

Foundation Releases Two RD-Authored Meat White Papers Aimed at Nutritionists

The Foundation for Meat and Poultry Research and Education released two new expert authored scientific reviews about the role of products like bacon, deli meats, sausage and cured meat in a healthy diet and how these products are formulated and produced.

Should We All be Eating Less Meat?: Exploring the Science and Controversies Surrounding Meat and Understanding Processed Meat are authored by dietitian Kathleen Zelman, MPH, RDN.

Should We All be Eating Less Meat? looks at current dietary patterns as outlined by the 2015 *Dietary Guidelines for Americans*, which found that most Americans are not overeating protein foods from meat, poultry and eggs. It evaluates the health benefits of meat consumption, the evidence related to health concerns tied to meat as well as the potential health risks of eliminating meat from the diet.

Understanding Processed Meat evaluates common meat processing methods, the ingredients used, the role of nitrate and nitrite in meat curing and the evidence linking processed meat to cancer.

Both papers were provided to dietitians at the Academy of Nutrition and Dietetics (AND) Food and Nutrition Conference and Expo (FNCE) in Chicago in fall 2017. They are available under Resources at www.meatpoultryfoundation.org.

Recent Research Findings

The Foundation received several research findings in 2017. Below are two projects completed since the last newsletter. Executive summaries, and final reports when available, of each project are available on meatpoultryfoundation.org

Literature Review: Efficacy of Interventions on Pathogens in Processed Meats

Wendy Bedale, Jeff Sindelar, Kathy Glass
University of Wisconsin

This project generated a comprehensive review of high-quality studies that describe interventions used to reduce microbiological risks in processed meat products. The output of this project is a searchable database that can be used in the design of intervention strategies and as scientific support in the validation of their HACCP system.

Funded in part by the Beef Checkoff

Intervention Validation: A Review

Ashley Arnold, Kerri Gehring, Jeffrey Savell
Texas A&M University

This project collected and summarized available scientific literature to demonstrate efficacy of various interventions and/or antimicrobials at a range of applicable concentrations on fresh beef, veal, pork, lamb and poultry products. The information is contained in a searchable database.

Funded in part by the Beef Checkoff

Both databases will be made available on www.meatpoultryfoundation.org. Information on how to access and use the databases will be made available shortly.

Contracting with the Beef Checkoff to Enhance Post-Harvest Beef Safety

The Foundation for Meat and Poultry Research and Education is contractor to the Beef Checkoff, which provides us the opportunity to conduct post-harvest beef safety research above and beyond that funded through the Foundation. As a contractor, the Foundation is able to identify data gaps specific to beef products and contract for research or conduct outreach to improve the safety profile of these products. Being a contractor also provides an opportunity to leverage resources and co-fund research when appropriate.

Some of the research priorities for post-harvest beef safety are:

- Investigate antimicrobial interventions and production processes for improved beef safety of
 - Fresh Meats;
 - Variety Meats;
 - Head and Cheek Meat; and
 - Enhanced and Ready-to-Eat Beef Products
- Examine the water sustainability of antimicrobial interventions, including re-use and water-use reductions in processing environment.

The following projects were initiated in Fiscal Year (FY) 2017 and funded by the Beef Checkoff:

- "Efficacy of antimicrobial interventions in reducing *Salmonella*, STECs, *Campylobacter*, and *E. coli* Biotype I Surrogates on pork carcasses, chilled pork products, beef and pork head meat, cheek meat, livers and hearts," conducted by Colorado State University and co-funded with the Foundation
- "Assessing the impact in red meat processing of a mobile genetic element that imparts extreme heat resistance to *E. coli*," conducted by USDA-ARS-Meat Animal Research Center and co-funded with the Foundation
- "Antimicrobial resistance (AMR) risk assessment data gaps: AMR in feces of culled market cows and bulls and retail meat products from animals raised with and without antibiotics," Colorado State University
- "Effectiveness of a novel, rechargeable, non-leaching polycationic N-halamine antibacterial coating to reduce *Listeria monocytogenes* in food processing environments," University of Manitoba
- "Effect of antimicrobial treatment of beef cheek meat and tongues on pathogen survival/death and product flavor volatiles during refrigerated storage," Colorado State University

Several proposals are under consideration for FY 2018. More information will be shared in future newsletters.

Foundation and Meat Institute File Comments Detailing Research Priorities

The Foundation for Meat and Poultry Research and Education and North American Meat Institute jointly filed comments in December recommending the U.S. Department of Agriculture's National Institute of Food and Agriculture (NIFA) prioritize research initiatives that seek to better understand the risk of *Salmonella* throughout the food chain and develop control strategies based on that understanding.

The Meat Institute and Foundation contend the food industry needs a comprehensive, qualitative risk assessment to determine the public health risk attributable to *Salmonella* in food, including meat, poultry, produce and non-food sources. The assessment, according to the comments, should identify data gaps, isolate differences between meat and produce commodity classes and evaluate those differences. The organizations also expressed support for research that investigates potential strategies to prevent *Salmonella* colonization within the lymphatic system of livestock, including pre-harvest prevention.

2018 Board of Directors Seated

The Foundation for Meat and Poultry Research and Education is governed by a Board of Directors, which provides scientific leadership, financial oversight and acts upon recommendations from the Foundation's Research Advisory Committee. The North American Meat Institute's Executive Board is afforded the opportunity to serve on the Foundation's Board of Directors or appoint a designee to serve on their behalf. In an effort to broaden the scope of influence and direction, representatives from the livestock (beef, pork, poultry and egg), retail, academic, government agency and consumer sectors, among others are invited to serve on the Board of Directors. Terms are for one year. The 2018 Board of Directors are:

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Foundation Education Programs Schedule of Events

Worker Safety Conference for the Meat and Poultry

Industry

Co-located at the International Production and Processing

Expo (IPPE)

Atlanta, GA

January 29-30, 2018

Environmental Conference for the Meat and Poultry

Industry

Co-located at the International Production and Processing

Expo (IPPE)

Atlanta, GA

January 29-30, 2018

Annual Meat Conference

Nashville, TN

February 25-27, 2018

Center of the Plate Training

College Station, TX

June 5-7, 2018

Pathogen Control and Regulatory Compliance in Beef Processing Conference

Rosemont, IL

September 5-6, 2018

Animal Care and Handling Conference

Kansas City, MO

October 18-19, 2018

Advanced *Listeria monocytogenes* Intervention & Control Workshop

Kansas City, MO

October 23-24, 2018

For more information on these programs, please visit the events page at www.meatinstitute.org.

Current Research Projects

Complete summaries of research underway are available on meatpoultryfoundation.org.

Assessing the impact in red meat processing of a mobile genetic element that imparts extreme heat resistance to *E. coli*

Mick Bosilevac, Norask Kalchayanand, John Schmidt, USDA-ARS-U.S. Meat Animal Research Center

This research will assess where in red meat processing extreme heat resistant *E. coli* may pose a problem, how easily the locus of heat resistance can be shared between bacteria and if current non-thermal interventions offer effective control

Funded in part by the Beef Checkoff

Efficacy of antimicrobial interventions in reducing *Salmonella*, STECs, *Campylobacter*, and *E. coli* Biotype I Surrogates on pork carcasses, chilled pork products, beef and pork head meat, cheek meat, livers and hearts

Ashley Arnold, T. Matthew Taylor, Kerri Gehring, Jeffrey Savell, Texas A&M University

This project will document the efficacy of approved interventions in reducing pathogen contamination on pork carcasses and chilled pork subprimals; pork head or cheek meat; beef head or cheek meat; pork hearts and livers; beef hearts and hot-boned pork. Research will also evaluate the color of pork following the application of antimicrobial.

Funded in part by the Beef Checkoff

Reducing *Salmonella* serotypes on Chicken Carcasses by Sodium Bisulfate (SBS) and Investigation into its Reuse to Reduce Water Consumption

Steven Ricke, Peter Rubinelli, Si Hong Park, Casey Owens, University of Arkansas

Research will test the ability of sodium bisulfate (SBS) to kill *Salmonella* on fresh chicken carcasses and measure the efficacy in eliminating pathogens after multiple reuse of the SBS-containing rinse. Potential color and flavor effects of the SBS will also be addressed as well as any barriers to regulatory approval of SBS for this application.

Research Priority Meeting for Certain By-Products

There is limited research on the impact of rendering on foodborne pathogens, particularly with the implementation of the Food Safety Modernization Act. The Foundation will work with allied stakeholders in the rendering, pet food and cosmetic industries throughout North America to assemble a meeting where industry standards can be discussed to better inform future research priorities and projects. There is a dearth of critical parameters for this type of research.

Using Bioluminescent *Salmonella* to Identify Infection Sites Contributing to Contamination of Ground Turkey Meat

Monique França, John Maurer, University of Georgia

The intent of this research is to reveal harborage sites in turkeys following *Salmonella* infection as a source of contamination in ground poultry products. *Salmonella* harborage sites in ground product components and the ability of *Salmonella* to localize in microscopic lymphoid tissue and feather follicles will be assessed utilizing a bioluminescence imaging system in order to visualize infected tissues and to monitor *Salmonella* dissemination over time.

Validation of lethality and stabilization processes for products with slow come up time: bacon and bone-in ham

James Dickson, Joseph Sebranek, Joseph Cordray, Iowa State University

Jeff Sindelar, Kathleen Glass, University of Wisconsin Robert Hanson, HansonTech

Research will determine the effect of slow come up time and slow stabilization during the thermal processing of bacon and bone-in ham on the survival of *C. perfringens*, *Staphylococcus aureus*, *Listeria monocytogenes* and *Salmonella* spp.



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