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American Meat Institute Foundation Releases 2011-2012 Request for Pre-Proposals

The American Meat Institute Foundation (AMIF) released its 2011-2012 Request for Pre-proposals (RFPs) with a focus on applied and fundamental research that will improve the control of microbial pathogens in meat and poultry products. Pre-proposals are due Monday July 25 by 5 p.m. EDT.

AMIF is soliciting pre-proposals on controlling shiga toxin-producing *Escherichia coli* in fresh beef products, *Listeria monocytogenes* on ready-to-eat (RTE) meat and poultry products and *Salmonella* in meat and poultry products. The priorities are listed by pathogen. Areas of greatest concern within a

given research area are highlighted in the Priority Focus category within each pathogen.

Priority Focus areas include:

- Determining the most effective location in the production chain for ground beef to apply interventions to maximize reduction of microbial contamination;
- Improve and augmenting epidemiological data on food attribution for listeriosis, both sporadic and outbreak cases;
- Development a white paper addressing the scientific support behind current process controls *(see page 2)*

U.S. Achieves Public Health Goal for *E. coli* O157:H7

The U.S. has achieved its 2010 health objective for *E. coli* O157:H7 cases in people for the second year, according to new Centers for Disease Control and Prevention (CDC) FoodNet surveillance data.

CDC data identified 442 cases of *E. coli* O157:H7 infections in 2010 from all sources, which translates to 0.9 cases per 100,000 people. The public health goal for 2010 was one case per 100,000 people. CDC noted in *Morbidity and Mortality Weekly Reports* that the decline in human cases tracks with a decline in cases of hemolytic uremic syndrome (HUS), a serious and life-threatening complication that can occur with infections.

Compared with the 2006 — 2008 reporting period, the overall incidence of *E. coli* O157:H7 was down 29 percent. CDC identified a number of factors that contributed to this decline, including better detection and investigation of outbreaks, cleaner slaughter methods, enhanced inspection of ground beef *(see page 2)*

▶ FOOD SAFETY SPOTLIGHT

Understanding Public Health Significance of nSTECs

AMI Foundation's Director of Scientific Affairs Betsy Booren, Ph.D., addressed the American Meat Science Association's (AMSA) Reciprocal Meat Conference in Manhattan, Kansas last month in a presentation "Understanding the Public Health Significance of Shiga Toxin-Producing *E. coli*." Booren's presentation was part of a food safety session focusing on shiga toxin-producing *E. coli*.

"The meat industry has long recognized that all STEC, including non-O157:H7 STEC (nSTEC), have the potential to cause illness in humans under the right conditions. The industry has initiated research to show that process control systems currently employed are effective against nSTEC as the originating source of the contamination, the same as *E. coli* O157:H7 and industry has supported *(see page 3)*

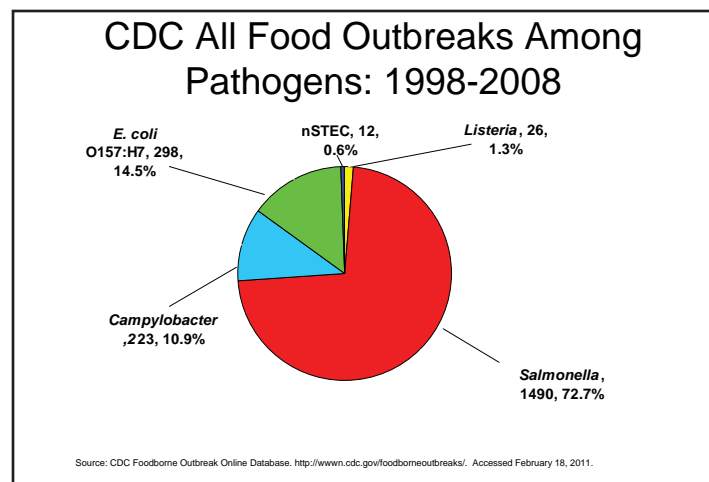
Centers for Disease Control Releases FoodNet Surveillance Data

(from page 1)

processing plants and increased awareness among consumers and foodservice establishments of the need to consume thoroughly cooked ground beef.

“Thanks to our prevention based approach to food safety, as well as industry and consumer efforts, we have substantially reduced *E. coli* O157 illnesses,” said Elisabeth Hagen, M.D., Under Secretary for Food Safety in the U.S. Department of Agriculture (USDA). “This report demonstrates that we’ve made great progress. However, far too many people still get sick from the food they eat, so we have more work to do. That is why we are looking at all options, from farm to table, in-order to make food safer and prevent illnesses from *E. coli*, *Salmonella* and other harmful pathogens.”

For 2010, FoodNet identified a total of 19,089 laboratory-confirmed cases of infection, 4,247 hospitalizations, and 68 deaths at its 10 sites. *Salmonella* infection was the most common infection reported (8,256 infections; 17.6 illnesses per 100,000 persons). For the other pathogens, the number of infections and incidence were: *Campylobacter* (6,365; 13.6 per 100,000), *Shigella* (1,780; 3.8 per 100,000), *Cryptosporidium* (1,290; 2.8 per 100,000), STEC non-O157 (451; 1.0 per 100,000); STEC O157 (442; 0.9 per 100,000), *Vibrio* (193; 0.4 per 100,000), *Yersinia* (159; 0.3 per 100,000), *Listeria* (125; 0.3



per 100,000) and *Cyclospora* (28; 0.1 per 100,000).

The overall incidence for the six key pathogens (*Campylobacter*, *Listeria*, *Salmonella*, STEC O157, *Yersinia*, and *Vibrio*) was 23 percent lower in 2010 than during 1996 — 1998. For individual pathogens, the incidence was significantly lower for *Shigella* (57 percent decrease), *Yersinia* (52 percent decrease), STECO157 (44 percent decrease), *Listeria* (38 percent decrease), and *Campylobacter* (27 percent decrease) but higher for *Vibrio* (115 percent increase). The incidence did not change significantly for *Cryptosporidium*.

AMIF Accepting RFPs

(from page 1)

- employed by the RTE meat and poultry industry;
- Identifying interventions that can be applied to the pork carcass and/or trim to reduce the prevalence of *Salmonella* in pork trim;
- Evaluating whether commonly used interventions for beef carcasses are effective for pork carcasses in reducing *Salmonella*; compare effectiveness of carcass washing and trimming for reduction of *Salmonella* on pork carcasses;
- Examining D-values for microorganisms in irradiated products;
- Identifying likely sources of contamination, risk factors and how to systematically intervene at the production facility, during transportation and lairage and the levels of *Salmonella* present on carcasses and meat products; and develop data to support future risk assessments of *Salmonella* and to estimate human health risk attributable to beef, pork and/or poultry.

The complete RFP is accessible at <http://amif.org/ht/a/GetDocumentAction/i/69085>. Fully developed proposals that result from this initial review will be brought before the AMIF Board of Directors for approval in January 2012. Please contact AMI Foundation’s Director of Research Susan Backus at sbackus@meatami.com or 202-587-4220 with any questions about the RFP.

Campaign Launched to Combat Meat Myths

The American Meat Institute (AMI), in conjunction with the American Meat Science Association (AMSA) recently launched its “Meat MythCrushers” campaign in an effort to reconnect Americans to modern food production and to “crush” some of the more popular myths associated today with meat and poultry.

The campaign is centered around a new website, <http://www.meatmythcrushers.com/>, that features science-based information and resources in response to some of the most popular meat and poultry myths held by consumers, covering topics such as food safety, production methods, nutrition and animal welfare. The myths were identified by an AMI consumer poll conducted by Harris Interactive.

Also included in the initiative is a Meat MythCrushers Facebook page, <http://on.fb.me/eTuUAG>, that will serve as a forum to encourage dialogue about these meat and poultry myths.

“Consumers have so many choices in today’s meat case. ... We want them to have accurate information so that they can make informed choices and make the best choices for themselves and their families,” said AMI Senior Vice President of Public Affairs Janet Riley.

AMIF's Besty Booren, Ph.D. Discusses Public Health Risk of nSTECs

(from page 1) development of new intervention technologies and testing methodologies.

Utilizing public health data acquired during the last 11 years, the Centers for Disease Control and Prevention (CDC) estimates 47.8 million illnesses, 127,839 hospitalizations, and 3,037 deaths are attributed to foodborne illness. These data were lower than the 1999 estimates of 76 million, 325,000, and 5,000, respectively. CDC estimates that 112,752 illnesses, 271 hospitalizations and 0 deaths are caused by nSTEC compared to the respective *E. coli* O157:H7 estimates of 63,153, 2,138, and 20. Annual STEC illnesses are estimated to be 2 percent -- considerably lower than illness estimates for other known pathogens such as *Salmonella*, *Campylobacter*, and viruses.

CDC also estimates that no deaths are attributed to nSTEC compared to 2 percent of *E. coli* O157:H7 when the pathogens are known. Currently, Food Safety and Inspection Service (FSIS) estimates the total number of illnesses from all FSIS regulated products to be 571,406 in 2011 and 565,691 in 2012.

"These estimates demonstrate the potential public health risk STEC contamination in food products may have," Booren said. "But these are only estimates and models are only as good as the data and the assumptions used to construct the estimation model. To determine the public significance of STEC, one must also take into account the current food safety systems in place and the past history of STEC in beef products."

In her presentation, she noted that from 1998-2008 there were 298 *E. coli* O157:H7 and 12 nSTEC outbreaks attributed to specific foods, which resulted in 6,088 and 1,030 illnesses being reported, respectively. During that time period 31 percent of the *E. coli* O157:H7 outbreaks were attributed to beef products or associated with beef products and no nSTEC outbreaks were attributed to beef products. Of the 81 beef related *E. coli* O157:H7 recalls in 2004-2010, 38 percent were due to illness investigations, while 62 percent were initiated due to FSIS/company samples.

"Both *E. coli* O157:H7 and nSTEC outbreaks follow the typical beef seasonal pattern with increased incidences associated with summer months. It is not uncommon for multiple etiology outbreaks to occur among STEC, which is logical because STEC microorganisms originate from the same source and sources of contamination are the same within the food production chain," she said.

Although the accuracy of modeling techniques and improved data do not allow for a comparison between the 1999 and 2011 foodborne illness estimates, Booren said that many speculate that improvements by the public health agencies, regulatory groups, and the meat and poultry industry have all contributed to a safer food supply, particularly in reducing *E. coli* O157:H7 contamination. The incidence of foodborne illness due to *E. coli* O157:H7 decreased 55 percent between 2000 and 2010 as well as meeting the 2010 national health objective in 2004, 2009, and 2010. Also during that time frame, the prevalence of *E. coli* O157:H7 in beef products calculated from FSIS's results of individual raw ground beef products analyzed for *E. coli* O157:H7 in federal plants decreased 72 percent even as testing methodologies became more sensitive.

"Given the history of STEC outbreaks and the industry's success in reducing *E. coli* O157:H7 prevalence in beef products, *E. coli* O157:H7 is likely the best microorganism to target in reducing the risk when consuming beef products as the number of confirmed illnesses within the U.S. have been more attributed to *E. coli* O157:H7 than to nSTEC," Booren said. "*E. coli* O157:H7 could be used as an indicator organism in a systematic food safety process management system used to control STEC contamination. Critics would likely argue that the reason there have not been as many outbreaks associated with nSTEC was due to lack of testing. In the past, that may have been a plausible argument, but in 2010 approximately 5,000 isolates of nSTEC were submitted to the CDC's PulseNet database, slightly more than the number of isolates of *E. coli* O157:H7, a trend that will likely continue in the future."

Booren said that the pathogenic STEC serotypes are significant. "But how does one improve the public health risk?" she asked. "That question needs to be answered yet the solution is not simple. The meat and poultry food production continuum is made up of four groups: the meat and poultry industry, regulatory agencies, public health agencies, and consumers. Each group has a critical role in food safety, but likely the least understood is the role public health agencies have and their impact on food safety policy."

According to Booren, public health agencies need to provide more accurate and timely foodborne illness attribution data. This objective data allows food safety stakeholders to allocate resources and scientifically justify the decisions made in their food safety systems.

To complement public health data, FSIS should evaluate how public health would be improved by declaring nSTEC to be adulterants or if there are alternative regulatory paths that could be more effective, she noted. "To do this, FSIS needs to better understand the prevalence of all STEC, including nSTEC, in the U.S. beef supply," she said. "The meat industry should also employ a process management system that addresses all STEC, which may include using *E. coli* O157:H7 as an indicator organism."

Process management systems are used to assess the adequacy of control within a food safety program using microbiological monitoring and could be used to make decisions in mitigating the risk of STEC on beef products. Finally, consumers should better understand the risks associated with raw agricultural products in order to make the best purchasing and handling decisions for their lifestyle, she said.

"The last decade has shown the important role cooperation and communication between public health officials, regulators, the meat industry, and other allied stakeholders have had on improving food safety," Booren concluded.

► AMIF Research

Study Examines Ways Reduce *Salmonella* in Frozen, not RTE Entrees

A recently completed study by Colorado State University researchers evaluated antimicrobials, alone and in combination, for use in reducing levels of *Salmonella* in frozen, not-ready-to-eat breaded chicken products. These products have been linked to salmonellosis.

The manufacturing process of these products involves a mild heating/browning step to maintain the shape of the product and provide it with a desirable golden-brown color prior to freezing and packaging; however, this step is not a complete lethality step and is not intended to fully-cook the product. Therefore, the risk associated with these products is that they may appear ready-to-eat and consequently be consumed uncooked or undercooked.

The overall goal of the project was to identify antimicrobial ingredients for reducing levels of *Salmonella* contamination in frozen, not-ready-to-eat breaded chicken products. A study was initially conducted to screen for levels of 11 individual antimicrobial ingredients against *Salmonella* in raw chicken breast portions. Based on the findings of this study, four antimicrobials were selected for further evaluation as single or combination treatments, in a process simulating the manufacture of a frozen, not-ready-to-eat breaded chicken product.

Additional studies evaluated the combined effect of different surface browning methods (i.e., oven baking or flash frying) and product dimensions [i.e., small (9 × 2.5 × 2 cm; 50 g) or large (9 × 5 × 3 cm; 150 g)] on *Salmonella* reductions in products formulated with selected antimicrobial treatments. Selected findings indicated that single treatments of caprylic acid (0.25 to 1.0 percent), carvacrol (0.3 to 0.5 percent), peracetic acid (0.3 and 0.5 percent), and ε-polylysine (0.5 and 1.0 percent) reduced

Salmonella contamination in frozen, not-ready-to-eat breaded chicken products by 1.6 to at least 4.7 log CFU/g; combinations comprised of caprylic acid (0.0625 to 0.25 percent) + carvacrol (0.075 to 0.3 percent), caprylic acid (0.0625 to 0.25 percent) + ε-polylysine (0.5 percent) or carvacrol (0.075 to 0.3 percent) + ε-polylysine (0.5 percent) reduced *Salmonella* counts by 1.7 to at least 4.5 log CFU/g, depending on the treatment; and combinations comprised of all three ingredients (i.e., caprylic acid + carvacrol + ε-polylysine) reduced *Salmonella* counts by 2.4 to at least 4.6 log CFU/g, depending on the concentrations tested.

Irrespective of antimicrobial treatment, oven browning of 9 × 2.5 × 2 cm (50 g) samples resulted in higher reductions of *Salmonella* than oven browning of 9 × 5 × 3 cm (150 g) samples; product dimensions did not affect pathogen reductions in samples surface-browned by flash frying. Fully cooked, uninoculated, breaded chicken products formulated with 0.5 percent ε-polylysine, alone, were found to be organoleptically acceptable by a sensory panel, compared to an untreated control (no antimicrobial ingredients), while products formulated with caprylic acid and/or carvacrol were less desirable.

The findings of these studies may be useful for the selection of suitable antimicrobials, proper concentrations, and product manufacturing methods for reduction of *Salmonella* contamination in frozen, not-ready-to-eat, surface-browned, breaded chicken entrees.

The final report is available at <http://www.amif.org/ht/a/GetDocumentAction/i/68780>.

New Study Demonstrates Effectives of Antimicrobial Wash on Beef Trim

Surface treatment of beef with levulinic acid plus sodium dodecyl sulfate (SDS) can be effective in inactivating *E. coli* O157:H7 and *S. Typhimurium*, but the bactericidal effects are closely tied to the temperature of meat, according to a recently completed study by researchers at the University of Georgia.

Levulinic acid plus SDS was applied at different concentrations, temperatures, contact times and agitation speeds to the surface of beef trim at different temperatures to determine its effect on inactivation of *E. coli* O157:H7 and *S. Typhimurium*. Beef (25-35 percent fat content) was cut into 4 x 4 x 3 inch portions and inoculated with 10⁷ *E. coli* O157:H7 or *S. Typhimurium* CFU/cm².

Results revealed that the bactericidal activity of a 3 percent levulinic acid plus 2 percent SDS solution was stable at 8° - 81°C, but the bactericidal effects on meat were related to the beef surface temperature. With beef trim at 5°C, treatment with 3 percent levulinic acid plus 2 percent SDS for 30 seconds at 21°C, 62°C, and 81°C reduced 1.0, 1.1, and 1.4 log *E. coli* O157:H7/cm², respectively. With beef trim at 8°C, treatment with 3 percent levulinic acid plus 2 percent SDS at 12°C for 0.1, 1, 3, and 5 min reduced 1.4, 2.4, 2.5, and 3.3 log *E. coli* O157:H7/cm², respectively. Similar results were obtained with *S. Typhimurium*. With beef trim at 8°C, treatment with 3 percent levulinic acid plus 2 percent SDS at 8°C for 1, 2, and

3 minutes reduced 2.1, 2.6, and >5.0 log *S. Typhimurium*/cm², respectively. Hand massaging the treated beef trim substantially increased pathogen reduction on beef trim.

Results revealed that *E. coli* O157:H7 and *S. Typhimurium* populations on all five 3 percent levulinic acid plus 2 percent SDS-treated beef trim at 12°C for 30 seconds were reduced to an undetectable level (<5 CFU/cm²) by a direct plating method, compared with a water-treated control which was 3 log CFU/cm².

The final report is available at <http://www.amif.org/ht/a/GetDocumentAction/i/68712>.

AMIF Recognizes Industry Experts for Food Safety Efforts

Cornell Professor Martin Wiedmann, DVM, Ph.D., Honored with AMI Foundation Scientific Achievement Award

Martin Wiedmann, DVM, Ph.D., professor in the department of food science at Cornell University, has been honored with the AMI Foundation Scientific Achievement Award. The award was presented during the AMI Meat, Poultry & Seafood Convention and Exposition in Chicago, Ill. Wiedmann's work centers around the ecology, evolution and transmission of key foodborne pathogens, with a focus on *Listeria* and *Salmonella*.

AMIF President James Hodges said, "Wiedmann's work has enhanced understanding of the transmission of foodborne pathogens from farm animals and from foods to humans. He has also been instrumental in helping expand our knowledge about how to detect and subtype *Listeria monocytogenes* in the plant environment."

In addition, Wiedmann has made valuable contributions to better understand *L. monocytogenes* risk in various products and locations in the cold chain, according to Hodges and he is currently one of the principal investigators in an AMI Foundation funded study of *L. monocytogenes* control at the retail deli.

"His research has contributed to the declines in pathogenic bacteria on meat and poultry – particularly the sharp declines we have seen in *L. monocytogenes* on ready-to-eat meat and poultry products – and has had a significant impact on federal regulatory policy," Hodges said.

Catherine Cutter, Ph.D., Recipient of AMSA 2011 Distinguished Extension-Industry Service Award

Catherine Cutter, Ph.D., was awarded the AMI Foundation sponsored 2011 Distinguished Extension-Industry Service Award at the American Meat Science Association's (AMSA) Reciprocal Meat



AMIF President James H. Hodges presents Catherine Cutter, Ph.D., with the Distinguished Extension-Industry Service Award at the AMSA Reciprocal Meat Conference.

Conference in Manhattan, Kansas.

Cutter, associate professor and food safety extension specialist at The Pennsylvania State University, has developed and conducted numerous workshops and educational programs. Cutter supplements her extension programs with a very productive research laboratory. Her work is industry focused and receives funding from many organizations including AMI Foundation, USDA and a number of individual companies.

The Distinguished Extension-Industry Service Award was established in 1965 to recognize outstanding achievement in meat science extension and service to the industry.

AMSA 2011 R.C. Pollock Award Given To Food Safety Leader Bruce Tompkin

The American Meat Science Association (AMSA) bestowed the R.C. Pollock Award to R. Bruce Tompkin at its annual meeting held this year in Manhattan, Kansas. The R.C. Pollock Award is the highest honor awarded to members of the AMSA as it represents

lasting and exceptional contributions to meat science and the organization

Tompkin's reputation as a food microbiologist in fresh and processed meats is international. He is considered to be one of the top HACCP experts in the world. He served on the International Commission on Microbiological Specifications for Food, which has provided him the opportunity to assist in the sound development of the Hazard Analysis and Critical Control Point program concept. These results are accepted and incorporated into the meat and food industry programs.

Tompkin has conducted goal-oriented research and development in the processed foods area that has had a tremendous impact on the meat industry. He focused on the prevention of foodborne illness and improving the microbiological safety of processed meat. In the mid-1970s, Bruce launched a comprehensive study of the effect and mechanism of nitrite on the delay in the outgrowth of *Clostridium botulinum*. The results of this study provided the scientific basis to prevent the removal of nitrite from meat products. These studies were published in 22 different scientific journals and professional organization (see page 7)

► SCIENCE SOUNDBITES

Researchers Examine *E. coli* O157:H7 Survival on Cattle Hides

Any pre-harvest interventions that are administered at the end of the finishing period will achieve maximum effect in reducing *E. coli* O157:H7 levels on cattle hides if given nine days before the cattle are presented for processing, according to a study by the Department of Agriculture (USDA) Agricultural Research Service.

The objective of this study was to determine the time period that *E. coli* O157:H7 survives on the hides of cattle. Three trials were conducted to follow *E. coli* O157:H7 hide prevalence over research study. For each trial, 36 animals were housed in individual stanchions to minimize or prevent hide contamination events. Through prevalence determination and isolate genotyping with pulsed field gel electrophoresis, *E. coli* O157:H7 survival on the hides of live cattle was determined to be short lived with a approximate duration of nine days or less.

Researchers noted, however, that interventions reducing pathogen shedding would also contribute to decreasing hide contamination through lowering the contamination load of the processing plant lairage environment, regardless of time of application.

Appl. Environ. Microbiol. doi:10.1128/AEM.02238-10

Researchers Examine Challenges of Epidemiologic Studies

While epidemiologic studies have the potential to make further important contributions to our understanding of early life influences on adult disease risk, a combination of traditional epidemiologic and statistical principles along with novel and sophisticated analytic methods need to be used to ensure robust causal inferences, according to a recent analysis published in the *American Journal of Clinical Nutrition*.

This analysis, which brought together ideas developed for a teaching workshop held as part of the European Union Sixth Framework Program Early Nutrition

Programming Project, examined a number of studies that illustrate the issues of change, bias, and confounding that often occur in epidemiological studies and discussed a number of ways to best avoid minimize these problems.

American Journal of Clinical Nutrition, 10.3945/ajcn.110.001461.

Study Compares Efficacy of 2 Percent Levulinic, Acetic or Lactic Acid Washes

Researchers at Utah State University have compared spray washing at 55.4 °C with 2 percent levulinic acid to that with lactic or acetic acid for decontamination of pathogenic bacteria inoculated onto meat surfaces, and their residual protection against later growth of pathogenic bacteria.

The model systems included *E. scherichia coli* O157:H7 on beef plate, *Salmonella* on chicken skin and pork belly, and *Listeria monocytogenes* on turkey roll. In the decontamination studies, acid washes lowered recoverable numbers of pathogens by 0.6 to 1 log/cm² as compared to no-wash controls, and only lactic acid lowered the number of pathogens recovered as compared to the water wash.

Washing with levulinic acid at 68.3 or 76.7 °C did not result in additional decontamination of *E. coli*. Acetic acid prevented residual growth of *E. coli* and *L. monocytogenes*, and it reduced numbers of *Salmonella* on chicken skin to below recoverable levels. Overall, levulinic acid did not provide as effective decontamination as lactic acid nor residual protection as acetic acid.

Meat Science. 88: 256-260.

Study Examines Effectiveness of Polymerase Chain Reaction Screening

Shiga toxin-producing *Escherichia coli*, enteropathogenic *E. coli*, and enterohemorrhagic *E. coli*, serve as more sensitive indicators of contamination than O157 strains alone, according

to a new study by the Institute for Environmental Health, Inc. that examines the effectiveness of rapid screening based on the polymerase chain reaction.

During 2005–2008, about 971,389 samples from several commercial beef production plants were tested using a rapid screening method based on the polymerase chain reaction to determine if they were presumptively positive for bacterial cells carrying *Salmonella* or shiga toxin-producing *E. coli*-specific genes. Of the product lots sampled (trim, ground beef, and variety meats), 15 percent were positive for the stx1 and/or stx2 (Shiga toxin genes), 9.1 percent for the *eae* gene (the attaching and effacing gene [*eae*] encoding intimin), 3.0 percent for an *rfb* gene region (encoding the O157-specific O side chain polysaccharide), and 1.67percent for *Salmonella* by the polymerase chain reaction assay.

In general, lots of ground beef showed the lowest frequency of contamination, and variety meats (by-products of carcass evisceration), the highest. Overall, 4.6 percent, 4.6 percent, and 0.8 percent samples were screen-positive for enteropathogenic *E. coli*, enterohemorrhagic *E. coli*, and *E. coli* O157, respectively. Of the *E. coli* O157-positive samples, 14 percent were also *Salmonella* positive.

Researchers noted that the frequency of screen-positive samples increases during the summer months, probably because of the prevalence of climatic conditions more conducive to microbial growth and that products higher in fat are more likely to be contaminated and should be tested more frequently than leaner ones.

They concluded that work in this area should address how processing variables, especially sanitation procedures, affect the frequency and levels of pathogens in beef products.

Foodborne Pathogens and Disease. DOI: 10.1089/fpd.2010.0825

► AMIF Research

AMI's Riley: Meat Scientists and Industry Members Must Become 'Meat Warriors' In Efforts to Educate Consumers and Build Trust

Members of the meat science community and meat industry must become 'meat warriors' if we are to truly educate consumers and build trust, according to Janet Riley, AMI senior vice president of public affairs and members, in the closing speech to the 2011 Reciprocal Meat Conference.

Riley detailed that "generalized trust," which is generally believing that others are trustworthy, is declining in America. It has been replaced with "particularized trust," the sort of trust afforded to those who are known to share values, like members of the same church, organization or political party. Yet trust is essential in receiving information. Consumers increasingly indicate that if they don't trust the source, they just won't accept the information.

As this trend is occurring, consumers are being flooded with information from books, movies and TV shows that provide inaccurate information about meat and poultry production. Because some consumers believe that some authors and activists have nothing to be gained by their statements, they accept the information provided and some myths have begun to take hold in the American consciousness.

To combat these trends, Riley said that it is critical to connect with others from that position of trust and that involves everyone in the industry.

According to Riley, the Edelman Trust Barometer indicates that trust in academic experts has increased by eight percentage points over the last year and this means that AMSA members have a very important and credible role to play in educating the public through multiple channels including the media, speeches, direct conversations and social media.

She detailed the resources now available through AMI's MeatUP! and MeatMythCrushers program, all of which are

available to members on MeatAMI.com and to others upon request. They include:

- Meat Myth Crushers.com web site and companion brochure, which can be downloaded from the site or requested via email at publicaffairs@meatami.com.
- A Meat Myth Crushers PowerPoint that can be delivered to older students or to interested community groups.
- Meat Myth Crushers Facebook page, which provides the same information as the site in a social media setting.
- Meat Locker Facebook page, a social media page aimed at imparting accurate information to youth. Companion Meat Locker stickers t also are available.
- Kid-friendly PowerPoint presentations that can be used with three different age groups in school settings to offer overviews of food safety, nutrition, animal welfare and the sources of our food.
- A business PowerPoint that can be customized using state and local economic data from www.MeatFuelsAmerica.com. These presentations can be made to local civic groups like local chambers of commerce, Rotary and Kiwanis Clubs and other local groups that welcome guest speakers.

Riley reported that her own experiences in speaking to children through schools and scout events reveal that youth are sponges who are eager for information and who can retain what is given. She said thank you letters that she has received show that children remember key messages, like cooking hamburgers thoroughly and proper cooking temperatures.

"I can assure that if you reach out to children using these materials, you, too will see the value. And you will discover that you aren't just educating the children, but the teachers, too, and they can spread the accurate information even further," Riley said.

AMI Foundation Recognizes Industry Experts for Efforts

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and government documents, and stand today as a classic program that has increased the body of scientific knowledge. The incorporation of these and subsequent findings into industrial practice has set Tompkin apart from many of his peers.

His work at Armour Swift-Eckrich provided insights into the control of pathogens in meat products, especially the control methodology for *Listeria monocytogenes*. He examined

pathogen control measures and packaging innovations for controlling *Salmonella*, *Staphylococcus*, and *Escherichia coli* O157:H7. His work on *Salmonella* control helped shape sampling protocols, methodology and controls still used today.

Tompkin was a member of the U.S. National Advisory Committee on Microbiological Criteria for Foods for 10 years and the International Commission Microbiological Specifications for Foods for 20

years, serving as a consultant to the Commission for an additional seven years. He was an active member of AMSA, serving on the Nitrite-Free Processed Meat Product Study Committee, Microbiology Program Committee, and participating regularly in the Reciprocal Meat Conference and the Meat Industry Research Conference program. He has been selected as a Fellow in both the American Academy of Microbiology and the Institute of Food Technologists.

► AMIF ONGOING RESEARCH

E. coli

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
Rodney Moxley	University of Nebraska	Effect of flagellin and intimin type expression on colonization of bovine intestine by non-O157 serotypes Shiga toxin-producing <i>E. coli</i> (Phase 2 only)
Norasak Kalchayanand, Terrance Arthur, Joseph Bosilevac, John Schmidt, Steve Shackelford, Tommy Wheeler	USDA-ARS-U.S. Meat Animal Research Center	Evaluation the Efficacy of Commonly used Antimicrobial Interventions on Shiga toxin Producing <i>E. coli</i> Serotypes O26, O103, O111, O145 and O157
Fred Pohlman, Steven Ricke, Palika Dias-Morse, Anand Mohan, Sara Milillo, Peggy Cook, Karen Beers	University of Arkansas, Safe Foods International	Antimicrobial interventions/application methods for the reduction of <i>Escherichia coli</i> O157:H7 and <i>Salmonella</i> in beef trimming and/or ground beef
John Sofos, Hua Yang, Ifigenia Geornaras, Kendra Nightingale, Keith Belk, Dale Woerner, Gary Smith	Colorado State University	Evaluation of chemical decontamination treatments for beef trimmings against <i>Escherichia coli</i> O157:H7, non-O157 shiga toxin-producing <i>E. coli</i> and antibiotic resistant and susceptible <i>Salmonella</i> Typhimurium and <i>Salmonella</i> Newport
Norask Kalchayanand, Terrance Arthur, Joseph Bosilevac, Dayna Brichta-Harhay, John Schmidt, Steven Shackelford, Tommy Wheeler	USDA-ARS-U.S. Meat Animal Research Center	Efficacy of commonly used antimicrobial compounds on decontamination of Shiga toxin-producing <i>Escherichia coli</i> serotypes O45, O121, and <i>Salmonella</i> inoculated fresh meat

Listeria monocytogenes

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
Haley Oliver, Martin Wiedmann	Purdue University, Cornell University	Development and Evaluation of Control Strategies for <i>Listeria monocytogenes</i> in Retail Deli Environments ¹
Joseph Sebranek, James Dickson, Byron Brehm-Stecher, Stephanie Jung, Aubrey Mendonca	Iowa State University	Reducing or Preventing Recovery of Injured <i>Listeria monocytogenes</i> on Ready-to-Eat Natural and Organic “Uncured” Processed Meats
Sophia Kathariou, Dana Hanson	North Carolina State University	Genetic Attributes Associated with the Ability of Different Serotypes of <i>Listeria monocytogenes</i> to Colonize the Meat Processing Plant Environment and to Contaminate Read-to-Eat Meat Products (Chicken, Turkey, Pork and Beef)
Richard Meinersmann, Mark Berrang, Tim Hollibaugh, Joseph Frank	Agricultural Research Service, USDA, University of Georgia	Role of Protozoa in the Persistence of <i>Listeria monocytogenes</i> in a Ready-to-Eat Poultry Processing Plant
Amy Wong, Charles Kaspar, Charles Czuprynski	University of Wisconsin	Formation, Survival, and Virulence of Stress-induced Filamentous <i>Listeria monocytogenes</i>
Robin Kalinowski, Erdogan Ceylan	Silliker Inc., Food Science Center	Validation of Quaternary Ammonia for Control of <i>Listeria monocytogenes</i> in Ready-to-eat Meat and Poultry Plants

¹Co-sponsored by Food Marketing Institute

Salmonella

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
Jeffrey Sindelar, Kathleen Glass, Robert Hanson	University of Wisconsin, HansonTech	Developing Validated Time-Temperature Thermal Processing Guidelines for Ready-To-Eat Deli Meat and Poultry Products

Diet and Health

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
Andrew Milkowski, Jim Coughlin, Nathan Bryan, Dominik Alexander	Milkowski Consulting LLC, Coughlin & Associates, University of Texas Medical School – Houston, Exponent	Response to International Agency for Research on Cancer 2A Classification of Nitrite (and Nitrate)

Foundation Examines MRSA’s Food Safety Implications

AMI Foundation’s Director of Scientific Affairs Betsy Booren, Ph.D., addressed the 2011 Federation of Animal Societies (FASS) Symposium held in Washington, D.C. in April to detail recently reported methicillin-resistant *Staphylococcus aureus* (MRSA) retail meat surveys that have had considerable media attention in the laws few months.

Booren reported that MRSA is resistant to all currently available β -lactam antibiotics and is the most commonly identified antibiotic resistant bacteria in hospitals around the world. While 50 percent of the U.S. population are carriers of *S. aureus* only 1.5 percent, according to the Centers for Disease Control and Prevention, are carriers for MRSA. MRSA has been detected in variety foods, including meat products and most contamination is caused by infected food handlers.

Booren discussed an April 2011 Pew Charitable Trust-funded study that she believed mislead consumers about the safety of U.S. meat and poultry. Authors of the study, which involved a small number of samples from retail stores, claim that their findings suggest that a significant public health risk exists. Booren stated it was notable that the study involved only 136 samples of meat

“A better translation of science is critically needed to determine and explain emerging public health issues and if these threats are food safety issues.



- AMI Director of Scientific Affairs Betsy Booren, Ph.D.

and poultry from 80 brands in 26 retail grocery stores in five U.S. cities.

“In such a small sample population, it is insufficient to reach the sweeping conclusions about the entire meat and poultry supply,” Booren said. “All that can be accurately reported is in this snapshot of retail meat is what was found; to make a population judgment a statistically balanced baseline or survey should be conducted that will give an accurately estimation of the prevalence of MRSA in U.S. meat and poultry supply.”

Booren also pointed out that comparing

or trying to characterize the U.S. meat system from MRSA surveys performed in other countries should not be done as the U.S. meat inspection and the food safety systems employed in U.S. plants are not the same as ones in Europe.

Many of the efforts already in place within the meat industry should prevent MRSA contamination throughout food production, processing, and preparation chain, Booren stated. These preventive measures include improved hygiene precautions consistently practiced by food handlers and the proper handling, cooking and refrigeration of the food until consumed.

“A better translation of science is critically needed to determine and explain emerging public health threats and if these threats are food safety issues. In the absence of that knowledge, the unknown should not be used to drive unrealistic regulatory policy,” concluded Booren.

For additional information on MRSA and implications to food safety, read the AMI Foundation white paper authored by Ellin Doyle, Ph.D., of the University of Wisconsin’s Food Research Institute. To read Doyle’s white paper, click here: <http://www.amif.org/ht/a/GetDocumentAction/i/67833>.

► **EDUCATION: UPCOMING EVENTS**

AMI Foundation Animal Care and Handling Conference Slated for October

The AMIF Animal Care and Handling Conference will be held October 19-20, 2011, in Kansas City, Missouri. This event, which has doubled in size since it was launched in 1999, is a testament to the increasing significance of animal care and handling in the meat industry.

Nearly a dozen associations and organizations have teamed this year to create a program that satisfies an array of attendee needs.

The Management and Policy Track is ideal for those responsible for “big picture” management of animal handling and welfare and will address key strategies for managing changing needs and trends, including the impact of consumer expectation on animal welfare.

The Applied Pig Handling and Applied Cattle Handling tracks offer attendees in-depth instruction by species. Leading academic experts in the field will offer instruction at a range of levels – from beginner to advanced. Their presentations will be complemented by practical insights from industry experts.

More information on this conference will be available at <http://www.meatami.com/ht/d/sp/i/10422/pid/10422>.

For more information, contact AMI’s Vice President of Education and Professional Development Marie Ternieden, Ed.D., at mdelucia@meatami.com.

Industry Associations Come Together to Sponsor Meat and Poultry Research Conference

A new conference that will bring together trade associations and professional societies whose members fund and conduct meat and poultry research on behalf of the industry is slated for November 1-2, 2011, in Kansas City, Missouri. Attendees will discuss research priorities, share research results and look at future needs in an effort to improve the industry’s overall research program.

The Meat and Poultry Research Conference, co-sponsored by the American Meat Institute Foundation, U.S. Poultry and Egg Association, National Cattlemen’s Beef Association and the National Pork

Board, will be open to all industry, government and academia that wish to participate.

The conference will feature educational sessions and guest speakers addressing a number of important and timely topics such as how production and processing practices may affect meat quality and food safety, and other pertinent industry issues. Additional information on educational sessions and registration will be provided at <http://www.meatami.com/> in the Events/Education section of the site.

For more information about this new educational opportunity, contact AMI’s Vice President of Education and Professional Development Marie Ternieden, Ed.D., at mdelucia@meatami.com.

► **EDUCATION WRAP-UP**

AMIF Sponsors Ground Beef Safety and *Listeria* Intervention and Control Workshops

The AMI Foundation recently sponsored two successful educational sessions on timely industry topics.

A new workshop, Ground Beef Production for Safety, was held April 27-28 in Kansas City, Missouri. This workshop was led by industry experts who shared their experiences and knowledge about the production of ground beef products within a preventative food safety system.

During the workshop, participants heard detailed case studies about ground beef production and food safety challenges and how companies have tackled them. The workshop agenda was structured to permit extensive discussion between attendees and instructors.

The 8th AMIF Advanced *Listeria monocytogenes* Intervention and Control Workshop was held on June 7-8, 2011, in Indianapolis, Indiana. A total of 54 participated in this summer workshop that focused on the basics for process control and how to build a firm foundation for *Listeria* control through sanitary equipment, facility design techniques, and sanitation best practices. The Canadian Meat Council and the North American Meat Processors Association co-sponsored the event.

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