Foundation Secures FY25 Beef Checkoff Funding

The Meat Foundation received $600,000 in fiscal year (FY) 2025 to conduct research on behalf of the Beef Checkoff. Research will address post-harvest beef safety.

"The Foundation is thrilled to continue to administer research on behalf of the Beef Checkoff," said Meat Foundation President Susan Backus. "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; and hosting a webinar to share post-harvest research results.

Post-harvest beef safety research could address any appropriate research priorities identified by the Foundation's Research Advisory Committee, which may include but are not limited to:

- evaluating critical contamination points for beef products, from arriving at a slaughter establishment to shipping, utilizing quantitative data, and identify key locations for targeted interventions.
- exploring innovative pathogen control measures and parameters for fresh beef. Controls evaluated should address pathogens such as *Salmonella* and STEC growth and survival.
- developing best practices, in collaboration with industry, for the dry and semi-dry fermented products as well as dry cured items.
- exploring how *Salmonella* populations change (level and type) over the course of beef processing and storage.

For a current list of post-harvest beef safety research priorities, visit the Meat Foundation's request for proposals released earlier this fall.

2024 MEAT FOUNDATION BOARD OF DIRECTORS ELECTED

The new class of Meat Foundation Board of Directors was elected on October 11 during the Meat Institute's membership meeting. The directors are:

Jonathan Amidei, Swaggerty Sausage Co.
Jeffrey Dickerhoof, Amcor
Louis Eni, Dietz & Watson, Inc.
Brad Hamilton, Seaboard Foods
Donald Thomas, Jack Links Beef Jerky

Terms are for three years and begin on January 1, 2025.

2023 - 2024 RESEARCH ADVISORY COMMITTEE MEMBERS

Chris Bodendorfer, Johnsonville Sausage
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

Collette Kaster, AMSA
Pat Mies, National Beef Packing Co.
Sue Schwartz, Ed Miniat 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

MEAT FOUNDATION WEBINAR

Driving Business Impact Through Research: A Deep Dive into the Meat Foundation
Join us for a webinar that explores the Meat Foundation's research initiatives and their impact on the meat industry. Learn how research investments can benefit your business, gain insights into our past achievements, and how you can contribute to our ongoing efforts. **Register here>>**

Driving Business Impact Through Research: A Deep Dive into the Meat Foundation
NOVEMBER 19 AT 3:00 PM ET
Meat Foundation
Research. Education. Scholarship.

MEAT FOUNDATION RECOGNIZES SCHOLARSHIP WINNERS

The Meat Foundation is excited to announce another successful year of scholarships. The application window for the 2024-2025 academic year closed on May 31, 2024, attracting an outstanding response from nearly 170 dedicated students pursuing degrees in Animal Sciences, Meat Sciences, Poultry Sciences, Food Sciences, Culinary Arts, or other aspiring towards careers in the meat industry.

Our merit-based scholarships remain pivotal in nurturing future industry leaders. This year, the Foundation awarded one prestigious $10,000 Barry Carpenter Scholarship and several $5,000 scholarships, totaling $110,000 in financial support for deserving students. Click here to see this year's winners. The competition was strong, with numerous outstanding applications demonstrating the talent and dedication of our future professionals. These scholarships aim to inspire and empower these young scholars, and we are proud to continue to their educational and professional journeys.

The Foundation is grateful to the review committee: Phil Bass, University of Idaho; (Chair); Jeff Sindelar, University of Wisconsin; Tricia Harlan, JBT; Gary Sullivan, University of Nebraska; Trent Schwartz, West Texas A&M University; Diana Clark, Certified Angus Beef; Jessica Lancaster, National Cattleman's Beef Association; Kaitlin Compart, Smithfield; David Hayden, JBT; Morgan Pfeiffer, Oklahoma State University; Travis Arp, JBS; Brianna Buseman, Marbel Technologies, Derris Burnett, Mississippi State University; Kelsey Sindelar, Jones Dairy Farm; Kelly Vierck, University of Arkansas; Sierra Jepsen, Butcher Solutions; and Ariel Belk, University of Auburn. The collective efforts have led to the success of the 2024-2025 scholarship honors. As we look ahead, we are confident that these exceptional scholars will make substantial contributions to the meat industry, fostering its continued growth, innovation, and excellence.

For additional information about the Meat Foundation scholarship program, please visit our website at: http://meatscholars.org/.

RECAP: MEAT INDUSTRY FOOD SAFETY CONFERENCE

Almost 200 food safety professionals attended the Meat Industry Food Safety Conference (MIFSC) on September 5-6 in Indianapolis, Indiana. The MIFSC is the premier event covering all aspects of food safety in the meat industry. At the event, the Meat Foundation's research took centerstage for many of the sessions. Dr. Sara Gragg showcased her Meat Foundation-supported research on surveillance of *Salmonella* in the lymph nodes of sows and boars, provided an understanding of the impact of the farm and lairage environments on *Salmonella* contamination in market hogs, and preview research related to head and cheek meat *Salmonella* contamination. Dr. Mindy Brashears presented an update on the Meat Foundation's ground beef baseline project where she is the lead PI, which highlights the current *Salmonella* risks associated with ground beef. Dr. Wijesena presented her work supported by the Meat Foundation entitled "Demonstration of a Pipeline to Investigate the Genetic Relatedness Among *Salmonella* Isolates." Dr. Wijesena's work discussed the development of a bioinformatic pipeline analyzing the variable genome to obtain a more thorough representation of the isolate relatedness. Finally, Dr. Singh presented his Meat Foundation-supported work on EHEC testing. Dr. Singh explored the history, challenges, research, and testing methods of *E. coli* in the meat industry and some of the new testing methods he has developed.

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 evaluated 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.

Survival of African swine fever in pork and processed pork products, Canadian Food Inspection Service, Agriculture and Agri-Food Canada
African Swine Fever (ASF) is a contagious, haemorrhagic viral disease of pigs that is currently spreading westwards throughout Europe and eastwards into China, with significant economic losses along its path. While strict regulatory guidelines are in place to prevent the spread of this virus, little is known about the effectiveness of current meat processing methods in inactivating ASF. In addition, the matrix effect of individual meat products and ingredients on ASF survival is not well documented. This project aims to explore the survival of ASF in different meat products from ASF infected pigs as well as investigate the effect of different ingredients, cooking temperature, storage time and high pressure processing on ASF inactivation in different meat model systems.
Funded in part by the National Pork Checkoff under an ASF Partnership and administered by the Foundation.

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.

Effect of minimally processed animal protein within the Dietary Guidelines for Americans on biomarkers for cognitive decline, South Dakota State University
Investigators will leverage an ongoing well-designed, randomized, controlled, crossover, feeding study following USDA Dietary Guidelines for Americans to establish the role of lean animal protein in cognitive health promotion. A minimally processed lean meat incorporated diet will be compared with an isocaloric lacto-ovo-vegetarian control. It is expected the addition of animal protein will enhance nutrient adequacy and reduce markers associated with cognitive decline and neurodegenerative diseases.

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.

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.

Developing a Quantitative *Salmonella* Baseline 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
The *Salmonella* level in ground beef across the U.S. is unknown. As a result, risk assessments and understanding the public health impact of potential *Salmonella* control programs across the industry are not always accurate. This study intends to conduct a representative *Salmonella* baseline and develop a blinded quantitative *Salmonella* baseline for the U.S. beef industry representing season and geographical waves.

THANK YOU TO THE FOUNDATION'S 2023 - 2024 CONTRIBUTORS

The Meat Foundation is supported through generous contributions from companies and individuals. Names with an asterisk (*) indicate contributions in 2023 and 2024. *(effective October 18, 2024)*

Meat Foundation
Research. Education. Scholarship.

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