



Research Foundation to Merge with Scholarship Foundation to Advance Industry Priorities

The Foundation for Meat and Poultry Research and Education (FMPRE) and the NAMI Scholarship Foundation are merging with the objective of supporting the future of the meat and poultry industry through an emphasis on continuous improvement. FMPRE, established nearly eight decades ago as a non-profit foundation, has focused on identifying strategies to enhance the production of safer and higher-quality meat and poultry products. In parallel, the NAMI Scholarship Foundation, founded in 1995, has played a crucial role in acknowledging exceptional undergraduate students pursuing degrees in Animal Science, Meat Science, Food Sciences, and Culinary Arts. It has recognized the pivotal role these students will play as future leaders within the meat industry. This merger, operating under the auspices of the Foundation for Meat and Poultry Research and Education, aims to align strategic direction to promote continuous improvement across both research and education and advance the industry's next generation. This alignment will facilitate the expansion of the research scope to focus on critical areas such as food safety; nutrition, health and wellness; environment; animal welfare; and labor and human rights. The envisioned research scope will serve to strengthen and broaden existing Foundation education and training programs. Scholarships will remain central to nurturing the future of the meat industry by providing students with valuable exposure to industry opportunities and career paths. The revamped Foundation will become effective on January 1, 2024. Stay tuned for additional details in the next *Foundation Focus*.

Meat Industry Food Safety Conference Highlights Research

The Meat Industry Food Safety Conference continues to provide a forum for highlighting research that adds to the evidence base as well as advance the knowledge base of food safety practitioners. Over the two-day conference in Denver in August, findings from several Foundation research projects were shared with nearly 200 attendees. The results of three risk assessments of *Salmonella* in ground beef products were presented. These projects, funded by the Beef Checkoff and administered by the Foundation, provide ways to better understand *Salmonella* and reduce the pathogen's presence. Research funded in part by the Foundation and National Pork Checkoff, addressed the role of lymph nodes in *Salmonella* contamination of market hogs. Lastly, research funded by the National Pork Checkoff and administered by the Foundation, outlined the public health risk and mitigation steps to reduce the risk of *Salmonella* in pork products. In addition to research findings, attendees received briefings from policymakers and industry leaders.

Foundation Secures FY 24 Beef Checkoff Funding

The Foundation for Meat and Poultry Research and Education received \$500,000 in FY24 to conduct research on behalf of the Beef Checkoff. Research will address post-harvest beef safety.

“The Foundation is thrilled to be able to continue to administer research on behalf of the Beef Checkoff,” said Susan Backus, President, Foundation for Meat & Poultry Research & Education. “The Checkoff investment in post-harvest beef safety research is critical to expanding the knowledge base; ensuring consumer and customer trust in beef products; and providing value to beef producers by demonstrating that beef products are safe and nutritious.”

Research funding will be used toward projects addressing current knowledge gaps; facilitating the dissemination of research data and knowledge sharing through meetings, or other events targeted to appropriate stakeholders; assessing research impact over time by cataloging citations for research funded by the Beef Checkoff and administered by the Foundation; developing tools that share post-harvest research results or summarizing research to provide guidance and information for beef processing facilities of all sizes.



Dietary Guidelines Advisory Committee Holds Third Meeting

The third meeting of the 2025 Dietary Guidelines Advisory Committee (DGAC or committee) was held on Tuesday, September 12, 2023, from 1-4 p.m. ET and on Wednesday, September 13, 2023, from 9 a.m. – 3:30 p.m. ET. The committee heard [public oral comments](#) on September 12. The September 13 session included presentations by each subcommittee and deliberation by the full committee; detailed progress made since the second meeting, including protocol development, evidence review and synthesis, and systematic review findings; as well as plans for future committee work. A videocast of the third meeting is available [here](#). The committee shared the draft protocols that will be used to evaluate the evidence for the identified [scientific questions](#) via the [NESR Systematic Review](#); [food pattern modeling](#); and [data analysis](#). The next meeting will be held on January 25, 2024. Additional information is available [here](#).

Foreign Material Maturity Self-Assessment Tool

A group of members of the Meat Institute collaborated and developed an Foreign Material (FM) Maturity Model self-assessment tool to help establishments understand where they are in their FM prevention journey and how to continue to improve upon their practices. The tool includes a self-assessment as well as instructions on how to take your establishment to the next level of FM maturity. The tool is available in [The Meat Institute's Resource Center](#).

IFSAC Releases 2024-2028 Priorities

The Interagency Food Safety Analytics Collaboration (IFSAC) [published its upcoming priorities for calendar years 2024 - 2028](#). IFSAC says it is focused on generating the most accurate and actionable estimates for foodborne illness source attribution in the United States by leveraging the latest science, data, and methods. [IFSAC](#) will continue to publish updated estimates of foods contributing to foodborne illness through annual reports and peer-reviewed scientific publications. Four priorities will guide its work for the next five years:

- Improve foodborne illness source attribution estimates for *Campylobacter*;
- Develop foodborne illness source attribution estimates for non-O157 Shiga toxin-producing *Escherichia coli* (STEC);
- Finalize existing analyses; and
- Refine foodborne illness source attribution estimates using data from non-foodborne sources of pathogens.

Newly Approved Research Summaries

The Foundation's Board of Directors met in early 2023 to review and approve an ambitious research agenda. Two new projects have been implemented since the July newsletter.

Understanding the impact of the farm and lairage environments on *Salmonella* contamination in market hogs, University of Wisconsin-Madison, Kansas State University, Texas Tech University, USDA-ARS

Salmonella contamination in market hog tonsils, lymph nodes, feces, and cecal contents likely occurs rapidly, and previous research suggests that the lairage period provides risk for cross contamination to occur. The study objectives are to detect and quantify *Salmonella* from market hogs on-farm, at lairage, carcass swabs, and lymph nodes. The *Salmonella* isolates will be characterized to determine their serotype and the presence of highly pathogenic *Salmonella* at the different stages of sampling. *Salmonella* concentration and serotypes in post-harvest samples will be evaluate to determine if it most closely represents *Salmonella* contamination on-farm or from lairage, and the impact of time spent in lairage.

Funded in part by the National Pork Checkoff.

A surveillance of *Salmonella* in the lymph nodes of sows and boars, Kansas State University, Texas Tech University

Salmonella contamination remains the leading food safety concern for pork products. The contribution of *Salmonella* in the lymph nodes in sows and boars is unknown. This study will determine *Salmonella* prevalence and concentration in the lymph nodes (subiliac, mesenteric, tracheobronchial, inguinal, axillary, pre-scapular) and tonsils of sows and boars at harvest. The impact of season and region on *Salmonella* prevalence and concentration in the lymph nodes of sows and boars will be evaluated. Positive samples will be serotyped.

Foundation Request for Proposals Wrap Up

In August, the Foundation issued a Request for Proposals (RFP) emphasizing food safety. The RFP actively sought proposals from experts and organizations committed to enhancing food safety standards within the meat and poultry industry. The 2023-2024 Food Safety RFP required comprehensive proposals addressing significant aspects of food safety. These priorities were thoughtfully identified by the Foundation's Research Advisory Committee (RAC), made up of industry and government leaders. This RFP presented researchers with Pre-Harvest and Post-Harvest priorities to address the ongoing challenges faced by the meat and poultry industry, with a primary focus on critical areas of food safety and commitment to improving product safety and operational efficiency. These priorities included investigations into the ecology and epidemiology of *Salmonella*, as well as the development and validation of antimicrobial interventions to reduce pathogen contamination in ground meat products. Other priorities also delved into mathematical modeling for the safety of uncured products. They explored innovative measures for pathogen control, particularly on pathogens such as *Listeria monocytogenes*, *Staphylococcus aureus*, and *Clostridium perfringens*. In the months ahead, the RAC will evaluate these proposals and make funding recommendations to the Foundation's Board of Directors for consideration during their January meeting.

2023 BOARD OF DIRECTORS

The Foundation for Meat and Poultry Research and Education is governed by a Board of Directors, which provides scientific leadership and 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.

Kevin Adesso, Johnsonville Sausage, LLC
Al Almanza, JBS USA
Jonathan Amidei, Swaggerty's Sausage Co.
Tim Arndt, Jack Link's Protein Snacks
Ann Brackenridge, Cargill, Inc.
Robert Cannell, National Beef Packing Co, LLC
Brian Coelho, Central Valley Meat Co.
Brian Covington, Lopez Foods, Inc.
Henry Davis, Greater Omaha Packing Co., Inc.
Denine Davison, Washington Beef and True West Beef
Martin Eckmann, Alaska Sausage Company
Craig Edsill, Clemens Food Group
Neil Genshaft, Fresh Mark, Inc.
Tobias Grasso, Sealed Air Corporation
Brad Hamilton, Seaboard Foods
Denise Heard, U.S. Poultry and Egg Association
Sean Holmer, Smithfield Foods, Inc.
Greg Hozinsky, Coast Packing Company
Randy Huffman, Maple Leaf Foods, Inc.

Craig Letch, empirical foods
Carlos Lopez, Sigma
Shane MacKenzie, Superior Farms
Mike Martella, Boar's Head Provisions Co., Inc.
Dave Miniati, Miniati Holdings
Kevin Myers, Hormel Foods Corporation
Kathleen O'Donell- Cahill, Wegmans Food Markets
Ken Petersen, OSI Group, LLC
Scott Rich, Wasatch Meats
Kevin Sheehan, National Pork Board
Justin Still, Surlean Foods
Suzanne Strassburger Reidy, Strassburger Meats/ Suzy Sirloin
Hilary Thesmar, FMI – The Food Industry Association
J. Michael Townsley, Bob Evans Farms
Steve Van Lannen, American Foods Group, LLC
John Vatri, Cardinal Meat Specialists
Dennis Vignieri, Kenosha Beef International, Ltd.
Russ Yearwood, Indiana Packers Corporation
Jennifer Williams, Tyson Fresh Meats

2023 RESEARCH ADVISORY COMMITTEE MEMBERS

The Foundation's Research Advisory Committee (RAC) develops meat and poultry research priorities which serve as the basis for the Foundation's research agenda and also communicates the areas of greatest research needs to the government, public and interested stakeholders. The RAC is made up of four subgroups across minimally processed (fresh) meat and poultry safety, further processed meat and poultry safety, nutrition sciences and product quality.

Emily Arkfeld, Triumph Foods
Sharon Beals, CTI Foods
Chris Bodendorfer, Johnsonville Sausage
Melissa Bonorden, Hormel Foods Corporation
Ted Brown, Cargill, Inc.
Zach Cameron, Tyson Foods, Inc.
Anna Carlson, Cargill, Inc.
Kaitlyn Compart, Smithfield Foods
Kyle Donnelly, Empirical Foods
Wade Fluckey, Clemens Family Corporation
Heather Fowler, National Pork Board
John Handley, III, OSI Group

Katie Hanigan, Smithfield Foods
Barry Hays, Bar S Foods
Susan Jaax, Cargill, Inc.
Pat Mies, National Beef Packing Co.
Cindy Moore, Tyson Foods, Inc.
Sue Schwartz, Ed Miniati, LLC
Subash Shrestha, Cargill, Inc.
Sally Staben, Hormel Foods Corporation
Ben Stellmacher, Johnsonville Sausage, LLC
Tommy Wheeler, USDA, ARS, U.S. Meat Animal Research Center
Barry Wiseman, Triumph Foods

THANK YOU TO THE FOUNDATION'S 2023 CONTRIBUTORS

The Foundation is supported through generous contribution of companies and individuals. Company names with an asterisks (*) indicate NAMLI Board of Directors companies. 2023 fundraising efforts are now underway.

Alaska Sausage Co., Inc.*
Ambassador Meat Distributors, Inc.
American Beef Packers, Inc.
American Custom Meats, LLC
American Foods Group, LLC*
Susan Backus
Birchwood Foods
Brown Packing Co., Inc.*
Brush Meat Processors, LLC
Burnett & Son Meat Co., Inc.
Catelli Brothers, Inc.*
Caviness Beef Packers*
Central Valley Meat Company*
Commodity Sales, Inc.
Compass Foods, Inc.
Cucina Della Cucina, LLC
Florida Beef, Inc.
Fresh Mark, Inc.*
Casey Gallimore
Glier's Meats, Inc.
Golden State Foods
Greater Omaha Packing Co., Inc.*
Anne Halal
Gheudé Hare
Hill Meat Company*
Hormel Foods Corporation*
Indiana Packers Corporation*
Interbay Food Company
Jensen Meat Company, Inc.*
Johnsonville Sausage, LLC*
Jones Dairy Farm*
Kayem Foods*
Kenosha Beef International, Ltd.*
Kruse & Son, Inc.
Land O'Frost, Inc.*
Sarah Little
Lopez-Dorada Foods, Inc.*
Los Banos Abattoir
Mary Ann's Specialty Foods, Inc.
KatieRose McCullough
National Beef Packing Co., Inc.*
Neese Country Sausage*
Nueske's Applewood Smoked Meats*
OSI Group, LLC*
P.G. Molinari and Sons
Perdue Premium Meat*
Julie Anna Potts
Riverbend Management
Rocky Mountain Natural Meats
Seaboard Foods, LLC*
Sigma/Bar-S*
Strassburger Meats, LLC/Suzy Sirloin*
SuKarne
Superior Farms*
Swaggerty Sausage Co., Inc.*
The Taylor Provisions Company
Unibright Foods, Inc.
Usinger, Inc.*
Volpi Foods, Inc.
VPP Group, LLC
Yosemite Foods, Inc.

Creating Alternative Support for Lethality and Stabilization for Heat Treated and Fully Cooked Meat and Poultry Products, University of Wisconsin, HansonTech

Nearly all meat processors in the United States utilize USDA, FSIS Appendices A and B to ensure adequate thermal lethality and stabilization is achieved for partially and fully cooked products. Through the development and release of updated versions in 2017 and 2021, and the realization that a host of potential food safety vulnerabilities exist, the widespread usefulness and in-plant practical application of these guidance documents has become a significant concern and practical challenge to implement. The primary objective of this study is to develop a scientific-based, regulatory-supported, and industry-useful thermal processing and cooling resource (e.g. cooking and cooling food safety handbook) for validating pathogen destruction and control, and regulatory compliance for partially and fully cooked meat products that can be used in conjunction with or in lieu of USDA, FSIS Appendices A & B.

Funded in part by the Beef Checkoff.



Revealing mechanisms for internal *Salmonella* colonization and persistence in porcine lymphoid and fat tissue, USDA-ARS-NADC - Food Safety and Enteric Pathogens Research Unit

Swine can become persistently infected with *Salmonella*, shedding little to no bacteria in the feces, until subjected to a stressful event, which increases fecal shedding. A clear understanding of the mechanisms of *Salmonella* persistence in porcine immune cells is needed to developing targeted intervention strategies to significantly reduce *Salmonella* carriage in swine and the risk of contamination of products and the environment. The overall hypothesis is that *Salmonella* resides in myeloid-lineage cells in porcine lymphoid tissues and fat, and subsequently modulates the cellular state to limit bacterial clearance. The objectives of this project is to identify the cell types harboring *Salmonella* in pig lymphoid and adipose tissue at various stages of colonization; characterize the cellular response; and identify mechanisms of intracellular colonization.

Funded in part by the National Pork Checkoff.



Summarizing the current knowledge and existing knowledge gaps for pre-harvest and post-harvest *Salmonella* contamination in pork, Kansas State University, Triumph Foods

Research on pre-harvest and post-harvest measures to prevent or reduce pathogen contamination have been published. However, knowledge gaps still remain, and a thorough literature review is necessary to fully understand what steps should be taken to address *Salmonella* concerns both preharvest and post-harvest in the swine. Therefore, this project will conduct a thorough search of pre-harvest and post-harvest *Salmonella* research in swine; compile the literature and prepare a written review of the existing knowledge. Knowledge gaps and research recommendations will be identified. Meat Institute members/volunteers will serve as focus group participants to ensure all current knowledge is considered.

Funded in part by the National Pork Checkoff.



Characterizing *Salmonella* Isolates from Ground Beef in the United States, Texas Tech University, Kansas State University, University of Georgia, USDA-ARS, Meat Animal Research Center, Food Safety Net Services

It is hypothesized that *Salmonella* serotypes and presence of highly pathogenic *Salmonella* (HPS) in ground beef will vary by geographic location and season depending on the facility. Samples obtained from a separate study will be analyzed to determine the *Salmonella* serotype(s) present in each positive sample and the presence of HPS associated with U.S. ground beef.

Funded in part by the Beef Industry Food Safety Council.



A Cross-Sectional Investigation of *Salmonella* in Market Hog Lymph Nodes & Leveraging a current market hog lymph node study to further understand *Salmonella* transmission and internal colonization, Kansas State University, Texas Tech University, Triumph Foods

A cross-sectional study design will be employed to investigate the prevalence and concentration of *Salmonella* in up to 6 lymph nodes (LN) and tonsils of market hogs. Prevalence and concentration data will be subsequently used to design a risk-assessment mapping of the carcass for prioritization of node-removal for pathogen control. Additionally, research will probe a possible relationship between *Salmonella* antibodies in oral fluids and internal colonization of market hog carcasses by determining if antibody testing of oral fluids can be used as an effective antemortem screening tool to assess a group/lot of pigs for *Salmonella* risk.

Funded in part by the National Pork Checkoff.



Development and validation of an antimicrobial database to predict microbial load reduction on raw pork components against *Salmonella*, University of Illinois at Urbana-Champaign

This study will implement a high-throughput miniature assay to evaluate *Salmonella* reduction after pork carcass wash with antimicrobial treatments. Response surface methodology will be used to determine synergistic or antagonistic interactions between antimicrobials and optimize combinations to reach desired *Salmonella* reductions. The results are intended to validate the predicted interactions between antimicrobials in laboratory experiments, as well as build an antimicrobial database in which additional antimicrobial treatments data can be added as new compounds become relevant against *Salmonella* in pork.

Funded in part by the National Pork Checkoff.



Exploring the use of ProbiCon as a direct-fed microbial to reduce the *Salmonella* burden in market hogs, Kansas State University, USDA-ARS-U.S. Meat Animal Research Center, Triumph Foods

This study will evaluate the influence of direct fed microbials (DFM) on pig performance, morbidity, and mortality throughout the feeding period. The feces and mesenteric lymph nodes of market hogs fed a control or DFM augmented diet will be collected to establish the impact of each diet on *Salmonella* internalized in the lymphatic system. By determining *Salmonella* serotype and presence of highly pathogenic *Salmonella* (HPS), it evaluates whether *Salmonella* diversity and/or presence of HPS is impacted by probiotic administration.

Funded in part by the National Pork Checkoff.



Effects of proportioning meat and plant-based protein-rich foods within the U.S. Healthy Eating Pattern on cardiovascular disease risk factors, Purdue University

This project will assess the effects of consuming different proportions of red meat and plant-based, protein-rich foods incorporated into a U.S. Healthy Eating Pattern on cardiovascular disease risk factors in adults at high risk of developing a heart-related disease.

Funded in part by the Beef Checkoff.



Funded by Beef Checkoff and Administered by the Foundation

Enhanced Characterization of Sequence Differences Among *Salmonella* isolates within SNP Clusters Identified by the NCBI Pathogen Detection System, USDA-ARS, Meat Animal Research Center

This research intends to better understand the full picture of relatedness within critical *Salmonella* serovars of interest by performing a comparative genomic analyses on currently available data within the Pathogen Detection Isolates Browser (PDIB). An analysis pipeline will be developed to catalogue *Salmonella* SNP cluster diversity in the NCBI PDIB with the goal of producing a white paper to enhance industry use and understanding of this tool, and to enhance public health actions and general understanding of *Salmonella* genomics by identifying isolates for closed genome sequencing that are within 50 SNP differences.



Novel TaqMan assays for the specific detection and simultaneous differentiation of virulent and avirulent non-O157 Shiga toxin-producing *Escherichia coli* strains, Florida State University, USDA-ARS, U.S. Meat Animal Research Center

This study intends to standardize six multiplex TaqMan assays for the identification of virulent strains of *E. coli* O26, O111, O45, O103, O121, and O145 serogroups. Further, it will demonstrate the applicability of the standardized assays in inoculated food samples and red meat enrichments from national red meat surveillance programs through a direct comparison with the FSIS MLG 5C.01 reference method.

