

AMI Foundation News

A quarterly update on research, education and information

OCTOBER 2008

Volume 10

Issue 4

BOARD

Van Ayvazian
Boar's Head Provision Co., Inc.

Wesley Batista
JBS Swift and Company

Richard L. Bond
Tyson Foods, Inc.

J. Patrick Boyle
American Meat Institute

Rod Brenneman
Seaboard Foods

George Chappelle
Sara Lee Food and Beverage

Philip Clemens
Clemens Family Corporation

Henry A. Davis
Greater Omaha Packing Co., Inc.

Tim Day
Bar-S Foods Co.

Jeffrey Ettinger
Hormel Foods Corporation

Neil Genshaft
Fresh Mark, Inc.

John Griffin
Griffin Industries, Inc.

Randy Huffman
American Meat Institute

Gary Jacobson
Indiana Packers Corporation

Carl W. Kuehne
American Foods Group, LLC

Michael McCain
Maple Leaf Foods Inc.

Nick Meriggioli
Kraft Foods/Oscar Mayer

John Miller
National Beef Packing Co., LLC

David Miniat
Ed Miniat, Inc.

Larry Odom
Odom's Tennessee Pride Sausage, Inc.

Larry Pope
Smithfield Foods, Inc.

Jim Ransom
Curwood, Inc.

Robert Rebholtz
AB Foods, LLC

Bill Rupp
Cargill Meat Solutions Corp.

Dennis Vignieri
Kenosha Beef International, Ltd.

Norb Woodhams
Pierre Foods, Inc.

Experts Debunk Meat and Cancer Hypothesis

AMI Foundation Coordinates Timely Symposium in Columbus, Ohio

A panel of government, university and industry experts speaking at a leading food safety conference recently cast serious doubt on widely reported claims of a meat and cancer connection. The AMI Foundation coordinated the timely symposium.

"All too often, claims that meat is linked to cancer are made as if they are proven fact. But today's panel presented compelling evidence the 'conventional wisdom' is not always current or accurate," said AMI Foundation President Randy Huffman, Ph.D. The symposium was held at the International Association for Food Protection Annual Meeting in August in Columbus, Ohio.

David Klurfeld, Ph.D., national program leader in human nutrition at the U.S. Department of Agriculture (USDA) Agricultural Research Service, provided an extensive critique of the 2007 World Cancer Research Fund (WCRF) Report, released in the U.S. by its affiliate, the American Institute for Cancer Research (AICR). While AICR made dramatic claims in a

November 2007 press release that its report found a "convincing link" between red and processed meat and colorectal cancer, Klurfeld noted that a careful read of the 500-page report and its companion 2,334-page systematic literature review shows that the report does not support the press release's dire warnings.

According to Klurfeld, the systematic literature review said that, "Overall, mechanisms explaining the data linking meat intake and colorectal cancer are far from plausible biological mechanisms." He also said the literature review found a statistically significant 26 percent protective effect against rectal cancer for the highest meat consumption level — a finding not referenced in the final WCRF report or the press release.

"While few people likely will tackle the 2,334-page literature review after reading a 500-page summary of findings, those who do will find some critical information that was disregarded and contradicted in the (see page 2)

RELATED ARTICLES

AMI Experts Affirm Safety of Processed Meats, Page 3

Annals of Oncology Editorial Challenges WCRF Report Conclusions, Page 3

AMIF Study Examines Antilisterial Effect of Nitrite Levels

A newly released report funded by the American Meat Institute Foundation has concluded that a minimum 30 parts per million (ppm) nitrite will enhance the antilisterial activity of lactate-diacetate in ready-to-eat (RTE) poultry, but as with other traditional antimicrobials, the effect depends on the concentration and appears most effective at 70 ppm.

The purpose of the study was to determine the antilisterial effect of various levels of nitrite, lactate and diacetate in a single, model meat system using a turkey bologna-type product. Treatments were manufactured using a central composite design for four variables: sodium nitrite, sodium chloride, potassium lactate, and sodium diacetate, with five levels for each

variable (total 30 runs; center point replicated six times). Ranges for antimicrobial testing included 0-120 ppm nitrite, 0.8-3.6 percent sodium chloride 0-3.2 percent lactate and 0-0.24 percent diacetate.

Sliced finished products were surface inoculated with 3-log CFU/g *L. monocytogenes*, vacuum-packaged, stored at 4 or 7 degrees Celsius, and assayed for changes in populations of *L. monocytogenes* for up to 18 and 12 weeks, respectively. Listerial growth (defined as a 1-log increase) was highly variable for samples formulated with 30 and 60 ppm nitrite. Average growth for replicates of the center point treatment formulated with 60 ppm was observed at sampling intervals ranging (see page 2)

Experts Cast Doubt on Meat and Cancer Hypothesis

(from page 1)

report's summary," Klurfeld said. He expressed frustration that the group's press release reflected so poorly what was actually in the report and literature review.

In a dramatic presentation about the state of the science on sodium nitrite safety and positive health benefits, Nathan Bryan, Ph.D., of the University of Texas, Houston Institute of Molecular Medicine, told attendees that many members of the media, the public and the scientific community have outdated notions about sodium nitrite's safety.

"The public perception is that nitrite and nitrate are carcinogens but they are not," Bryan said. "Many studies implicating nitrite and nitrate in cancer are based on very weak epidemiological data. If nitrite and nitrate were harmful to us, then we would not be advised to eat green leafy vegetables or swallow our own saliva, which is enriched in nitrate and nitrite."

Bryan explained that fruits and vegetables contribute far more nitrite and nitrate to human daily intake than cured meats. For example, a person would derive 100 times as much nitrite from the modern elixir pomegranate juice as they do from a hot dog.

He also detailed the many cardiovascular and other health benefits that are now being associated with nitrite. According to Bryan, nitrite can prevent injury from a heart attack and act as an active source of nitric oxide within the body. Furthermore, Tibetan natives living at high altitudes have 100 times more nitrite in their blood than people living at sea level. Increasing nitrite availability appears to be a natural, adaptive physiological response to low oxygen.

In addition, he said that preliminary research at his university is showing that when nitrite has been applied directly to tumor cell lines, it did not promote tumor growth. And when ascorbate (Vitamin C) is added along with the nitrite, cell growth is inhibited (ascorbate is routinely added along with nitrite in cured meats).

“ *The public has been saturated for so long with these claims that they've been incorporated into our belief systems, but just as the world isn't flat, meat cured with sodium nitrite is both safe and nutritious.* **”**



- AMIF President Randy Huffman

Bryan's compelling presentation mirrors findings at the National Institutes of Health in Bethesda, Md., where Dr. Mark Gladwin has also published findings about nitrite's value as a medical treatment.

Equally important is the very reason that nitrite is added to cured meats: food safety. Nitrite prevents growth of *Clostridium botulinum*, which causes the disease botulism. More recently, researchers have also documented that nitrite inhibits the growth of *Listeria monocytogenes* if it is present, and lower levels mean lower risk to people if it were consumed.

James Coughlin, Ph.D., an independent, expert food toxicologist with more than 30 years of experience with nitrite, also discussed standards of scientific evidence that should be carefully employed when assessing the results of epidemiology and toxicology studies of meats and nitrite. Arthur Miller, Ph.D., senior managing scientist at Exponent, detailed the state of the science on heterocyclic and polyaromatic amine formation during grilling.

"If someone today said the world was flat, we'd laugh because that's such an uninformed and disproved hypothesis," Huffman said. "We need to put some of

our notions about meat and cancer, nitrite risks and other issues into that same mythological category. The public has been saturated for so long with these claims that they've been incorporated into our belief systems, but just as the world isn't flat, meat cured with sodium nitrite is both safe and nutritious."

Huffman underscored that fresh and processed meats offer important nutrition benefits including protein, essential vitamins, minerals and amino acids. Eating meat also contributes a feeling of satiety, and new research shows that low-carbohydrate/high protein diets are effective in weight control.

AMI Foundation Study Examines Antilisterial Effect of Various Nitrite Levels

(from page 1)

between nine and 18 weeks at 4 degrees Celsius.

Formulations with similar lactate-diacetate-sodium chloride combinations but 120 and 0 ppm nitrite supported growth at 13-15 weeks and four to six weeks, respectively. Treatments with other combinations of lactate-diacetate-sodium chloride and 90 ppm nitrite supported growth similar to that which was predicted by a commercially available predictive modeling program. Inhibition of *L. monocytogenes* was decreased by three to six weeks in several treatments with 30 ppm nitrite compared with the predictive model, but the addition of low nitrite levels delayed growth by three weeks or more compared to the control without nitrite.

The study also examined the effect of various antimicrobial combinations including nitrite on cooked color in turkey bologna-type product and found that reducing nitrite levels did not have a significant effect on redness in the ground turkey product.

To view this report, go to <http://www.meatami.com/ht/a/GetDocumentAction/i/42348>.

AMI Experts Affirm Safety and Benefits of Processed Meats

AMI Executive Vice President James Hodges underscored processed meats safety and condemned recent efforts by the vegan animal rights group Physicians Committee for Responsible Medicine (PCRM) to alarm the public. He made his remarks during a United States Department of Agriculture (USDA) listening session on the 2009 Reauthorization of the Child Nutrition Act, held in Baltimore, Md.

Hodges criticized PCRM's national television ad campaign that features child actors claiming they have colon cancer. The ads cut to scenes of children eating processed meats at school.

"A factually inaccurate, alarmist and exploitive new campaign called

the Cancer Project is aimed at scaring parents and school systems out of feeding children processed meats. It is just what those of us who know the Physicians Committee for Responsible Medicine (PCRM) have come to expect from this pro-vegetarian animal rights group in doctor's clothing," Hodges said. "Only a small percentage of PCRM's members are physicians."

Hodges noted that PCRM cites a controversial and inconclusive report by the World Cancer Research Fund as representing "consensus" when it has been widely challenged by scientists. Studies showing no connection between processed meats and cancer were not included in the WCRF report (*see page 7*)



AMI Executive Vice President James Hodges testifies during a USDA listening session in Baltimore.

Annals of Oncology Editorial Challenges WCRF Report Conclusions

An editorial by leading cancer researchers in the October 2008 *Annals of Oncology* challenged the 2007 World Cancer Research Fund (WCRF) report conclusions and argued that media information generated by the group should have been more cautious and less definitive. The editorial was written by scientists with the International Agency for Research on Cancer in France.

Headlines on stories about the 2007 WCRF report, triggered largely by press releases issued by the group and its U.S. affiliate, the American Institute for Cancer Research, warned that red meat should be limited to 18 ounces of meat per week and that there was no safe level of processed meat consumption. The editorial chastised WCRF for its focus on individual foods as opposed to dietary patterns and for its failure to highlight the huge increase in cancer risk posed by tobacco use.

According to the piece, the media coverage generated by WCRF's 10 key recommendations to reduce cancer risk compounded the problem. All recommendations focused on diet and weight control and omitted any mention of the risk posed by tobacco exposure, leading the public to believe that nutrition and weight played the more significant role in cancer prevention, something not supported by the literature. The authors

also expressed concern that WCRF's 'best advice' for cancer prevention failed to mention the importance of a variety of established cancer risk factors including sun behaviour, occupational exposures, chronic infections and use of exogenous hormones.

They echoed concerns expressed by many experts – and by AMI itself – that the public is at risk of a terminal case of what some have called nutrition whiplash. "The public are frequently receiving confused and confusing messages: so too are the media. The scientific community has a collective responsibility to transmit clear messages to the general community and not those which favour their position or findings," they said. "In view of the fragile grounds on which the conclusions of WCRF report on diet and cancer are based on, the information to the media should have been more cautious," the authors wrote, noting that WCRF press releases "left a clear indication that cancer prevention depends on stopping eating bacon and avoiding drinking sodas."

The authors expressed concern about a focus on specific foods as opposed to food patterns. "The substantial review of the evidence in the WCRF report demonstrates that there is no discernible association between many forms of cancer and specific dietary practices. There are still some very interesting hypotheses to

pursue, such as the value of an approach on the basis of the food patterns (e.g. the Mediterranean diet score) rather than individual foods and nutrients, but the cupboard is remarkably bare." The 2007 WCRF report was a follow-up to a 1997 report, the first one ever done by WCRF. In the earlier report, the power of fruits and vegetables to prevent cancer was deemed to be convincing, yet in the more recent edition, WCRF was less enthusiastic about their value and rated their protective effect as "probable." "This major change in classification of one of the few agents classified by WCRF in the category of strongest evidence in 1997 [the protective effect of fruits and vegetables] casts doubt on the rationale to classify 'convincing' to the evidence linking high meat intake to colorectal cancer in the current report. This also raises questions about the evaluation process and about the robustness of the classification system," the authors wrote.

AMI has raised significant concerns about the report's credibility. A critical issue, in AMI's view, is the fact that the 2,300 page systematic literature review that should be the basis for WCRF's conclusions said there was no plausible biological mechanism for a link between red meat and colon cancer, while the report concluded that there was "convincing evidence of a link."

FDA Approves Use of Irradiation on Lettuce, Spinach

The Food and Drug Administration (FDA) is amending the food additive regulations to provide for the safe use of ionizing radiation for control of food-borne pathogens and extension of shelf-life, in fresh iceberg lettuce and fresh spinach at a dose up to 4.0 kiloGray (kGy). This action is in partial response to a petition filed by The National Food Processors Association on behalf of The Food Irradiation Coalition.

Irradiation is a safe and simple process that uses energy to destroy harmful bacteria on food products. This energy can be generated from cobalt-60 or cesium-137 (referred to as gamma irradiation), x-ray machines or electron accelerators (most often called electron-beam technology). The energy passes through the product, in the same way that microwaves pass through foods in a microwave oven. The energy does not remain in the product or leave any residue, nor does it cook the product and when applied properly does not alter its taste in any demonstrable way.

Food irradiation has been used on certain spices, and has been approved as a means of pest control on certain fruits and vegetables for many years. In February 2000, the United States Department of Agriculture (USDA) announced a final rule allowing the use of food irradiation on raw, single ingredient meat and poultry products. Today, irradiated products, including certain raw meat products, are offered by retail chains in major markets.

Consumers are able to identify irradiated products by looking at the label, which bears prominently a symbol called the radura and the words “treated with irradiation” or “treated by irradiation.”

The American Meat Institute is a member of the Food Irradiation Coalition, the group that filed the original petition seeking approval for the use of irradiation on all ready-to-eat (RTE) foods, including fully cooked, RTE meat and poultry products.

AMIF President Randy Huffman, Ph.D., noted, “The meat industry is gratified that FDA is making progress on the petition by announcing this approval of irradiation for this class of RTE foods — spinach and iceberg lettuce. Food irradiation has been intensely studied and scrutinized for decades and the safety of the process, when used appropriately, is without question. This decision by FDA provides the food industry with another potential tool for enhancing safety of certain food products. We encourage FDA to move forward now with evaluation of the other RTEs covered by the petition, including RTE meat and poultry products.”

To view a copy of the agency’s final ruling, go to <http://www.meatami.com/ht/a/GetDocumentAction/i/413822>.

AMI Foundation President Tells USDA Low-Dose Irradiation of Beef Carcasses Can Be Valuable Processing Aid

Low-dose electron beam carcass irradiation can be an important processing aid to enhance beef safety, American Meat Institute Foundation (AMIF) President Randy Huffman, Ph.D., told the U.S. Department of Agriculture (USDA) recently during a public meeting to solicit opinion on an AMI petition to allow the technology to be used on carcasses in beef plants.

Huffman told USDA officials that the data clearly show that irradiation could be remarkably effective in destroying bacteria on the carcass surface, and added that in no case has the Food Safety and Inspection Service (FSIS) ever required the labeling of the ingredient merely because of its antimicrobial properties at time of treatment. He stressed that the petition demonstrates the process has no significant effect on the smell, taste, appearance, shelf life or nutritional properties of the carcass or products derived there from. “We submit it would be misleading to mandate the labeling of the process or any beef derived from the carcass since those products would evidence no characteristics of irradiated products,” he said at public meeting.

“AMI agrees with the position of the FSIS that low dose, low-penetration electron beam (e-beam) applied to the surface of chilled beef carcasses is a ‘processing aid’ and accordingly that this process need not be labeled on any products derived from the carcass,” Huffman said.

The key unique difference of this proposed application of

irradiation, compared with other approved methods of final product irradiation, is that it is a low dose, he said, and results in an insignificant portion of the carcass actually receiving e-beam exposure. He stressed that most of the edible portion of the carcass would not receive any e-beam exposure at all.

Huffman said that the external surface of the carcass is largely used in ground beef manufacture where it constitutes about five percent of the ground beef blend.

Huffman acknowledged that AMI’s petition is the first step in a long process to deploy the technology as a food safety tool in meat plants. “The key issue at hand today is that a regulatory decision is being contemplated based upon sound scientific data, which will allow the industry to further study this potential food safety tool and potentially take advantage of its pathogen reduction capabilities,” he said.

“Based upon the data and analysis referenced in the petition we submit that the proposed process of using e-beam to treat the surface of a chilled beef carcass would meet the USDA-FSIS definition of a processing aid and would result in a significant reduction in pathogens such as *E. coli* O157:H7, while causing no meaningful change in the taste, smell, appearance, shelf life, or the nutritional profile of products produced from the beef carcass,” he said.

(see page 8)

Science Soundbites: A Review of Recent Research

Surveillance Data Shows Increase in Listeriosis Cases in Europe

The incidence of listeriosis in Europe is changing, with the incidence increasing and distribution shifting, primarily affecting elderly persons and those with medical conditions, according to a new report.

To reach this conclusion, researchers analyzed data from France, which has conducted surveillance of human listeriosis since 1999. Additional data was collected from the institutes in charge of infectious disease surveillance in Western European countries and through a review of articles published on listeriosis trends in European countries with data for 2000-2006.

The absence of large outbreaks suggests that there may be increasing exposure to foods that have sporadic or low-level *Listeria* contamination and that have some ability to support growth of *Listeria* organism. The relative contributions of host and environmental factors need further study according to the authors.

Emerging Infectious Diseases, Vol. 14, No. 5, May 2008

Transportation Could Influence Contamination of Hides

Transportation and lairage should be considered in *E. coli* O157 prevention strategies, a study by Colorado University has determined.

The study, which was initiated to investigate the influence of transportation and lairage on shedding and hide contamination of *E. coli* O157 obtained fecal and hide samples from 40 pens of harvest-ready beef cattle at the feedlot prior to transport and again at the slaughter plant immediately after slaughter. Potential risk factors for hide contamination at the feedlot, during transport and at slaughter were then evaluated.

Using a multilevel Poisson regression

model, the study found that lots of cattle held in *E. coli* O157-positive lairage pens had eight times greater risk of having positive slaughter hide samples compared with cattle held in clean pens. Lots of cattle that were held in lairage pens contaminated with feces had three times greater risk for positive slaughter hide samples compared with cattle held in clean pens.

Lots of cattle that were transported for long distances had twice the risk of having positive hide samples at slaughter compared with cattle transported shorter distances, the study found.

Journal of Food Protection, Vol. 71, No. 6, pages 1114-1118

Different Combinations of Temperature, Time May Produce Same Bacteria Reductions on Knives

Dipping knives in water for shorter times at higher temperatures, or longer time at lower temperatures can produce equivalent inactivation of bacteria, according to a recent study by University of Queensland, Australia.

The study was undertaken to determine the effect of combinations of time and temperature ranging from one to 60 seconds and 60 to 80 degrees Celsius on the disinfection of knives artificially contaminated with *E. coli* and *Listeria*. In addition, the effect of a pre-rinse at 40 degrees Celsius was established.

The experiments, which were carried out with knives in a meat matrix at each of the 42 time and temperature combinations, with and without the pre-rinse, were performed in a laboratory water bath. Bacterial reductions were established by plate counts from the knife blade before and after immersion.

The results demonstrated that dipping knives in water for shorter times at higher temperatures, for example, 82 degrees for 1 second, or longer times at lower temperatures can produce equivalent inactivation of bacteria.

Pre-rinsing knives at 40 degrees

Celsius was found to increase the performance of the subsequent dipping step. Models produced from this data can be used to predict suitable combinations of time and temperature to achieve a desired bacterial reduction.

Journal of Food Protection, Vol. 71, No. 7, pages 1338-1342

Citric or Acetic Acid May Improve Thermal Inactivation of *E. coli* O157:H7

Ingredients such as citric or acetic acid may improve thermal inactivation of *E. coli* O157:H7 internalized in non-intact beef products, while sodium chloride may reduce cooking losses in such products, researchers at Colorado State University have found.

The study tested organic acids, potassium and calcium salts and sodium chloride for their influence on thermal destruction of *E. coli* O157:H7 in ground beef serving as a model system. Ground beef batches were mixed with equal volumes of each treatment solution or distilled water and portions of treated ground beef were extruded in test tubes with a pipette.

After overnight storage simulating product marination, samples were heated to 60 or 65 degrees Celsius internal temperature, simulating rare or medium rare doneness of beef, in a circulating water bath. At this temperature, treatments with citric and acetic acid showed greater reduction than all other ingredients and the control. Sodium chloride reduced weight losses and resulted in a four-log reduction in counts during cooking.

Journal of Food Protection, Vol. 71, No. 7, pages 1349-1356

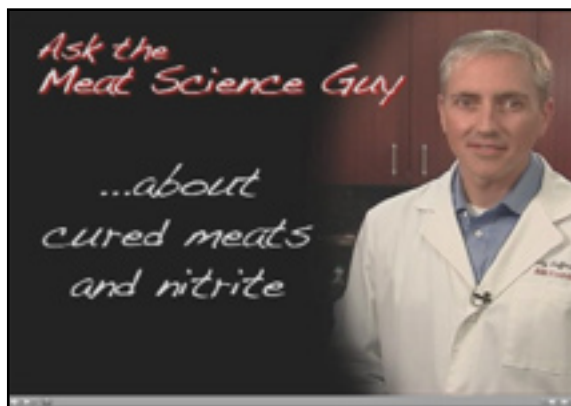
High Shedders Should Be Targets for Mitigation Strategies

High shedders within a truckload at slaughter could be a target for mitigation strategies to reduce the probability of previsceration carcass contamination, a study by Kansas State (see page 6)

AMI Launches New 'Ask the Meat Science Guy' Education Series

During Food Safety Education Month in September, the American Meat Institute unveiled a new educational video series, "Ask the Meat Science Guy," which features well-known meat expert Randy Huffman, Ph.D., president of the American Meat Institute Foundation.

The nine-part, short video series will provide answers to many of the questions consumers pose about meat and meat safety. The first three videos in the series, "Cooking Steaks and Burgers Safely," "Cured Meats and Nitrite" and "Processed Meat and Pregnancy" are currently featured on AMI's Meat News Network, www.youtube.com/meatnewsnetwork.



AMI's nine-part short video series, "Ask the Meat Science Guy" will provide answers to many questions consumers pose about meat safety.

Additional educational videos in the series will be added in the coming weeks.

AMI also has developed a new safe handling "B-roll" for use by broadcast media. The video depicts steps that can be taken at the grocery store, during transportation home and during preparation and cooking. The video is available in BETA format for broadcast media and viewable online at the Meat News Network.

For more information on meat safety, visit www.meatsafety.org. To view the videos, visit www.youtube.com/meatnewsnetwork.

Science Soundbites

(from page 5)

University has found.

To quantify associations at slaughter between *E. coli* O157:H7 carcass contamination, fecal-positive animals and high-shedding animals within truckloads of finished cattle, researchers sampled up to 32 cattle from each of 50 truckloads arriving at a commercial abattoir in the Midwest United States during a five-week summer period.

Carcass swab samples collected preevisceration and fecal samples collected postevisceration were matched within animals and analyzed for the presence of *E. coli* O157:H7, using enrichment, immunomagnetic separation and plating on selective media. In addition, a direct plating procedure was performed on feces to identify higher-shedding animals.

The research found that preevisceration carcass prevalence was positively correlated with overall fecal, fecal IMS and fecal high-shedder prevalence within truckloads of finished

cattle. In addition, research indicated that the probability of a carcass testing positive for *E. coli* O157:H7 was more strongly associated with truckload rather than with individual measures of fecal prevalence and the presence of a high shedder within the truckload results in high odds of carcass contamination.

Results suggest that future risk assessments, surveillance and research into potential mitigation strategies could potentially focus on the presence of high shedders within a group of cattle rather than the presence or absence of *E. coli* in an individual.

Journal of Food Protection, Vol. 71, No.9, pages 1761-1767

AMIF Process Lethality Determination Spreadsheet Updated

AMIF's Process Lethality Determination Spreadsheet has been updated. The process lethality instructions and spreadsheet on the AMIF Web site (www.amif.org) have a new look, are easier to understand and provide some examples of lethality data from the literature for certain products.

The purpose of the process lethality determination model is to provide meat processors with a science-based validation tool that can be used as supporting material to demonstrate the effectiveness of a specific cooking process. Specifically, the interactive model allows the user to input actual in-process time and temperature data from a given cook cycle to determine if the process achieves the required log reduction for the microorganism of concern.

The goal is to map the heating and cooling profile of the product by observing the temperature characteristics of the product during heating and cooling and relate that to known pathogen lethality values from the scientific literature.

Users should read the accompanying documents that provide detailed instructions and background information on Integrated Time-Temperature Processing.

Huffman Presents at National Academy of Sciences Conference

AMIF President Discusses *Listeria* Control Lessons Learned at Forum

AMIF President Randy Huffman, Ph.D., was an invited speaker at a Food Forum conference, hosted by the National Academy of Sciences. The theme of the conference was “Managing Food Safety Practices from Farm to Table,” and was held September 9 in Washington, D.C.

The purpose of the forum was to explore ways to manage food safety practices from the supply chain to the marketplace. In response to recent trends in outbreaks, the workshop explored ways to develop systematic, risk-based strategies for prevention of microbial contamination in foods, with case studies discussed in the areas of produce, thermally processed foods and meats. The workshop also served as a forum for experts on various disciplines to discuss approaches, technologies and institutional strategies to manage food safety risks in a global market.

Huffman shared with the Food Forum attendees lessons learned in the meat industry in relation to the control of *Listeria monocytogenes* in ready-to-eat (RTE) meat and poultry products. Huffman also detailed strategies of *Listeria* control which were adapted from AMIF’s series of *Listeria* Intervention and

Control workshops. His talk emphasized the importance of a flexible regulatory approach that emphasizes using data to guide decisions, key strategies for control, managing high risk situations and debunking common misconceptions about root cause. Huffman concluded with data that documents remarkable year-after-year declines in the prevalence of *Listeria monocytogenes* on RTE meat and poultry products over the last 17 years.

Other speakers included Donald Zink with FDA/CFSAN, who discussed risk management for thermally processed foods and Christine Bruhn, Ph.D., of University of California-Davis, who discussed consumer behavior in managing food safety risks. AMI member representative Mike Robach, vice president, corporate food safety and regulatory affairs, Cargill Incorporated, also participated in a panel discussion on future solutions.

To view the forum agenda, go to <http://www.iom.edu/Object.File/Master/53/901/Open%20session%20Workshop%20Agenda%20.pdf>

Restrictive Policies Have Higher Economic Cost Than Outbreaks

The economic effects of new or amended policies and regulations resulting from animal and poultry disease outbreaks can often be much greater and much longer lasting than the immediate effect of the outbreak itself, according to a recent report by the United States Department of Agriculture (USDA) Economic Research Service.

The report, which used bovine spongiform encephalopathy (BSE) as an example, demonstrates the pervasiveness of the effects of restrictive feed policies and regulations, particularly as they relate to meat and bone meal and other protein feeds.

Costs evaluated include those assumed by consumers via changes in supplies of secondary and final products; environmental costs associated with disposal of hazardous materials; lost value of products to the rendering industry, including a decline in value of meat and bone meal; and supply disruptions and substitutions within the feed market sector increase the total costs of disease mitigation regulations.

To view this report in its entirety, go to <http://www.ers.usda.gov/Publications/LDP/2008/08Aug/LDPM17001/ldpm17001.pdf>

AMI Denounces Efforts to Eliminate Processed Meats from School Menus

(From page 3)

cited by the PCRM/The Cancer Project. Hodges also noted that less than 5 percent of human nitrite intake comes from cured meats. Ninety-three percent comes from vegetables and saliva.

Numerous studies and experts show that processed meats are safe and nutritious and that nitrite in cured meats is safe, not carcinogenic, naturally produced by the body and actually has health benefits.

“Children are notoriously picky eaters, but they enjoy many processed meats and derive essential vitamins, minerals, protein and amino acids to the diet,” Hodges said. “Uneaten bowls of lentil artichoke stew or potato cauliflower curry (two of PCRM’s suggested recipes) contribute nothing to a child’s diet.

“Just as consumers need to eat a healthy, balanced diet, they need balanced information,” Hodges concluded. “Check with credible health sources like your doctor, dietician or the U.S. Dietary Guidelines. You can be assured that they will tell you that a healthy diet can include processed meats.”

In addition to Hodges’ testimony, AMIF President Randy Huffman conducted an interview with CNN to dispel PCRM’s claims. An in-depth article by Huffman on the subject has also appeared in *Food Safety Magazine*.

For more information, visit www.meatsafety.org.

Nutrition News Corner

Scientists Find Genes to Lower Saturated Fats in Beef

A team of scientists in Iowa has identified genes to regulate fat deposits in beef. Researchers examined three single nucleotide polymorphisms (SNPs), pronounced “snips,” related to fatty acid production in beef cattle. The scientists analyzed the relationship between the genetic traits for high fatty acid content and the actual fat deposits in the muscle of Angus bulls.

SNPs occur when a single nucleotide in the genome sequence is altered. Many scientists believe SNP maps may lead to the identification of multiple genes associated with animal productivity and composition.

Animal breeders can use the findings from this study to select for animals with lower deposits of saturated fat, and thereby produce a healthier product for the consumer. Breeders may also select for cattle that contain greater monounsaturated fatty acid deposits.

This research is of interest because the ability to control fatty acid content in meat will have powerful implications for human health and nutrition. Some of the research suggests the saturated fatty acids in beef, such as lauric acid, myristic acid and palmitic acid, to be the most harmful fatty acids linked to cardiovascular disease. Polyunsaturated fatty acids and monounsaturated fatty acids are thought to be either benign or protective of cardiovascular health.

Report Reveals How Protein Benefits People with Diabetes

A review published in the *American Journal of Clinical Nutrition* (May 2008) summarizes the current evidence that diets lower in carbohydrate and higher in protein are better for weight management and glycemic control than high-carbohydrate, low-fat diets.

Diets higher in protein and lower in carbohydrates have been found to improve glycemic regulation in people with diabetes as well as in healthy individuals.

Higher protein diets also offer added advantages for people with diabetes who are at increased risk of heart disease. Studies have shown that high-protein, low-carbohydrate diets reduce blood triglyceride levels, increase HDL cholesterol, increase LDL particle size and reduce blood pressure. In addition, there is evidence that increasing protein intakes can facilitate weight loss in part because of effects on satiety. Being overweight is a major risk factor for type 2 diabetes.

USDA ERS Reports Shows Decline in Nutrition Label Use

A new USDA Economic Research Service shows that while the majority of consumers say they use nutrition labels, overall use has declined.

“The Decline in Consumer Use of Food Nutrition Labels, 1995-2006,” examines changes in consumers’ use of nutrition labels on food packages between 1995-96 and 2005-06.

The analysis finds that although a majority of consumers report using nutrition labels when buying food, use has declined for most label components, including the Nutrition Facts panel and information about calories, fats, cholesterol and sodium.

By contrast, use of fiber information has increased. The decline in label use is particularly marked for the cohort of adults less than 30 years old.

To view this report in its entirety, go to www.ers.usda.gov/Publications/ERR63/.

Hunger, Stress Are Roadblocks to Healthy Eating, New ERS Report Shows

Hunger and stress may be major roadblocks to healthy eating, according to a new report from USDA’s Economic Research Service.

“Hunger, Stress and Other Roadblocks to Healthy Eating,” uses a consumer demand model to illustrate how both long-term health objectives and immediate visceral influences — long intervals between meals and eating away from

home — can drive individuals’ food choices.

The model predicts that cognitive dietary information will have less influence on food choices in the face of immediate visceral factors.

Using data from the 1994-96 Continuing Survey of Food Intake by Individuals and the companion Diet Health and Knowledge Survey, the analysis finds that when individuals extend the period between meals or consume more of their food away from home, they are significantly more likely to consume more calories and lower diet quality.

To view this report, go to www.ers.usda.gov/Publications/ERR62/.

Huffman Testifies at Public Meeting on Petition to Allow Low-Dose Irradiation

(from page 4)

“The industry has invested tens of millions of dollars in research aimed at developing new technologies that will reduce microbial hazards that are inherent in processing of raw agricultural products,” Huffman said. “Implementation of the most effective of these technologies has occurred and has contributed to the reduction of pathogens such as *E. coli* O157 on raw beef products. However, clearly there is a need for more effective control procedures.”

“We are pleased that FSIS is moving forward on our request and will be filing written comments to address certain issues raised during the public meeting,” Huffman added.

Ongoing AMI Foundation Research

E. coli O157:H7

Investigator	Institution	Project Title
Ifigenia Geornaras, John Sofos	Colorado State University	Effect of Traditional and Modified Enhancement Solution Ingredients on Survival of <i>Escherichia coli</i> O157:h7 during Storage and Cooking of Moisture-enhanced Beef
Mindy Brashears, Chance Brooks	Texas Tech University	CO MAP Temperature Abuse Challenge Study

¹Co-funded with the National Cattlemen's Beef Association

Listeria monocytogenes

Investigator	Institution	Project Title
Mary Alice Smith, Joseph Frank	University of Georgia	Refinement of <i>Listeria monocytogenes</i> (<i>L. monocytogenes</i>) Low Dose Data from Pregnant Guinea Pigs for Human Risk Assessment
Charles Carpenter, Jeffrey Broadbent	Utah State University	Validation of Levulinic Acid for Topical Decontamination of Meat Surfaces
Kathy Glass, Jeff Sindelar	University of Wisconsin	Evaluation of anti-Listerial Properties of Natural and/or Organic Ingredients in Ready-to-Eat Meat and Poultry Products
Phil Crandall, John Marcy, Steve Ricke, Mike Johnson, Corliss O'Bryan, Betty Martin	University of Arkansas	Minimizing <i>Listeria</i> Cross Contamination of Ready-to-Eat Poultry Meats by the In-Store Deli Meat Slicer

Salmonella

Investigator	Institution	Project Title
Annette O'Connor ²	Iowa State University	A Systematic Review of Literature on Pork Chain Epidemiology
Jeffrey Savell, Kerri Harris, Alejandro Castillo, Wesley Osburn	Texas A&M University	Evaluation of Alternative Cooking and Cooling Procedures for Large, Intact Meat Products to Achieve Lethality and Stabilization Microbiological Performance Standards (Targeted Research)
Randall Phebus, Douglas Powell, Harshavardhan Thippareddi	Kansas State University, University of Nebraska	Beyond Intent: Assessment and Validation of On-package Handling and Cooking Instructions for Uncooked, Breaded Meat and Poultry Products to Promote Consumer Practices that Reduce Foodborne Illness Risks (Targeted Research)
Charles Kaspar, M. Ellin Doyle, John Archer ³	University of Wisconsin	White Paper on Human Illness Caused by <i>Salmonella</i> from All Food and Non-Food Vectors (Targeted Research)

²Co-funded with the National Pork Board

³Co-funded with the National Pork Board and National Cattlemen's Beef Association

Other Food Safety

Investigator	Institution	Project Title
Randy Wehling, Michael Zeece, Harshavardhan Thippareddi	University of Nebraska	Evaluation and Analysis of Meat Products Contaminated by Low Levels of Ammonia (Targeted Research)

Diet and Health

Investigator	Institution	Project Title
J. Scott Smith, Terry Houser, Melvin Hunt ²	Kansas State University	Analysis of Heterocyclic Amines (HCAs) Formation in Various Cooked Meat Products (Targeted Research)
Arthur Miller, Leila Barraç, Nga Tran, Terry Troxell ²	Exponent, Inc.	Assessment of the Potential Human Exposure to Heterocyclic Amines from Various Cooked Meat Products (Targeted Research)

Sodium Nitrite

Investigator	Institution	Project Title
Jimmy Keeton, Wes Osburn, Margaret Hardin ²	Texas A&M University	A National Survey of the Nitrite/Nitrate Concentrations in Cured Meat Products and Non-meat Foods Available at Retail (Targeted Research)

²Co-funded with the National Pork Board

Staff on the move

The following is a list of recent industry meetings where AMI staff attended or participated as invited speakers.

Randy Huffman, president, American Meat Institute Foundation

International Association of Food Protection Symposium, Columbus, Ohio

Invited Speaker and Moderator

National Academy of Sciences Conference, Washington, D.C.
Speaker, “*Listeria* Intervention and Control: Lessons Learned”

CMC Annual Technical Conference
Speaker, “*Listeria* Lessons Learned”

Guest Lecture, University of Florida, Gainesville, Fla.
“Food Safety and Meat Industry Challenges”

AMI Foundation Contacts

All AMI Foundation staff can be reached at:
1150 Connecticut Avenue, NW, 12th Floor, Washington, D.C. 20036; Phone: 202-587-4200

Randall D. Huffman, Ph.D.

President
rhuffman@meatami.com

Susan Backus

Director of Research
sbackus@meatami.com

Janet M. Riley

Senior Vice President
Public Affairs & Professional Development
jriley@meatami.com

Dave Ray

Vice President, Public Affairs
dray@meatami.com

Tonya Allen

Manager, Public Affairs
tallen@meatami.com