounding the fatal incident due to the consumption of hamburgers contaminated with *E. coli.* Earlier in the week, he and the company's attorney, Al Cooke, had discussed an article in the journal *Food Technology* (Robeck 1996) about potential personal injury lawsuits and liability issues related to the sale of processed meat products. There had been an increasing threat from personal injury lawyers representing people who became ill or died from eating microbially contaminated food products. The article had suggested that food companies could be held responsible for failing to take advantage of advanced technologies, such as pulsed light and food irradiation, to enhance the safety of processed foods.

Reports issued by the Centers for Disease Control (CDC) suggested that anywhere between six and 33 million people are stricken with foodborne diseases each year. Although the food industry was doing all it could to prevent *E.coli* contamination of fresh meat, Leo was convinced that Kutztown Meat Packing should stay a step ahead by using advanced technologies. He believed in the hurdle concept as a means to decrease the risks associated with processed food products. He had done his own research over the past several months on the various technologies available to the meat processing industry to destroy *E. coli* in processed meat products. Along with Ken Franc, Vice President for Finance, he had met with consultants and vendors to evaluate irradiation and other technologies, such as electronic pasteurization developed by Titan Corporation, for possible use in meat processing. Titan had developed the "Surebeam" technology, which used electron beams generated from regular electric currents as a means to "sterilize" the product.

Company Background

Kutztown Meat Packing Corp. is a medium-sized manufacturer of processed meat products based in eastern Pennsylvania. The company currently produces hot dogs, chicken frankfurters, sausages, and luncheon meat products. Their major markets consist of Pennsylvania, New York, and Maryland. The company employs approximately 120 full-time employees and sales for 1998 came to over $72 million.

John Altamari, Leo's grandfather, had started Kutztown Packing in the 1940s and the company had been in the family now for three generations. John Altamari had established a thriving local market for his processed meat products. Back then he also sold fresh meat from his store. With increasing demand for processed meat products, John built a larger processing facility in 1955. The local bank assisted the construction of this facility with a loan, and thanks to John's ability to keep overheads under control, the facility was paid off within seven years.

John's older son, Ken Altamari, took over the operation in 1961. He had a degree in Dairy and Animal Science, and had acquired good business acumen through years of experience working for the company. He focused his attention on expanding the market base within the northeastern United States. The company's sales grew 225 percent during his tenure. His market expansion strategies had to be curtailed in the early 1980s, however, when the processing facility reached its maximum production capacity.

Leo Altamari, Ken's oldest son, took over the reins of the company as CEO in 1998. He had obtained a degree in Food Science from Penn State in 1985 and an MBA from Cornell University in 1987. He joined the family business after graduation. His father had ensured he was exposed to all aspects of the business by making Leo work his way up in the organization right from the processing floor.

STAFF MEETING

At the staff meeting Anita Alright, Manager of Research & Development, described some of her findings. She began by giving a brief history of food irradiation, pointing out that it was not a new concept. Research on the technology had begun shortly after World War II, with a series of studies conducted by the U.S. Army on the irradiation of fresh foods for use as troop rations. Since 1963, the U.S. Food and Drug Administration (FDA) had passed rules permitting irradiation to curb insects in foods and microorganisms in spices, and to retard spoilage in fruits and vegetables. In terms of the process itself, irradiation involved exposing food to a source of radiation, such as gamma rays from radioactive cobalt or cesium or x-rays. However, no radioactive material was ever added to the food product. The surgical products industry used the same technology to sterilize medical devices. Anita pointed out that research conducted at Iowa State University had shown that food irradiation was an effective tool to eliminate *E. coli* in meat products. The spice industry was already using the technology in the U.S. It was true that there were some earlier studies that showed development of "off flavors" in high fat food systems from irradiation, but Anita was convinced that could be controlled by reducing the dosage.

Ken Franc mentioned that it would require a rather steep investment to build an irradiation facility, but that it might be worth it if the benefits warranted it. His preliminary calculations showed that irradiation would not considerably increase the total processing cost of the product. However, he was unable to use any of the conventional rate of return calculations on this investment due to lack of reliable data. He stressed that it was relatively hard to get a good handle on the actual costs and returns from the investment, and that as a result the net present value calculations for the adoption of this technology were somewhat sketchy.

John Ford, Production Manager, pointed out that the employees might be a little concerned about working in a facility that had irradiation equipment—they might worry about their own personal safety. He was also concerned about how to store the highly radioactive sources and how to dispose of radioactive waste. John pointed out that instead of building an irradiation facility at the plant, another approach might be to use a subcontractor's facility on a unit cost basis until the market was determined to be viable for irradiated products. He agreed to work with Ken to explore this option and to evaluate the related costs associated with it.

Sally Trump, Vice President of Sales and Marketing, was concerned about consumer acceptance of irradiation technology. Having worked for a food processing equipment company before, she was well aware of the benefits of this technology but she worried that the consumers might not be ready for it. She shared Dr. Bruhn's article (Bruhn 1995) from the *Journal of Food Protection*. A lack of general awareness of technologies and a strong consumer advocacy movement had plagued food irradiation technologies from their inception. Leo was aware of the hysterical responses from consumers whenever the word "irradiation" was mentioned. The idea of irradiating food seemed to signal a "gamma alarm"

with the public according to some journalists, although many of these same people wouldn't flinch at the thought of sun tanning at midday and potentially exposing themselves to greater health risks due to UV irradiation. According to Sally, it was all a matter of perception, and of course the consumer was always right. She recommended that the company consider taking on a leadership role within the industry to educate the consumer and set the record straight on the facts of irradiation.

Finale

Leo was aware of the difficult decision he had to make: Should the company pursue irradiation of meat products? As an MBA student, he had taken a course on the management of advanced technologies in which the instructor had stressed the need to walk a tightrope when adopting new technologies ahead of the competition. At the time he had thought it was all dollars and cents; but in his present job he appreciated the vagaries associated with the adoption of new technologies by food processing companies.

Leo wondered if his company should first educate consumers on the facts related to food irradiation. Here was an opportunity to set an example within the industry by initiating consumer education programs in order to twist the arms (and the minds) of consumers into accepting irradiation as a safe technology. There might even be some financial assistance available for this pioneering task from the American Meat Institute, the major industry trade organization, and perhaps from some federal agencies as well. But the big question was: Would consumers "bite" into it?

Leo thought a chat with Paula Green, the County Extension Director, might be helpful. Traditionally, consumers listened to and trusted extension agents more than all of the hype from the food industry. The Cooperative Extension Program at Pennsylvania State University had in the past put together excellent workshops to educate the public on current topics. He wondered if he should also talk to Alan Burnett from Metromedia, the company that handled print, radio, and television advertising for Kutztown Meat Packing. He would need to do that before the staff meeting next Monday, where they would discuss and formulate what steps to take next on this project. He also thought of talking to Suzie Dell from the company's Information Technology Department to further explore how they might put some of the educational materials and links up on the company web site. He pondered what plan of action the company should take over the next few months.

Questions

1. What are the preservation methods currently used for packaged meat products?

2. How does irradiation preserve food products?

3. What are consumers' concerns regarding food irradiation?

4. What is the cost of irradiating food products and what is the payback period for the food company?

5. How can the food industry educate consumers on irradiation?

References

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