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# NEWS

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## AMIF Validates In-Plant Test to Detect Central Nervous System Material

*Beef Packers Can Effectively Remove Spinal Cords, Colorado State Study Shows*

Results from an AMIF-funded research project at Colorado State University (CSU) show that a new analytical test can detect central nervous system tissue (CNS) in beef products.

The new study, authored by CSU's Glenn Schmidt, Ph.D., and Kim Hossner, Ph.D., validates that the test can help meat companies determine if they are effectively removing spinal cords from beef carcasses according to good manufacturing practices (GMPs) issued recently by AMIF. The U.S. Department of Agriculture requires that spinal cord be removed from bones entering advanced meat recovery systems (AMR).

### Spinal Cord Removal

AMR systems are a mechanical means of removing meat from hard-

to-trim bones. Just as fruit processors use machines to remove remaining fruit from peels, meat processors use machines to remove meat from back and neckbones. Meat derived by AMR is considered meat and requires no special labeling.

In 1997, USDA issued FSIS *Directive 7160.2* which instructed inspection personnel to verify that meat derived through AMR systems complies with the regulatory definition of meat by verifying the complete removal of spinal cord from vertebral bone entering the system. The GMPs were developed based on the need for plants to establish procedures for completely removing spinal cord to ensure compliance and to maintain consumer confidence in AMR derived meat.

*Continued on page 2*

## C. perfringens Literature Review Released

A new AMIF-sponsored review of scientific literature related to preventing *Clostridium perfringens* growth during cooling has been released by Ellin Doyle, Ph.D., of the University of Wisconsin's Food Research Institute.

The literature review provides an overview of decades of research into the role of proper cooling in enhancing food safety and preventing the outgrowth of pathogens like *C. perfringens*. This will assist meat processors in validating that processing systems are adequate to ensure food safety.

Spores of bacterial pathogens, such as *Bacillus cereus*, *Clostridium botulinum* and *C. perfringens* are very heat resistant. Many spores are actually

activated by heat and may germinate and grow if the process of cooling food is prolonged. According to Doyle, cooling processes must be designed to minimize or completely prevent growth of spore-forming foodborne pathogens. USDA's draft

*Continued on page 4*

### Inside this Issue...

Animal Handling Conference	2
Listeria Intervention Workshop	3
Agency Disease Control Efforts	3
Foodborne Disease Sources	4
Ongoing Research	5
Research Conference	6

## AMIF Animal Handling & Stunning Conference Slated for February 21-22, 2002, in Kansas City

AMIF's Annual Animal Handling and Stunning Conference is slated for February 21-22, 2002, at the Kansas City Marriott in Kansas City, MO, and AMIF is anticipating record crowds.

This year, AMIF has partnered with the National Cattlemen's Beef Association, National Chicken Council, National Council of Chain Restaurants, National Pork Producers Council and National Turkey Federation to bring the industry the most comprehensive conference ever.

Many of the ever-popular faculty will return again for the 2002 conference, including Temple Grandin, Ph.D., and John Scanga, Ph.D., of Colorado State University; Janice Swanson, Ph.D., of Kansas State University and Dave Meisinger, Ph.D., of the National Pork Board.

The faculty has been expanded for the 2002 to include transportation expert Tim O'Byrne of Calico Beef Consulting in Calgary, Alberta; poultry quality expert Sarge Bilgili, Ph.D., of Auburn University; poultry catching and handling expert Jim Marion, Ph.D., of Auburn University (emeritus); and poultry stunning expert Dan Fletcher, Ph.D., of the University of Georgia.

### Species Tracks

The conference also will feature large general sessions as well as species-specific breakout sessions to bring attendees more of the practical, specific information they need, from tips on reducing prod usage, to new ideas for eliminating distractions and maintaining stunning equipment. USDA's Food Safety and Inspection Service will send an official representative to offer a preview of new directions at the agency on animal welfare.

Corporate representatives will discuss their own approaches to improving animal handling. Speakers include Phil Clemens, chairman of Hatfield Quality Meats, Inc., in Hatfield, PA, and Archie Schaffer, senior vice president, external affairs, Tyson Foods, Inc. A panel of restaurant operators also will discuss their own supplier requirements and audit programs.

This conference is designed for corporate quality assurance personnel, regulatory staff, plant managers, slaughter floor supervisors, pen managers, poultry catchers and handlers, stunner operators and anyone else with responsibility for welfare related issues.

### Registration

Registration for the 2001 Animal Handling and Stunning Conference was so strong that AMIF was

forced to close the conference due to space limitations. This time, AMIF reserved a larger space to accommodate the growing demand for this conference.

Registration for the conference is \$295 for members of AMI and cosponsoring associations; \$265 when three or more members register together; and \$395 for non-members. Exhibit space also is available.

For information or to register, visit <http://www.meatami.com> or contact AMI's Meetings Manager Katie Brannan at 703/841-2400 or [kbrannan@meatami.com](mailto:kbrannan@meatami.com).

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## CNS Material Test

*Continued from page 1*

### New Test Method

Glial fibrillary acidic protein (GFAP) is a component of CNS tissue. A new method has been developed to determine the presence of GFAP in meat products as a means of detecting the presence of CNS tissue. The objective of the CSU study was to evaluate GFAP enzyme linked immunosorbent assay and ELISA test kits for GFAP manufactured by R-biopharm.

The study had three components; 1) a controlled correlation study using serial dilutions of spinal cord in ground beef, 2) a 14 plant field trial using the R-biopharm test kits, and 3) a correlation analysis using data from the field trial. The field trial was conducted in 14 volunteer plants. All data were collected and summarized anonymously.

Researchers concluded that R-biopharm GFAP test method provides an objective means to assess the presence of CNS tissues in beef products. The test can be used to determine the effectiveness of GMPs that address the removal of CNS material from raw materials entering AMR systems.

"The GFAP test can provide a useful tool to verify beef products do not contain CNS tissue and thereby enhance consumer confidence in our products," said AMIF President James Hodges.

The research status report is posted on <http://www.amif.org>.

## AMIF *Listeria* Intervention and Control Workshop Slated for December 5-6, 2001, in Dallas, TX

The AMI Foundation's (AMIF) popular workshop "Implementing *Listeria* Intervention and Control" will be held December 5-6, 2001, at the Hyatt Regency Dallas in Dallas, TX. The Dallas workshop will be cosponsored by the Southwest Meat Association (SMA).

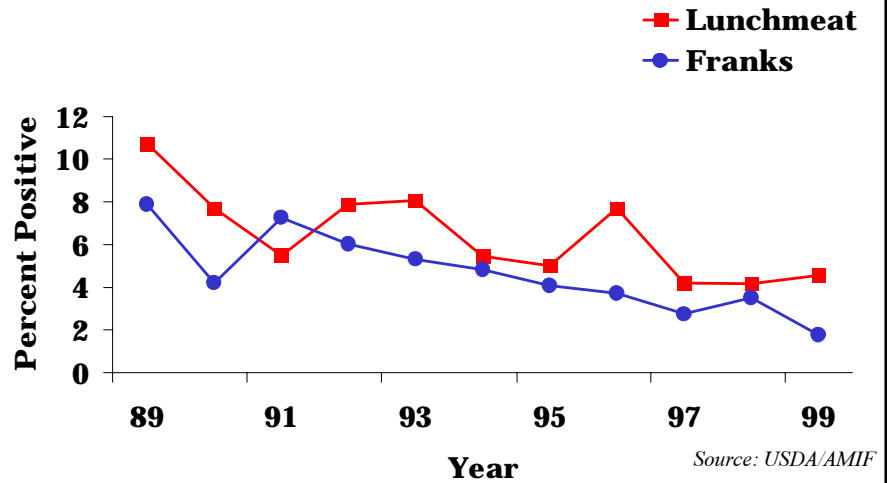
The course is designed to help participants examine the issues surrounding control of microbiological hazards, primarily *Listeria*, in ready-to-eat meat processing and to provide experience in developing appropriate procedures for processing and handling ready-to-eat meat and poultry products under USDA's soon-to-be finalized rule.

The two-day workshop will address sanitary design, product formulation and post-packaging technology, microbiological sampling, data analysis, and investigation and corrective actions.

The workshop also will include a technology fair where attendees can meet directly with suppliers.

Workshop leaders are unique because they are "working food safety/HACCP experts" from Cargill, Inc., ConAgra Refrigerated Processed Foods, Inc., Hormel Foods Corporation, Ecolab Inc., Food & Beverage Division, John Morrell & Co., Land O' Frost, Inc. and Oscar Mayer Foods. AMI regulatory and scientific affairs staff also will be on hand to answer questions and help solve problems.

### FSIS *Listeria monocytogenes* positives



Participants also will receive a special maintenance sanitation training video to use with in-plant employees, courtesy of Kraft Foods and the AMI Foundation.

Registration is \$595 for AMI or SMA members, \$495 when three or more members register together, \$1,000 for exhibitors and \$695 for non-members. Registration is limited to 60 participants to ensure a quality learning experience.

To register for the workshop, visit <http://www.meatami.com>.

## Agencies Doing 'Admirable Job' of Keeping Animal Diseases at Bay, AMIF President Says

Producer groups, consumer interests and other groups today called for increased vigilance in the prevention of foreign animal diseases during a public hearing held to solicit information in response to the Animal Disease Risk Assessment, Prevention and Control Act of 2001, passed by Congress earlier this year.

Comments were made in a public meeting required by the law to assess the economic impacts and potential risks posed by foreign animal diseases such as foot and mouth disease (FMD) and bovine spongiform encephalopathy (BSE). The meeting also examined ways to strengthen existing firewalls.

AMI Foundation President James Hodges testified at the hearing, complimenting the various agencies for doing an "admirable job in preventing the introduction of foreign animal diseases" into the U.S.

"Our desire is to take all reasonable precautions to prevent FMD and BSE in this country. These diseases could have a devastating effect on our domestic economy and export markets," Hodges said. "But we also need to be sensitive to the costs, benefits and practicalities of these precautions."

Hodges also stressed a need for increased cooperation between APHIS and FSIS in disease surveillance and sample collection. "FSIS officials are a continuous presence in the meat packing and slaughter facilities and can offer a crucial first line of detection for these animal diseases," Hodges said.

In addition, "the meat and poultry industry must be highly involved in decisions regarding prevention of and contingency plans for foreign animal diseases," Hodges said.

Science News in Brief

## Sprouts Implicated in High Percentage of California Foodborne Disease Outbreaks

**Sources of Foodborne Illness.** A new study published in the *Annals of Internal Medicine* showed that alfalfa and clover sprouts were responsible for more than half of foodborne illnesses in California between 1996 and 1998.

The study analyzed six multi-county outbreaks of bacterial infection that caused 600 cases of disease and two deaths. The study estimates that 22,800 people were infected but never realized that sprouts caused the illness.

During the study, sprouts caused more foodborne illnesses than any other food, though consumers typically think meat, eggs and water are the most common sources of foodborne illness. The illnesses most often associated with sprouts were *E. coli* O157:H7 and *Salmonella*.

The Food and Drug Administration recently issued a consumer advisory to cook sprouts before eating them.

News reports indicate that **Canadian officials are observing similar trends.** A story in the *Toronto Globe and Mail* this month quoted Dr. Jean Kamanzi, chief of the foodborne-pathogen unit at the Canadian Food Inspection Agency (CFIA), saying, "In the past . . . we used to see more food illness linked to meat. Now we see more and more that are linked to cantaloupes, salad."

According to the newspaper, Dr. Kamanzi and others working in the field point to some major shifts affecting foodborne illness, from changing diet and demographics to the globalization of the food market.

**Pathogen Modeling Program** Researchers at USDA U. S. Agricultural Research Service, Eastern Regional Research Center (ARS-ERRC) are continuing to make improvements to the well known Pathogen Modeling Program (PMP).

ARS has recently sent a "beta" version of the model, PMP6.0, to selected users for evaluation. Staff at AMIF have been asked to provide input and to serve on a PMP advisory committee. The updated version of the PMP will be made widely available in the near future. Four new models will be added, including dynamic temperature for *Clostridium perfringens* and *Clostridium botulinum*, and thermal inactivation for *Escherichia coli* O157:H7 and *Listeria monocytogenes*.

Some additional features include 1) an enhanced Windows-style user interfaces, 2) menu structures based on model type and pathogen species, 3) a reference database, 4) scenario saving and printing, and 5) Microsoft Excel-type tables and charts. ARS researchers anticipate that the PMP6.0 will be

available for downloading by the end of November 2001. AMI will make an announcement through [www.meatami.com](http://www.meatami.com) website upon the program release.

The program may be downloaded free, along with additional information about the program, at the ARS-ERRC website <http://www.arserrc.gov/mfs/pathogen.htm>.

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## C. perfringens Review

*Continued from page 1*

compliance guidelines for ready-to-eat meat and poultry products say that during cooling there should be no growth of *C. botulinum* and no more than 1 log growth of *C. perfringens*.

"Why should *C. perfringens* be the indicator organism for safety of cooling processes? Data from two studies on outgrowth of *B. cereus*, *C. perfringens* and *C. botulinum*, during cooling of inoculated cooked ground beef, demonstrated that *C. perfringens* multiplied by 4-5 log if cooling took 18 hours while the other two organisms did not grow during this time," she said. "Of the three pathogenic spore-formers, *C. perfringens* is most often associated with meat; improper holding temperatures and/or inadequate cooking are contributing factors in nearly all outbreaks investigated by the Centers for Disease Control."

The literature review is posted on AMIF's web site at <http://www.amif.org>.

### AMI Foundation To Hold Research Briefing

AMIF has scheduled a one-day Foundation Research Briefing on December 4, 2001, at the Hyatt Regency Dallas, TX. AMIF-funded researchers will present final reports, or status updates on research projects targeted toward *E. coli* O157:H7 and *Listeria monocytogenes*.

This event will provide an opportunity for individuals from companies that have contributed to AMIF to learn from and ask questions of the researchers. The briefing will be held the day prior to the AMIF Listeria Intervention and Control Workshop.

For more information, contact AMIF Vice President of Scientific Affairs Randy Huffman, [rhuffman@meatami.com](mailto:rhuffman@meatami.com)

## Ongoing Research

### *Listeria monocytogenes*

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
Amy C. Lee Wong	University of Wisconsin-Madison	Reduction of <i>Listeria monocytogenes</i> Biofilm Formation in RTE Meat Processing Environments
Joseph G. Sebranek	Iowa State University	Use of Pediocin with Other Barriers for Control of <i>L.m.</i> in RTE Processed Meats
Kalidas Shetty	University of Massachusetts	Elite Herb Extracts Containing High Rosmarinic Acid and Inhibition of <i>Listeria monocytogenes</i> in Meat and Poultry Products
James Dickson	Iowa State University	Optimum Radiation Dose to Eliminate <i>Listeria monocytogenes</i> in Packaged RTE Processed Meats and Survival of <i>Listeria monocytogenes</i> in RTE Processed Meats after Irradiation Processing
Harshavardhan Thippareddi, Ph.D.	Kansas State University	Control of <i>Listeria monocytogenes</i> in Ready-to-Eat Meats Using Cetyl Pyridinium Chloride (CPC) and Shelf Life Extension of RTE Meats Treated with CPC
Michael Doyle, Ph.D.	University of Georgia	Control of <i>Listeria monocytogenes</i> in Food Processing Facilities by Competitive Exclusion Microorganisms
Jimmy Keeton	Texas A&M University	Antimicrobial Effects of Surface Treatments and Ingredients on Cured RTE Meat Products
Jack Losso	Louisiana State University	Pathogen Inhibition and Shelf-Life of Raw and Precooked Meat with Protamine
Ellin Doyle	Food Research Institute	Review of Scientific Literature Related to Survival of Pathogenic Foodborne Bacteria during Cooling of Heat-treated, RTE Meat and Poultry Products and Thawing of Frozen Raw Meat and Poultry

### *E. coli* O157:H7

<u>Investigator</u>	<u>Institution</u>	<u>Project Title</u>
Andrew Benson Ph.D.	University of Nebraska	Distribution of Virulent & Avirulent Subclones of <i>E. coli</i> O157:H7 in the U.S.
Mindy Brashears	Texas Tech University	Testing of Probiotic Bacteria for the Elimination of <i>Escherichia coli</i> O157:H7 in Cattle
Dale Hancock	Washington State University	Evaluation of Efficacy of a Bacteriophage System in Preventing or Modulating <i>E. coli</i> O157:H7 Infection of Cattle

# 2001 Meat Industry Research Conference Agenda to Address Animal Disease Issues, Biosecurity, Food Safety Technologies

The AMI Foundation's Annual Meat Industry Research Conference (MIRC) will bring together some of the world's best meat and food scientists to examine timely, pressing issues like animal disease prevention, biosecurity and food safety. The MIRC, cosponsored by the American Meat Science Association, will be held October 15-17 at the Palmer House Hilton Hotel in Chicago, IL.

### BSE Presentation

The MIRC's first general session, "Animal Health: Protecting Society," will feature George Gray of Harvard University's Center for Risk Analysis. Gray is the chief author of the much-anticipated bovine spongiform encephalopathy risk assessment sponsored by the U.S. Department of Agriculture and the Food and Drug Administration.

During the same session, Alfonso Torres, associate administrator for veterinary services at USDA's Animal and Plant Health Inspection Service (APHIS) will give an overview of U.S. policies to prevent animal diseases, while Floyd Horn of USDA's Agricultural Research Service (ARS) will discuss U.S. biosecurity and animal disease research.

Glen Schmidt, professor at Colorado State University, will present AMIF sponsored research on detection of central nervous system tissue in meat products derived from AMR. (see story, page one).

In General Session II, speakers will explore the effects of multiple interventions or the "hurdle" approach. Gary Smith, Ph.D., professor at Colorado State University, will moderate a discussion by producer, processor, foodservice and retail representatives called "Have We Turned the Corner on *E. coli*?"

General Session III will focus on "The Maturation of Case-Ready Technology" and will include discussions of product consistency, operational and retail challenges and packer processor considerations.

General Session IV will serve as a "Hot Issues Update" and will feature brief presentations from speakers on "hot" topics, including animal welfare, irradiation packaging, nutrition labeling of fresh meat, temperature measurement technology, product fortification and statistical process control.

### Registration Information

Registration for the MIRC is \$445 for AMI and AMSA members, \$425 when three or more members register together, \$35 for students and \$645 for non-members. To register, visit <http://www.meatami.com> or contact AMI's Meetings Manager Katie Brannan, 703/841-2400 or [kbrannan@meatami.com](mailto:kbrannan@meatami.com).

## Upcoming AMIF Events

October 15 - 17, 2001  
**Meat Industry Research Conference**  
The Palmer House, Chicago, IL

December 5 - 6, 2001  
**Implementing *Listeria* & Intervention Control Workshop,**  
Hyatt Regency Dallas, Dallas, TX

February 21-22, 2002  
**Animal Handling and Stunning Conference,**  
Kansas City Marriot, Kansas City, MO

March 23 - 27, 2002  
**Conference on Worker Safety, Health & Human Resources**  
Opryland Hotel, Nashville, TN

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