Approval of Meat Irradiation in Canada: 12 Years of Waiting

A Brief History of Irradiation

The ability of radiation to destroy microorganisms was reported in the Journal Minsch in 1896. Since that time, for more than a century the safety and quality of irradiated foods has been studied extensively.

On the basis of the large body of scientific evidence that has been collected the use of irradiation with foods has been endorsed by the World Health Organization. In Canada, irradiation of potatoes to prevent sprouting was approved in 1960; and irradiation of spices and herbs was approved in 1984. However, since then Canada has not approved the use of irradiation for any other foods. In contrast, the US has by now approved the use of irradiation for control of pathogens in eggs, pork, fruits, poultry , red meat, spinach and lettuce.

The 1998 Petition for Irradiation of Ground Beef

In 1998 the Canadian Cattlemen' s Association submitted to Health Canada a petition for permission to irradiate ground beef in Canada. At the same time similar applications were made by other organizations for use of irradiation with poultry, shrimp and mangoes. The petition underwent extensive review by Health Canada's Food Directorate with the involvement of scientists from the Bureaus of Nutritional Sciences, Chemical Safety , and Microbial Hazards. The conclusions of the review were that irradiation was safe and effective. Consequently, the amendments to permit irradiation of ground beef were published in Canada Gazette, Part I, on November 23, 2002. As we enter the last year of the decade no further action has been taken by the Government of Canada. The year 2010 will also mark the 10th anniversary of approval of irradiation for red meat in the USA.

Why use Irradiation for Meat and Poultry Products?

The rationale for use of irradiation for ground meat products is compelling. Irradiation can offer a 3 log reduction of *E. coli* O157:H7 at the low dose of 1kGy. This is lik ely 10 times more effective than any other currently available intervention. While irradiation is not necessary to assure the safety of properly cooked ground meat, the reality is that the majority of Canadians do not use meat thermometers to ensure proper cooking. Further, there is potential for transfer of pathogens from raw to cooked meat when meals are being prepared. Perhaps the most compelling argument for irradiation would be its use for treatment of foods intended for high risk populations. In Canada there are growing numbers of elderly and immuno-comprised individuals who have increased susceptibility to food-borne disease. In Britain, the use of

irradiation to treat meals for critically ill hospitals patients was approved in 1991 but in Canada even this application is not permitted. Ironically the use of irradiation to sterilize bandages and other disposable medical supplies is the usual and indispensible practice.

The Consequences of Inaction

The North American meat industry is faced with an increasingly difficult outlook as zero tolerance policies for *E. coli* O157:H7 are likely to be extended to other types of possibly pathogenic *E. coli*. The response by regulators to continued reports of foodborne illness across North America is often additional emphasis on end-product testing. Here in Canada extensive public hearings into food safety have been conducted while one of the most effective food safety interventions remains illegal.

There can be no doubt that the use of food irradiation could save lives and significantly enhance food safety. The continued failure of public health authorities and the Government of Canada to approve this additional intervention is inexcusable.

The Role of the Meat Science Community

The science supporting the irradiation of foods is extensive and is not being questioned by Health Canada. The challenge appears to be political and likely arises from opposition to irradiation by small but vocal groups in Canada.

The reasoning provided by these groups is strikingly similar to that in communications from individuals opposed to milk pasteurization in the early 1900's. The possibility that these arguments have been given greater consideration than the views of the Government of Canada's own scientific advisors is cause for concern. As the meat industry moves forward with its efforts to gain approval for technologies such as carcass irradiation (or any other type of food safety intervention) we would all benefit from the voice of the meat science community, because there are few better qualified than CMSA members to address these types of issues from a fact-based perspective.

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