

Managing Meat Shelf Life and Spoilage to Ensure Food Security

Moderator: Heath LaFevers, bioMerieux

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- This webinar is being recorded and will be available for access by IAFP members at www.foodprotection.org within one week.

Today's Moderator



Heath LaFevers is the Scientific Affairs Market Access Manager for bioMérieux where he continues to learn, grow and serve his passion for food safety. Heath has been with bioMérieux for over 11 years where he has served in several roles including Account Management, National Business Development, and Market Access Manager.

He has a diverse background in the food safety and quality field ranging from Quality Assurance in the Poultry Processing Industry, Director of Veterinary Academic Research Lab, and Scientific Sales Roles. He is a graduate of North Carolina State University in Food Science and Poultry Science.

In his free time he enjoys quality time with family and scuba diving.



IAFP Sponsored Webinar: Food Security

Managing Meat Shelf Life and Spoilage to Ensure Food Security

October 24 2023

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International Association for
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Meat and Poultry Safety and Quality Professional
Development Group



Today's Panelist



FOOD SECURITY DISCUSSION BACKGROUND

Why

- One Third of Food Loss is Due to Food Spoilage
 - Microbial Spoilage Huge Factor
- Food Safety Testing Dominates
- Technology Evolving for Better Detection and Prevention Spoilage

Purpose

- Stimulate Forward Thinking on New Designs and Processes for Reduction of Food Spoilage
- Key Panelists: Production Industry, Retail, and Academia

Format

- Round Table Conversation with Panelists

SHERRI TRUJILLO



Sherri attended Colorado State University graduating in 1994 with a B.S. in Equine Science, minor in Anatomy and Neurobiology. Sherri was a graduate student in the Meat Science program, graduating in 1996 with a M.S. in Animal Science – Meat Microbiology.

Sherri has worked in the beef industry since 1996, having over 20 years of experience in food safety, quality assurance, regulatory, and animal handling areas and has held varying positions. Sherri worked for Swift & Company from 1996 to 2007, then joined Food Safety Net Services as the VP of Auditing and Consulting Services.

In 2010, Sherri returned to JBS as a corporate Director for Food Safety and Regulatory Affairs for the beef division. Currently, the Head of Technical Services for JBS Regional Beef, Sherri has responsibility for five facilities. Sherri served as a member of the National Advisory Committee on Meat and Poultry Inspection in 2014 and 2020.



A Dash of Science.com

Meat Color



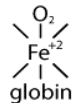
myoglobin

myoglobin is not holding oxygen



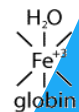
oxymyoglobin

myoglobin is holding oxygen



metmyoglobin

myoglobin is holding water



Meat Spoilage

Microbial spoilage – product is observed to be brown or green in color, slimy, have an odor.

Color spoilage – product is perceived as spoilt due to the inherent color change of the product from oxymyoglobin → metmyoglobin.

What happens when the product is not the expected color?

It doesn't sell or customers do not want it.

Does packaging make a difference?

YES. Packaging makes a difference.

Oxygen rich environment – bright, cherry red color.

Vacuum package – remove the oxygen – deep purple/red color.

Modified atmosphere – flush the package or mother bag with a mixture of nitrogen, carbon monoxide, and carbon dioxide.





(JBS)

Options for affected product

Not many, as most consumers do not want to buy beef that is not a bright, cherry red color.

Impact of spoilage issues

Balance between maintaining packaging integrity, sanitation expectations, and minimizing product loss.



KAITLYN COMPART



Dr. Kaitlyn Compart is the Director of Scientific Affairs for Smithfield Foods on the R/D team. In this role, Kaitlyn oversees basic research, strategic projects, and technical support for the company. “The practical application of basic science to industry challenges has been a passion of mine and I am fortunate that I am able to apply my experiences in meat science and food safety to real-time solutions every day”. Following many years of work and service with the American Meat Science Association, Kaitlyn received the 2022 Achievement Award for her contributions to the animal proteins industry. Prior to joining Smithfield, Kaitlyn attended the University of Kentucky for her BS and MS in Animal and Food Science and the University of Minnesota for her Ph.D., focused on lipid oxidation and composition of further process meat products. In 2014, Kaitlyn joined Smithfield Foods as a food scientist and is based in the Cincinnati, OH corporate office.

Food Spoilage

Kaitlyn Compart

Director, Scientific Affairs



Food Spoilage Impact on Food Security

- RTE shelf life has both a food safety and quality component to shelf life
 - Typically, the quality aspects (odor, color, flavor, appearance) drive shelf-life failure
- Have longer shelf life to manage (months/years vs. days/weeks)
 - Early failures drive increased waste or shorting orders
 - Can impact food security

Seasonal Products

- Defined sales window
- Narrow production time
- Challenge – how do you extend shelf life to alleviate tight production deadlines, but still deliver quality products?



JESUS VELAZCO



Dr. Jesus Velazco is the Director of Fresh and Manufacturing (Modified Atmosphere Processing Plan, Beef Fabrication Plant, and Tortilla Plant for HEB Mexico). He serves as an executive coach for professionals within HEB and holds International Certification Certifications. He received his BS in Animal Husbandry and MBA from Monterey Tech. Then received his PhD in Meat Science and Compared Nutrition from Kansas State University.

Throughout his career, he has maintained strong ties within the beef industry and has held many positions including Professor and Researcher at Monterey Tech.

His most recent recognition was serving as President of the Agro Cluster of the State of Nuevo Leon, Mexico.

In his personal time, he is an avid woodworker, carpenter, and butcher.

Effect of procurement practices on shelf life and shrink.

- Baseline demand fulfillment.
- Balance between vendors capacity and demand of products.
- Transportation issues.
- Price strategy and promotions.

Opportunities for product recovery.

- To improve sustainability (waste product) and shrink (financial loss).
- Estimate shelf life and determine time of recovery.
- Design product and process to recover the original product.
- Establish SOPs and GMPs for each process. Freshness is top priority.

FAITH CRITZER



Faith Critzer is an Associate Professor at the University of Georgia in the Department of Food Science & Technology.

She joined UGA in the Fall of 2021 and prior to that she was an Associate Professor and Produce Safety Extension Specialist at Washington State University.

Her research and education program is focused on identifying food safety risks tied to the production and packing of fresh fruits and vegetables, as well as identification of and education on risk mitigation strategies. The most recent work from her lab group has focused on *Listeria* control in the packinghouse; preharvest agricultural water treatment in order to inactivate bacterial foodborne pathogens; and validation of antimicrobials in postharvest flumes using industry- relevant conditions.

She also has a passion for communicating science-based best practices and outcomes of research to the produce industry.

Learn by doing

IFT Competency in Food Microbiology

UGA Approach

- Causes of spoilage
- Shelflife extension

Principles discussed in class are emphasized in the lab





Questions?

THANK YOU



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Today's Panelist





PIONEERING DIAGNOSTICS

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Upcoming Webinars



- November 1, 2023 10:00 AM Plant-Based Meat Analogues: How Far of an Analogue in Microflora
- November 17, 2023 1:00 PM Matrix Additions Part 2: Alternative Approaches for Rapid Pathogen Detection Methods
- December 14, 2023 9:00 AM Impact of Water Use and Reuse in Food Production and Processing on Food Safety at the Consumer Phase: Focus on the Fresh Fruit and Vegetable Products Sector

<https://www.foodprotection.org/events-meetings/webinars/>

