

RESEARCH AND EXTENSION

• PROGRAM UPDATES AND HIGHLIGHTS •

COLOR AND OXIDATIVE PROPERTIES OF IRRADIATED BEEF

SITUATION:

Foodborne illness remains a serious problem. A report by the Council for Agricultural Science and Technology has estimated that foodborne diseases in the United States caused by pathogenic bacterial may cause as many as 9,000 deaths each year and 6.5 million to 33 million cases of diarrheal disease. The annual economic losses associated with foodborne disease may be as large as \$5 billion to \$6 billion.

THE PROBLEM:

Meat and poultry products are primary sources of foodborne illness worldwide. Several highly publicized foodborne illness outbreaks associated with meat-based products have prompted the USDA to totally change its meat inspection system, relying for the first time on scientific information, especially microbiology. This new system imposes microbiological guidelines for meat processors, including steps to be taken for antimicrobial intervention that will meet government standards. Many types of interventions have been researched and utilized, with varying and inconsistent degrees of success in reducing associated pathogens. Industry and consumers are demanding better methods of reducing pathogens on meat and finished meat products.

THE RESEARCH:

The effectiveness of irradiation in controlling microorganisms in beef is well known, but additional studies have been necessary on the effects of low- to medium-dose irradiation when combined with freezing, precooking, and packaging on pork, ground beef, and beef muscle. K-State Research and Extension has conducted tests on the reaction of these meats to irradiation.

The findings concluded that irradiated beef responded extremely well when vacuum-packed. Bacterial counts remained low, and color and taste were unaffected.



THE IMPACT:

Irradiation is an economical way of safely treating meat products. Irradiation could provide an extra margin of safety from foodborne pathogens. If processors build irradiation facilities next to their processing or distribution centers, the costs could be as low as about 1 cent per pound. If the irradiation has to be contracted out, it could cost 5 cents to 7 cents per pound.

Domestic and international wholesale buyers, consumers, producers, and sellers face significant market pressures for safe meat products produced under well-controlled hygiene. All indications are that these market pressures will intensify.

CONTACTS:

Donald Kropf, Meat Scientist

Department of Animal Sciences and Industry

247 Weber Hall

Kansas State University

Manhattan, KS 66506-0201

(785) 532-1235

E-mail: dkropf@oz.oznet.ksu.edu

Curtis Kastner, Department Research Coordinator

Department of Animal Sciences and Industry

223 Weber Hall

Kansas State University

Manhattan, KS 66506-0201

(785) 532-1234

E-mail: ckastner@oz.oznet.ksu.edu



For more information, please contact your K-State Research and Extension office in your county or district.

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