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Enhance food safety and quality through environmental monitoring. Help reduce the risk of recalls, extend product shelf life, streamline production and increase customer satisfaction.

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QUENCH YOUR THIRST FOR FOOD SAFETY IN THE VALLEY OF THE SUN

The Arizona sun will shine bright on attendees at the world’s leading food safety conference, where more than 3,800 food safety professionals will soak up unlimited rays of knowledge in Phoenix throughout hundreds of informative symposia, roundtables, and technical presentations.

Our Professional Development Group meetings provide additional opportunities to bask in the heat wave of food safety.

For more information, go to foodprotection.org
Guaranteeing safe products and regulatory compliance requires constant vigilance. And in a dynamic food production environment, constant vigilance requires capable tools. From cutting-edge diagnostic instruments to expert consultation and validation services, bioMérieux equips your organization with the tools you need to deliver safe, high-quality products more efficiently—safeguarding both your brand reputation and your bottom line.

Learn more at biomerieux-usa.com
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IAFP’S EUROPEAN SYMPOSIUM ON FOOD SAFETY has been shaping the future of food safety since 2005, bringing together hundreds of food safety professionals from across Europe and around the world to exchange ideas and gain knowledge about the latest in developments and techniques in food science and safety. The 2021 Symposium includes a vast array of diverse topics and speakers for those working in industry, government and academia. Join us in Munich!
On behalf of the Executive Board, it is my pleasure to welcome you to IAFP 2020, A Virtual Annual Meeting. This year’s conference is a first in the Association’s 109-year history. Due to the ongoing coronavirus outbreak, the decision to go virtual in 2020 was one that was necessary to protect the health and safety of our Members and attendees – our highest priority. This option proved best in our commitment to go forth with holding an Annual Meeting on a different platform and continue providing the latest in food safety information and timely topics for our Members and attendees – despite a pandemic of epic proportion!

Food safety is ongoing in today’s interconnected world. This meeting will help you stay in touch with current and emerging issues, the latest science, and solutions to new and ongoing problems. And while networking this year will be done through a screen rather than in-person, we hope you continue to reach out to old friends and colleagues as well as extend a virtual hand to those developing scientists who are attending for the first time.

The Executive Board offers a special thank you to Manpreet Singh, Program Committee Chair, and the entire Program Committee for organizing another exceptional lineup of symposia, roundtables, technical presentations, and posters – especially having to realign the program to best fit this year’s virtual platform! The added value with 2020’s virtual meeting is that registered attendees can take part in every recorded session, presentation, and lecture up to six months after the conclusion of the meeting. You won’t have to miss any part of this year’s event!

We extend our sincere gratitude to our valued exhibitors, sponsors, and long-time attendees who continue to help us spread the food safety message, especially during this year of upheaval, with your ongoing and dedicated support.

Whether you are a new Member, long-time Member, student Member, or even a prospective Member, the Board eagerly welcomes you and encourages you to actively participate in IAFP 2020, A Virtual Annual Meeting. Together, we will continue to Advance Food Safety Worldwide – safely and remotely in 2020!

Kali Kniel
IAFP President
Do you know you can donate to the IAFP Foundation through your Amazon.com purchases?

That’s right! AmazonSmile is a program that donates 0.5% of the costs for your eligible purchases on Amazon to the Association. Search for the International Association for Food Protection and select it as your charity of choice. All you need to do is start your shopping at smile.amazon.com.

Contributions at the Annual Meeting are crucial to the programs supported by the IAFP Foundation. During IAFP 2020, be sure to make a contribution to the IAFP Foundation. Donate $50.00 or more and you’ll receive the latest in a series of IAFP commemorative coins! Know that your contributions go toward valuable programs such as (in part):

- Student Travel Scholarships and Student Competitions;
- Travel Awards;
- Travel Support for IAFP Conference Speakers and other support in helping to advance food safety worldwide

IAFP 2021 CALL FOR SUBMISSIONS

SUBMISSION DEADLINES

November 10, 2020 – Symposium, Roundtable and Workshop Submissions
January 19, 2021 – Technical and Poster Abstract Submissions

Questions regarding submissions can be directed to Tamara Ford
Phone: +1 515.276.3344
Email: tford@foodprotection.org
**SCHEDULE**

All times U.S. Eastern time

**MONDAY, OCTOBER 26**

**General Session** • Ivan Parkin Lecture • 9:00 a.m. – 10:00 a.m.

Symposia & Technical Sessions • 10:00 a.m. – 4:00 p.m.

Poster Sessions • 24-hour access

Exhibit Hours • 24-hour access + 11:30 a.m. – 1:00 p.m. & 4:00 p.m. – 5:00 p.m.

Rock & Roll Hall of Fame Tour and Trivia – 5:00 p.m. – 6:00 p.m.

**TUESDAY, OCTOBER 27**

**General Session** • U.S. Regulatory Update on Food Safety • 9:00 a.m. – 10:00 a.m.

Symposia & Technical Sessions • 10:00 a.m. – 4:00 p.m.

Poster Sessions • 24-hour access

Business Meeting • 11:45 a.m. – 12:30 p.m.

Exhibit Hours • 24-hour access + 11:30 a.m. – 1:00 p.m. & 4:00 p.m. – 5:00 p.m.

Cocktail Creation with Stan Bailey and Networking – 5:00 p.m. – 6:00 p.m.

**WEDNESDAY, OCTOBER 28**

**General Session** • John H. Silliker Lecture • 9:00 a.m. – 10:00 a.m.

Symposia & Technical Sessions • 10:00 a.m. – 4:00 p.m.

Poster Sessions • 24-hour access

Exhibit Hours • 24-hour access + 11:30 a.m. – 1:00 p.m. & 4:00 p.m. – 5:00 p.m.

Passing of the Gavel • 5:00 p.m. – 5:15 p.m.

**PROGRAM COMMITTEE**

**Chairperson**

Manpreet Singh, University of Georgia

**Vice Chairperson**

Martin Duplessis, Food Directorate, Health Canada

**Members**

Doris D’Souza, University of Tennessee-Knoxville

Heidy Den Besten, Wageningen University

Francisco Diez, University of Georgia

Janell Kause, USDA/FSIS

Laurie Post, Deibel Laboratories

Carrie Rigdon, Minnesota Department of Agriculture

Manan Sharma, USDA/ARS

Gregory Siragusa, SCOUT Microbiology

Tori Stivers, University of Georgia

Jarret Stopforth, Atomo Coffee

Benjamin Warren, Land O’ Lakes

Pamela Wilger, Cargill, Inc.

Christina Wilson, Columbus Public Health

**Board Liaisons**

Kali Kniel, University of Delaware

Roger Cook, New Zealand Food Safety
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<td>S1 – Food Omics: Is Food Safety Missing out?</td>
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<td>S2 – Food Safety Challenges and Benefits of Capturing and Reusing Water in Food Processing Facilities</td>
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<td>S3 – Frozen Food Failout: Food Safety Challenges Faced by Manufacturers in the Frozen Food Arena</td>
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<td>S4 – Recent Advancements in Beverage Processing Considerations and Outcomes</td>
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<td>S5 – Complementary Approaches to Quantitative Microbial Risk Assessment: Emerging Computational and Modeling Approaches for Risk Analysis</td>
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<td>S6 – Safe (Smart Affordable Fresh Efficient) Farming Version 2.0</td>
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<td>S7 – Who Will Win the Race to Zero? Analytical Challenges in the Food Industry</td>
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<td>S10 – Emerging Biological and Computational Methods for Rapid, High-throughput Monitoring of Food and Water Safety: Role of DAFF-funded Research</td>
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<td>S11 – May the Force(most) be with You, but without Pathogens</td>
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<td>S12 – An Update on the Integration of &quot;Omics&quot; into Risk Assessment</td>
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<td>S13 – One Health: Its Implication in Food Safety</td>
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<td>S14 – Simulating Leafy Green Production to Improve Food Safety System Performance</td>
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<td>S15 – A Highwire Act: Balancing Sustainable Agricultural Irrigation Approaches with Food Safety Priorities in the Face of Water Shortages</td>
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<td>S24 – Passport to Food Safety in Low- and Middle-income Countries: Rationale and Reflections for Recent Research Initiatives</td>
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<td>S25 – Best Practices to Manage Produce Risks from Farm to Retail</td>
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<td>S26 – Food Safety Risk from Clostridium perfringens , Clostridium botulinum , and Bacillus cereus in Cooked Meat and Poultry Products</td>
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<td>S27 – What Should I Eat? Integrating Food Safety Risks and Nutritional Health Outcomes in Multi-risk and Risk-benefit Assessment Frameworks</td>
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<td>S28 – Validiation of New and Emerging Molecular Technologies for Pathogen Characterization</td>
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<td><strong>Tuesday, 1:00 p.m. – 2:30 p.m.</strong></td>
<td>S31 – Help! I Have a Presumptive Pathogen Detection. What are My Options?</td>
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<td>S32 – Foodborne Disease Outbreak Update</td>
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<td>S33 – The Future of the Poultry Gut Health Nexus: Improving Food Safety</td>
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<td>S34 – From Policy to Practice, Developing Environmental Monitoring Programs for Raw Agricultural Commodity (RAC) Packershous</td>
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<td>S35 – Navigating the Benefits and Barriers of Whole Genome Sequencing (WGS) for the Food Industry from the Food Industry</td>
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<td>S36 – Confirmatory Tests for Non-culturable Foodborne Pathogens in Produce for Regulatory Testing Purposes: Recent Advances and Challenges Ahead</td>
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<td>S37 – I Will Survive! Molecular Basis of Pathogen Survival in Low-moisture Foods</td>
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<td><strong>Wednesday, 10:00 a.m. – 12:00 p.m.</strong></td>
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<td>S45 – What is Ready-to-Eat and How Safe is My Smoothie?</td>
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<td>S46 – Spoilers Alert! Food Spoilage is Eating Our Lunch!</td>
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<td>S47 – They Get by with a Little Help from Their Friends</td>
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<td>S48 – How to Protect Foods Delivered to Your Consumers’ Doorstep</td>
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<td>S49 – Novel Technologies for Extended Shelf Life</td>
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<td>S50 – Creating Meaningful Quantitative Microbial Risk Assessments Using Imperfect Data</td>
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<td><strong>Wednesday, 12:00 p.m. – 1:00 p.m.</strong></td>
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<td>S55 – Foodborne Parasites of Emerging Importance</td>
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<td>S56 – Breeding Crops for Enhanced Food Safety</td>
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<td>S57 – A Global Perspective on New Generation of Food Processing/Preservation Technologies for Food Safety: Riding the Tides of Clean Labels</td>
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<td>S58 – Salmonellosis and Ground Beef – Persistent, Recurring, or Emerging Risk?</td>
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<td><strong>Wednesday, 2:30 p.m. – 4:00 p.m.</strong></td>
<td>S51 – COVID Session</td>
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<td>S52 – Alternative Protein Sources for Future Foods: Food Safety Challenges</td>
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<td>S53 – Climate Change: Impacts on Food Safety and What Food Safety Professionals Can Do to Prepare and Respond</td>
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<td>S54 – Process Validation – Challenges and Best Practices</td>
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<td>S55 – Vive La Résistance: Biocide Resistance Strategies Among Foodborne Pathogens</td>
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<td>S56 – Stay out of the Weeds: Three Simpler Things That Accomplish Produce Safety</td>
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<td><strong>Wednesday, 4:00 p.m. – 5:00 p.m.</strong></td>
<td>Exhibit Hour</td>
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### SCHEDULE-AT-A-GLANCE

#### MONDAY, OCTOBER 26

**Opening General Session – Van Parke Lecture**
Audacious Innovation: Critical Tools for the 21st Century – Caroline Smith DeWaal, Global Alliance for Improved Nutrition

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<tr>
<td>10:00 a.m.</td>
<td>Technical Session 1 – Food Processing Technologies and Laboratory and Detection Methods</td>
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<td>11:45 a.m.</td>
<td>Technical Session 2 – Sanitation and Hygiene</td>
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<td>10:00 a.m.</td>
<td>Technical Session 3 – Produce</td>
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<td>2:30 p.m.</td>
<td>Technical Session 4 – Developing Scientist Competition Finalists (Part 1)</td>
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<td>1:00 p.m.</td>
<td>Technical Session 5 – Developing Scientist Competition Finalists (Part 2)</td>
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<td>2:30 p.m.</td>
<td>Technical Session 6 – Food Safety Systems and Modeling and Risk Assessment</td>
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<td>1:00 p.m.</td>
<td>Technical Session 7 – Antimicrobials</td>
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**Networking Event**

**General Session – U.S. Regulatory Update**
Frank Yamas, U.S. Food & Drug Administration (FDA) and Mindy Brockway, U.S. Department of Agriculture (USDA)

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<td>Technical Session 8 – Molecular Analytics, Genomics and Microbiome</td>
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<td>11:45 a.m.</td>
<td>Technical Session 9 – Pre-harvest Food Safety</td>
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**Networking Event**

**General Session – John H. Silliker Lecture – An Interview with Peter Ben Embarek, World Health Organization**

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<td>Technical Session 10 – Antimicrobials</td>
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<td>Technical Session 11 – Pre-harvest Food Safety</td>
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<td>10:00 a.m.</td>
<td>Technical Session 12 – Antimicrobials</td>
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<td>11:45 a.m.</td>
<td>Technical Session 13 – Communication, Outreach and Education</td>
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<td>10:00 a.m.</td>
<td>Technical Session 14 – General Microbiology</td>
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**Networking Event**

**General Session – IAFP Business Meeting**

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<td>10:00 a.m.</td>
<td>Technical Session 15 – Meat, Poultry, Eggs and Dairy</td>
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<tr>
<td>11:45 a.m.</td>
<td>Technical Session 16 – Produce and Epidemiology</td>
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**General Session – John H. Silliker Lecture – An Interview with Peter Ben Embarek, World Health Organization**

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**Technical Session 17 – Laboratory and Detection Methods**

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**Technical Session 18 – Communication, Outreach and Education**

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**Exhibit Hour**

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MARS Global Food Safety Center

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Food Marketing Institute
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Frozen Food Foundation
International Life Sciences Institute N.A.
Marler Clark Attorneys at Law
National Restaurant Association
Nelson Jameson, Inc.
New Food
Peanut Proud
Perkin Elmer
QA Media Group
Walmart Food Safety Collaboration Center
Weber Scientific
GENERAL SESSIONS

MONDAY, OCTOBER 26
9:00 A.M. – 10:00 A.M.
IVAN PARKIN LECTURE
AUDACIOUS INNOVATION: CRITICAL TOOLS FOR THE 21ST CENTURY

CAROLINE SMITH DEWAAL
Deputy Director, EatSafe
Global Alliance for Improved Nutrition
Washington, D.C.

TUESDAY, OCTOBER 27
9:00 A.M. – 10:00 A.M.
U.S. REGULATORY UPDATE ON FOOD SAFETY

FRANK YIANNAS, MPH
Deputy Commissioner for Food Policy and Response
U.S. Food & Drug Administration (FDA)
Silver Spring, MD

MINDY BRASHEARS, PH.D.
Under Secretary for Food Safety
U.S. Department of Agriculture (USDA)
Washington, D.C.

WEDNESDAY, OCTOBER 28
9:00 A.M. – 10:00 A.M.
JOHN H. SILLIKER LECTURE
AN INTERVIEW WITH PETER BEN EMBAREK

PETER K. BEN EMBAREK, PH.D.
International Food Safety Authorities Network (INFOSAN) Management
Department of Nutrition and Food Safety
World Health Organization (WHO)
Geneva, Switzerland
IAFP 2020
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EXHIBIT HALL INFORMATION

EXHIBIT HOURS

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MONDAY, OCTOBER 26
11:30 a.m. – 1:00 p.m.
4:00 p.m. – 5:00 p.m.

TUESDAY, OCTOBER 27
11:30 a.m. – 1:00 p.m.
4:00 p.m. – 5:00 p.m.

WEDNESDAY, OCTOBER 28
11:30 a.m. – 1:00 p.m.
4:00 p.m. – 5:00 p.m.

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3M Food Safety
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Stop Foodborne Illness
<table>
<thead>
<tr>
<th>SUSTAINING MEMBERS</th>
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- **3M Food Safety**
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  - www.aemtek.com
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  - www.ajinomotofoods.com
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  - www.labplas.com
- **Merck Animal Health**
  - www.merck-animal-health-usa.com
- **Mérieux NutriSciences**
  - www.merieuxnutrisciences.com
- **MilliporeSigma**
  - www.sigmaldiirich.com/food
- **Nestle USA, Inc.**
  - www.nestle.com
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  - www.pepsico.com
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  - www.remcoproducts.com
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  - www.thermofisher.com
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  - www.walmart.com

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  - www.afcocare.com
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  - www.campdenbri.co.uk
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  - www.diamondv.com
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  - www.dole.com
- **Dubai Municipality**
  - www.dm.gov.ae
- **F & H Food Equipment Co.**
  - www.fhfoodequipment.com
- **Food Safety Net Services, Ltd.**
  - www.fsns.com
- **Maple Leaf Foods**
  - www.mapleleaf.com
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  - www.neogen.com
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  - www.osigroup.com
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  - www.qualityflow.com
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  - www.sodexousa.com
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  - www.supplementmanufacturers.info
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(Continued on next page)
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Advances in Rapid Microbial Testing Methods & Technologies for Safeguarding Food
Food Allergens: Prevention, Detection and Management
New Directions in Food Safety Risk Communications
Systemic Management of Health Risks in Wholesale & Wet Markets
Changes in International Regulations - Harmonization/Equivalence of International Food Methods
Research-Based Approaches to Consumer Communication and Education
Hot Topics: What’s New in Food Safety?
Latest Developments in Chemical Analysis Methods and Technologies
Ensuring the Authenticity of Food & Preventing Fraud
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Ms. Caroline Smith DeWaal recently joined the Global Alliance for Improved Nutrition (GAIN) in Washington, D.C. as Deputy Director of EatSafe (Evidence and Action Towards Safe, Nutritious Food). GAIN is a Swiss-based foundation launched at the United Nations in 2002 to tackle the human suffering caused by malnutrition and aims to transform food systems to help deliver more nutritious food for all consumers, especially those most vulnerable. The USAID-funded EatSafe generates evidence and knowledge of the potential of increased consumer demand for safe food to substantially improve the safety of nutritious foods in informal market settings in low- and middle-class income countries (LMICs).

Ms. DeWaal was formerly an international food safety policy manager at the U.S. Food and Drug Administration (U.S. FDA) in College Park, Maryland. She began her career in food safety in the early 1990s when \textit{E. coli} O157:H7 was initially being recognized as a major public health threat. On behalf of the Center for Science in the Public Interest, she worked with government, industry and consumer organizations on the development of HACCP (Hazard Analysis Critical Control Points) for both the meat and seafood industries. She recognized early on the need for real-world data to allow the industries to manage their responsibilities under HACCP, thus developing the first food-attribution database.

Ms. DeWaal was one of the first to recognize the hidden problem of food pathogens on fresh vegetables, becoming a leading media spokesperson on all types of food hazards, from \textit{Listeria} in luncheon meat to \textit{E. coli} on spinach; from BSE “Mad Cow Disease” to radiation concerns relating to food following the Fukushima Nuclear Power Plant disaster in Japan.

A lawyer by training, Ms. DeWaal played a pivotal role in the development of the Food Safety Modernization Act (FSMA), which was signed into law in 2011. She worked closely with members of Congress to develop the concepts for modernizing the Federal Food, Drug and Cosmetic Act to better address modern food safety risks.

Ms. DeWaal has greatly benefited from experts in the food industry, learning the fundamentals of food pathogens and viruses. She joined IAFP in 1999 and is a member of many Professional Development Groups (PDGs). She has also served on several IAFP committees, including the Travel Awards Selection Committee and the Annual Meeting Program Committee. Ms. DeWaal attended the University of Vermont and Antioch School of Law.
The future is upon us. While Al Gore warned us of a future shaped by emerging climate change and crisis, he may have overestimated the time we have to respond. The evidence of a changing world is all around us, from extreme weather to collapsing glaciers to uncontrolled forest fires. We need scientific out-of-the-box thinking now, as well as personal behavior changes, to address these challenges.

But do we have the tools? In the last 20 years, we have completed the mapping of the human genome, and built computers that fit in our pocket. In the food safety area, we have made great strides, but with each repeated outbreak, evidence is mounting that we are not changing fast enough.

Audacious Innovation is a critical tool for the 21st century. While innovation is a natural part of the scientific process, we need to push it further and faster. Although good scientific practice will be essential to our success in addressing these challenges, we need to set goals that are audacious to stimulate innovation, and set the stage through effective communication and advocacy to meet those goals.

Audacious Innovation takes both the ability to see around corners and to manage difficult conversations. In my professional life, I developed the first comprehensive food-attribution outbreak database which started with fewer than 500 outbreaks. Working with the government on the development of HACCP, I couldn’t fathom how the food industry would conduct an accurate Hazard Analysis without using real-world outbreak data. This led to CSPI’s first efforts to gather data from the CDC. The objective: Using real-world data, CSPI would develop a comprehensive source for identifying food/hazard combinations to assist the development of more accurate hazard analysis.

Using real-world evidence was touted by the FDA Commissioner in a recent speech about the need to unleash the power of data. But in 1998, before the era of big data, aggregating data collected from public health departments in 50 states was not done, especially by those outside of the Centers for Disease Control and Prevention. Pushing the envelope is part of the process of Audacious Innovation.

One Health calls on scientists to work across disciplines, with the understanding that public health encompasses environmental health and diseases both in wildlife and domesticated animals. The repeated outbreaks linked to leafy greens illustrates a One Health problem requiring an interdisciplinary solution.

One Health also illustrates Audacious Innovation. Last fall, at a Salzburg Global Seminar in Salzburg, Austria, surveillance experts from all over the world elaborated the concept of integrated surveillance, encompassing environmental health, zoonotic diseases and human health, to track, predict and prevent emerging disease outbreaks.

There are many examples of Audacious Innovation in the food industry as well. Walmart has developed a traceability system to track certain produce from the store to the farm in seconds rather than days or weeks. And Perdue spent a decade developing a system for raising chickens without the use of antibiotics.

While examples of Audacious Innovation abound, it is important for young professionals to understand and embrace their role to push boundaries in order to tackle the challenges ahead. It takes the willingness to ask hard questions, seek solutions that may not be apparent and push ideas that may not be popular with others, including those with more experience.

One final example is the United Nations’ Agenda for Sustainable Development calling for eliminating poverty and hunger by 2030. Those are audacious goals! And they will require innovation to match. So let’s think big when it comes to tackling the challenges of the 21st century.
The safety of the world's food supply depends upon dedicated organizations such as yours. IAFP commends your efforts!
MONDAY, OCTOBER 26
9:00 A.M.

General Session – Ivan Parkin Lecture
Welcome to IAFP 2020
Kali Kniel, IAFP President
IAFP Foundation
Gary Acuff, IAFP Foundation Chairperson
Ivan Parkin Lecture
Audacious Innovation: Critical Tools for the 21st Century
Introduction—Roger Cook, IAFP President-Elect
Lecture—Caroline Smith DeWaal, Global Alliance for Improved Nutrition (GAIN)

Closing Remarks
Kali Kniel, IAFP President

10:00 A.M. – 11:30 A.M.

S1 Food Omics: Is Food Safety Missing out?
Organizers and Convenors: Pushpinder Kaur Litt, Kalmia Kniel
Advanced Molecular Analytics
Applied Laboratory Methods
10:00 Application of Metagenomics to Define Microbiomes and Resistomes in Food Production Facilities and Seafood
BRANDON KOCUREK, U.S. Food and Drug Administration, Jamaica, NY, USA
10:30 Application of Metabolomics and Metagenomics in Food Safety and Traceability
FARHANA PINU, Plant and Food Research, Auckland, New Zealand

S2 Food Safety Challenges and Benefits of Capturing and Reusing Water in Food Processing Facilities
Organizer and Convenor: Omar Oyarzabal
Food Hygiene and Sanitation
Food Safety Assessment, Audit and Inspection
Dairy Quality and Safety
10:00 Regulatory Perspective for Water Reuse in Animal Processing Facilities
MELANIE ABLEY, U.S. Department of Agriculture–FSIS, Springfield, VA, USA
10:30 Water Reuse in the Food Industry: Treatment Options for “Fit for Purpose”
YULIE MENESES, University of Nebraska-Lincoln, Lincoln, NE, USA
11:00 Practical and Effective Food Processing Water Reconditioning Technologies and Case Studies
RICK MOLONGOSKI, CDM Smith, Inc., Latham, NY, USA

S3 Frozen Food Fallout: Food Safety Challenges Faced by Manufacturers in the Frozen Food Arena
Organizers: Chris Bernstein, Margaret Kirchner, Ellen Shumaker
Convenors: Sheryl Cates, Benjamin Chapman, Ellen Shumaker
Communication, Outreach and Education
Food Law
Retail and Foodservice
10:00 Production Challenges Associated with Frozen Foods
SEAN LEIGHTON, Cargill, Inc., Wayzata, MN, USA
10:30 Industry-wide Safety Concerns and Issues with Frozen Foods
DONNA GARREN, American Frozen Food Institute, Arlington, VA, USA

S4 Recent Advancements in Beverage Processing: Considerations and Outcomes
Organizers: Doris D’Souza, Ankit Patras, S. Balamurugan
Convenor: Ankit Patras
Beverages and Acid/Acidified Foods
10:00 Regulatory Requirements and Overview of Non-thermal Technologies
NATHAN ANDERSON, U.S. Food and Drug Administration, Bedford Park, IL, USA
10:30 Implementation of Ultraviolet Technology (UV-C) in the Treatment of Beverages: Safety and Quality Evaluation
ANKIT PATRAS, Tennessee State University, Nashville, TN, USA
11:00 Application of High Pressure-based Technologies for Beverages: Effect on Spores and Vegetative Cells
BALA BALASUBRAMANIAM, The Ohio State University, Columbus, OH, USA

S5 Complementary Approaches to Quantitative Microbial Risk Assessment: Emerging Computational and Modeling Approaches for Risk Analysis
Organizers: Ashraf Rahman, Daniel Munther, Matthew J. Stasiewicz
Convenors: Daniel Munther, Matthew J. Stasiewicz
Meat and Poultry
Produce
Risk Assessment
10:00 Mechanistic Models for the Produce Wash Process: Insights for Sanitizer and Cross-contamination Control
DANIEL MUNThER, Cleveland State University, Cleveland, OH, USA
10:30 An Agent-based Simulator for Gastric Flow and Survival of L. monocytogenes
ASHRAF RAHMAN, Western University, London, ON, Canada
11:00 Individual Poultry Carcass Models for Quantifying Cross-contamination during Industrial Scald and Chilling Processes
ZACHARY MCCARTHY, York University, Toronto, ON, Canada

S6 Safe (Smart Affordable Fresh Efficient) Farming Version 2.0
Organizers and Convenors: Pushpinder Kaur Litt, Kalimia Kniel, Joyjit Saha
Pre-hrvest Food Safety
Fruit and Vegetable Safety and Quality

10:00 Traditional Farming and Food Safety Risks
MANAN SHARMA, U.S. Department of Agriculture – ARS, Environmental Microbial and Food Safety Laboratory, Beltsville, MD, USA

10:30 New Age Farming Practices and Potential Food Safety Risks
ANGELA MARIE C. FERELLI, University of Maryland, College Park, MD, USA

11:00 Role of Policy and Education in Managing Food Safety Risks in Both Systems
MICHELLE DANYLUK, University of Florida CREC, Lake Alfred, FL, USA

S7 Who Will Win the Race to Zero? Analytical Challenges in the Food Industry
Organizers: Alexandria Lau, Angela Anandappa, Paul Hanlon
Convenor: Paul Hanlon
Applied Laboratory Methods
Food Toxicology
Risk Assessment

10:00 Zero Is Not Always the Hero: Risk-based Approaches for Microbiological Hazards
JENNIFER MCENTIRE, United Fresh Produce Association, Washington, D.C., USA

10:30 The Future of Allergen Testing and Alignment with the Development of Thresholds
MELANIE DOWNS, University of Nebraska-Lincoln, Lincoln, NE, USA

11:00 Novel Approaches for Risk Analysis of Chemical Contaminants
ANDREW PEARSON, Ministry for Primary Industries, Wellington, New Zealand

S8 Challenges in Developing Alternative Pre- and Post-harvest Water Treatments Used in Fruit and Vegetable Production
Organizers: Donna Clements, Diane Ducharme, Don Stoeckel, Daniel Weller
Convenors: Donna Clements, Angelic Rael, Daniel Weller
Fruit and Vegetable Safety and Quality
Water Safety and Quality

10:00 What’s in a Label? EPA Registration of Sanitizers Used for Treating Agricultural Water
DONNA BISHEL, Biosafe Systems, East Hartford, CT, USA

10:30 The Next Generation of Non-thermal Technologies and Their Impact on Water Usage
ALISON LACOMBE, USDA, ARS, Western Regional Research Center, Albany, CA, USA

11:00 Beyond Chlorine, Approaches for Treating Agricultural Water
FAITH CRITZER, Washington State University, School of Food Science, Pullman, WA, USA

RT1 Dirt on Our Boots: What We’ve Learned after More Than a Season of Produce Safety Rule Inspections
Organizers: Travis Chapin, Michelle Danyluk, Phillip Tocco, Faith Critzer
Convenor: Travis Chapin
Communication Outreach and Education

10:00 Panelists:
DONNA LYNN BROWNE, Naturipe Farms LLC, Salinas, CA
SURESH DECOSTA, Director of Food Safety, Lipman Family Farms, Chicago, IL, USA
WESLEY KLINE, Rutgers Cooperative Extension, Millville, NJ, USA
ANITA MACMULLAN, North Carolina Department of Agriculture and Consumer Services, Raleigh, NC, USA
DAIN SATTERWHITE, Kentucky Department of Agriculture, Frankfort, KY, USA
BYRON BEERBOWER, U.S. Food and Drug Administration, Silver Spring, MD, USA
BOB EHART, National Association of State Departments of Agriculture, Arlington, VA, USA

RT2 It’s Complicated, Multi-year and Multi-pathogen Outbreaks in the Era of Whole Genome Sequencing and Culture-independent Diagnostic Tests (CIDTs)
Organizers: Michael Batz, Michael Bazaco, Sherri McGarry
Convenor: Sherri McGarry
Epidemiology
General Microbiology
Novel Laboratory Methods

10:00 Panelists:
LAURA GIERALTOWSKI, Centers for Disease Control and Prevention, Atlanta, GA, USA
SCOTT HOOD, Consultants Shoreview, Golden Valley, MN, USA
KARI IRVIN, U.S. Food and Drug Administration, College Park, MD, USA

T1 Technical Session 1 – Food Processing Technologies and Laboratory and Detection Methods

T1-01 Genetic Characterization of Multidrug-resistant S.Typhimurium Harboring IncH2-Class 1 Integron-IS26
DAIQI SHANG, Chujun Ou, Hang Zhao, Jiang Chang, Chunlei Shi, Shanghai Jiao Tong University, Shanghai, China

10:15 Influence of Acid Adaptation, Cold Adaptation on Barotolerance on Survival of E. coli O157:H7, L. monocytogenes, and Salmonella spp. during HPP Treatment of Apple Juice
CATHERINE ROLFE, Alvin Lee, Nathan Anderson, Glenn Black, Institute for Food Safety and Health, College Park, MD, USA

10:30 Construction of a Surface-scanning Detection System for the Direct and Automatic Detection of Salmonella Typhimurium on Fresh Produce
IN YOUNG CHOI, Su-Hyeon Joun, Jaein Choe, Mi-Kyung Park, Kyungpook National University, Daegu, South Korea

10:45 Rapid Detection of Pathogenic Bacteria Using Engineered Bacteriophage
NICHAREE WISUTHIPHAET, Xu Yang, Glenn Young, Nitin Nitin, University of California, Davis, Davis, CA, USA
11:00 T1-05 Evaluation of the Neogen Soleris® Enterobacteriaceae for Rapid Detection of Enterobacteriaceae in Dairy Products
SUZANNE JORDAN, Frederic Martinez, Brooke Roman, Campden BRI, Chipping Campden, United Kingdom

T2 Technical Session 2 – Sanitation and Hygiene
10:00 Mold Remediation in Cannabis for the Food and Beverage Industry
KEVIN LORCHEIM, Erika Stampoulos, ClorDiSys Solutions, Inc., Lebanon, NJ, USA

T2-02 Application of Eugenol Nanoemulsion for Controlling Listeria monocytogenes Biofilms in Food Processing Environment
BRINDHALAKSHMI BALASUBRAMANIAN, Jingyi Xue, Yangchao Luo, Abhinav Upadhyay, Department of Animal Science, University of Connecticut, Storrs, CT, USA

T2-03 Efficacy of Sodium Hypochlorite against Quaternary Ammonium Compound (QAC)-tolerant Pseudomonas aeruginosa and Listeria monocytogenes Co-culture Biofilms
ERIC MOORMAN, Lee-Ann Jaykus, North Carolina State University, Raleigh, NC, USA

T2-04 Efficacy of Nanobubbles in Removing Biofilms Formed by Escherichia coli O157:H7, Vibrio parahaemolyticus, and Listeria innocua
Setareh Shiroodi, Shamil Rafeeq, Nitin Nitin, REZA OVISSIPOUR, Virginia Polytechnic Institute and State University, Hampton, VA, USA

11:00 Formulation Matters – Efficacy of Hand Sanitizers against Human Norovirus is Highly Variable
LEE-ANN JAYKUS, Blanca Escudero-Abarca, Rebecca Goulter, Rachel Leslie, Kristen Green, James Arbogast, North Carolina State University, Raleigh, NC, USA

11:15 Tracing Back Food Spoiling Bacteria during Enzymatic Cleaning with 16S rDNA Metagenetic
LAURENT DELHALLE, Bernard Taminiau, Papa Abdoulaye Fall, Sophie Burteau, Sebastien Fastrez, Marina Ballesteros, Georges Daube, University of Liège, Liège, Belgium

All times listed in Eastern time (U.S.)
### MONDAY AFTERNOON
1:00 P.M. – 4:00 P.M.

**S9** 2019 State and Local Outbreak Investigations

*Organizer and Convenor: Steven Mandernach*

*Sponsored by Association of Food and Drug Officials (AFDO)*

**Epidemiology**

**Viral and Parasitic Foodborne Disease**

1:00 Elevated Lead Investigation from Cake Icing and Decorations

MARK BUXTON, Missouri Department of Health and Senior Services, Jefferson City, MO, USA

1:30 2019 Retail Food Establishment Outbreak of *Salmonella Uganda* in Tennessee

DANNY RIPLEY, Tennessee Department of Health, Nashville, TN, USA

2:00 The Super Bowl – Defense Wins Championships... and Deters Food Contamination

COLBY BROWN, Georgia Department of Agriculture, Atlanta, GA, USA

2:30 *C. perfringens* and Indiana Wedding – A Tale of Two Outbreaks

LAURIE KIDWELL, Indiana State Department of Health, Indianapolis, IN, USA

3:00 Post-pasteurization *Yersinia* Ice Cream Outbreak

SHERI MORRIS, Pennsylvania Department of Agriculture, Harrisburg, PA, USA

3:30 Multi-State Outbreak and Regulatory Collaboration for a Funeral Caterer

D’ANN WILLIAMS, Maryland Department of Health, Baltimore, MD, USA

**S10** Emerging Biological and Computational Methods for Rapid, High-throughput Monitoring of Food and Water Safety: Role of DARPA-funded Research

*Organizer: Isabel Walls*

*Convenors: J. Emilio Esteban, Paul Sheehan*

**Applied Laboratory Methods**

**Novel Laboratory Methods**

1:00 Overview of DARPA-funded Projects

PAUL SHEEHAN, DARPA, Arlington, VA, USA

1:30 Novel Single Cell Analysis to Determine Pathogenicity of Bacteria in Environmental Samples

MICHAEL SPRINGER, Harvard University, Cambridge, MA, USA

2:00 Hide-En-Seq: Hybridization-enhanced Identification and Enrichment of Engineered Sequences

KIRSTY MCFARLAND, Draper Laboratories, Cambridge, MA, USA

2:30 Human Organ Chips for Modeling Effects of Pathogens, Toxins, and Complex Microbiome

GIRIYL GOYAL, Wyss Institute, Cambridge, MA, USA

3:00 Development and Characterization of Low-cost, Disposable Electrochemical Test Systems for Pathogen Detection in Water and Foodstuffs

MIKE FERRY, Quantitative BioSciences, Inc., San Diego, CA, USA

3:30 Identification of Pathogenic Microbes with High Throughput Technologies

JIM SAMUEL, Texas A&M University, College Station, TX, USA

1:00 P.M. – 2:30 P.M.

**S11** May the Force(meat) be with You, but without Pathogens

*Organizers: Bridget Sweet, Anna Porto-Fett, Ted McCall, Benjamin Chapman*

*Convenor: John Luchansky*

**Communication Outreach and Education**

**Pathogens**

**Meat and Poultry**

1:00 A Chef’s Culinary Perspective–What is the Process of Making Pâtés, Terrines, Roulades, and Galantines in a Restaurant Setting?

TED MCCALL, Johnston and Wales, Providence, RI, USA

1:30 Regulatory Approach to Reduce the Risk of Pathogens Associated with Garde Manger and Specialty Meat Products

WILLIAM SHAW, U.S. Department of Agriculture-FSIS-OPPD, Washington, D.C., USA

2:00 Recovery Rate, Types and Control of Pathogens in Garde Manger and Specialty Meat Products

ANNA PORTO-FETT, U.S. Department of Agriculture-ARS, Wyndmoor, PA, USA

### All times listed in Eastern time (U.S.)
S13  One Health: Its Implication in Food Safety  
Organizers: Pratik Banerjee, Kalmia Kniel, Siddhartha Thakur  
Convenor: Pratik Banerjee  
Communication Outreach and Education  
Epidemiology  
Pathogens  
1:00 One Health – Bringing Together Public Health, Environmental Health, and Food Safety  
PRATIK BANERJEE, University of Illinois at Urbana-Champaign, Urbana, IL, USA  
1:30 Applications of One Health in Addressing Issues of Food Security within a Complex Food Safety System  
KALMIA KNIEL, University of Delaware, Newark, DE, USA  
2:00 One Health in the Understanding of Global Spread of Antimicrobial-resistant Foodborne Pathogens  
SIDDHARTHA THAKUR, Department of Population Health and Pathobiology, CVM, NCSU, Raleigh, NC, USA

S14  Simulating Leafy Green Production to Improve Food Safety System Performance  
Organizers and Convenors: Daniel Munther, Matthew J. Stasiewicz  
Fruit and Vegetable Safety and Quality  
Microbial Modelling and Risk Analysis  
Pre-harvest Food Safety  
1:00 Simulating Sampling In-field Produce to Determine Statistically Powerful Risk-based Sampling Schemes  
MATTHEW J. STASIEWICZ, University of Illinois at Urbana-Champaign, Urbana, IL, USA  
1:30 Simulating Packing and Processing Facility Environments to Mitigate and Manage Contamination Niches  
CLAIRE ZOELLNER, iFoodDecisionSciences, Inc., Seattle, WA, USA  
2:00 Using Simple Models to Direct Mitigation Choices in Leafy Green Production  
ERIC WILHELMSEN, FREMONTA, Fremont, CA, USA

S15  A Highwire Act: Balancing Sustainable Agricultural Irrigation Approaches with Food Safety Priorities in the Face of Water Shortages  
Organizers and Convenors: Dima Faour-Klingbeil, Manan Sharma, Ewen Todd  
International Food Protection Issues  
Pre Harvest Food Safety  
Water Safety and Quality  
1:00 Reuse of Wastewater and Impacts of Emerging Contaminants on Agricultural Environments  
OLFA MAHJOUB, National Research Institute for Rural Engineering, Water, and Forestry (INRGREF), Tunis, Tunisia

1:30 What’s in Your Water: Presence of Bacterial Pathogens in Untreated and Reclaimed Water and Cost-effective Solutions  
MANAN SHARMA, U.S. Department of Agriculture – ARS, Environmental Microbial and Food Safety Laboratory, Beltsville, MD, USA

2:00 The Growing Trend of Sustainable Wastewater Treatment in the Arab Region: An Unexploited Opportunity for Agricultural Use  
DIMA FAOUR-KLINGBEIL, School of Biological and Marine Sciences, University of Plymouth, Devon, United Kingdom

S16  Impact of U.S. Food Safety Regulations on Compliance of Manufacturing Facilities in India  
Organizers and Convenors: Jitu Patel, Purnendu Vasavada  
Communication Outreach and Education  
Non-Microbial Food Safety  
1:00 GMP and Preventive Controls for Human Food – Requirements for Facilities in India  
JENNY SCOTT, U.S. Food and Drug Administration – CFSAN, College Park, MD, USA  
1:30 Capacity-building Activities in India for Food Safety Compliance  
SATYA NARAYANA KANDUKURI, Sathguru Management Consultants, Hyderabad, India  
2:00 Changing Face of Manufacturing Attitudes in India: Toward FSMA Compliance  
MANPREET SINGH, University of Georgia, Athens, GA, USA

RT3  Pre-harvest Food Safety Challenges and Research in Developing Economies  
Organizers: Bassam Annous, Issmat Kassem, Rodrigo Santibanez  
Convenor: Issmat Kassem  
Food Safety Culture  
Pre-harvest Food Safety  
1:00 Panelists:  
BASSAM A. ANNOUS, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA  
NATALIE DYENSON, Dole, Charlotte, NC, USA  
SANTOS GARCIA, Universidad Autónoma de Nuevo León, Facultad de Ciencias Biológicas, Departamento de Microbiología e Inmunología, San Nicolás de los Garza, NL, Mexico  
ISSMAT KASSEM, American University of Beirut, Beirut, Lebanon  
EWEN TODD, Ewen Todd Consulting, Okemos, MI, USA

T3  Technical Session 3 – Produce  
1:00 Temporal Distribution and Characterization of Listeria monocytogenes and Listeria species in a Produce Packinghouse  
CAMERON BARDISLEY, Joyce Zuchel, Genevieve Sullivan, Alexandra Belias, Martin Wiedmann, Laura K. Strawn, Virginia Tech – Eastern Shore AREC, Painter, VA, USA
1:15 Genetic Diversity of *Listeria monocytogenes* Isolated from Three Commercial Tree Fruit Packinghouses and Evidence of Persistent and Transient Contamination
YI CHEN, Tobin Simontelli, Qing Jin, Kari Peter, Luke LaBorde, Eric Brown, Dumitrut Macarisin, U.S. Food and Drug Administration—Center for Food Safety and Applied Nutrition, College Park, MD, USA

1:30 Survival and Growth of *Listeria monocytogenes* on Whole Cucumbers under Dynamic and Static Temperatures during Industrial Post-harvest Handling Conditions in Australia
INGRID ZAMORA, Hayriye Bozkurt, Floris Van Ogtrop, The University of Sydney, Sydney, NSW, Australia

1:45 Risk Factors Associated with Prevalence of Foodborne Pathogens in Manured Soils from USDA-NOP-certified Organic Farms in Four Regions of USA
ALDA PIRES, Thaís Ramos, Patricia Millner, James Stover, Paulo Pagliari, Mark Hutchinson, Jason Liley, Nicholas Rowley, Peiman Aminabadi, Jerome Baron, Annette Kenney, Fawzy Hashem, Michele Jay-Russell, Department of Population Health and Reproduction, School of Veterinary Medicine, University of California-Davis, Davis, CA, USA

2:00 Assessing Microbial Quality of Agricultural Water Used for Irrigation of Produce on Small Alabama Farms and Alabama Agricultural Experiment Stations
ZOILA CHEVEZ, Janet Gradi, Emefa Monu, Auburn University, Auburn, AL, USA

2:15 Risk Factors for *Salmonella* Contamination in Poultry
T4-06 Products Following Changes in U.S. Oversight Programs
AARON BECZKIEWICZ, Barbara Kowalczyk, The Ohio State University, Columbus, OH, USA

2:30 P.M. – 4:00 P.M.

S17 Perspectives on the Current State of Food Fraud Prevention: Regulatory Investigations, Harmonization of Standards, and Supply Chain Management
Organizer and Convenor: Karen Everstine
Communication Outreach and Education Non-Microbial Food Safety Risk Assessment

2:30 Uncovering Food Fraud in Brazil Using Forensic Analysis
FERNANDO ANTUNES LOPES, Ministry of Agriculture, Livestock, and Food Supply – Brazil, Brazil

3:00 Harmonization of Food Standards – Challenging but Important
GINA CLAPPER, USP, Rockville, MD, USA

3:30 Assuring Integrity in the Herb and Spice Value Chain – An Industry Leading Perspective
CLARE MENEZES, McCormick & Company, Haddenham, United Kingdom

S18 Microbiomes and Plastispheres – Effects of Plastic Pollution on Food Safety
Organizers: Sarah Allard, Angela Anandappa, Tori Stivers
Convenors: Angela Anandappa, Angela Marie C. Ferelli, Tori Stivers
Food Toxicology Pathogens Seafood

2:30 Plastispheres and Pathogen Transport in Marine Environments
LINDA AMARAL-ZETTLER, NIOZ Royal, The Netherlands Institute for Sea Research and The Department of Freshwater and Marine Ecology, Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam, t’Horntje, The Netherlands

3:00 Biodegradable Plastics in Soils: Implications for *Aspergillus* and Food Safety
MARIAN BRODHAGEN, Western Washington University, Bellingham, WA, USA

3:30 Microplastics: An Indigestible Meal for the Immune System
GIULIO GIUSTARINI, Center for Translational Immunology, University Medical Center Utrecht, Utrecht, The Netherlands
S19 Effective Approaches to Measure Food Safety Behavior Change
Organizers: Brita Ball, Carol Wallace
Convenors: Stephanie Maggio, Carol Wallace
Communication, Outreach and Education
Food Safety Culture
Food Safety Education
2:30 Numbers Don’t Lie…or Do They? Considerations for Effective Surveys
SHARON JONES, One Harvest Australia, Brisbane, Australia
3:00 Creating Quality Qualitative Research: Designing for Trust
BRITA BALL, Brita Ball & Associates, Guelph, ON, Canada
3:30 Cool Tech Tools That Enhance Researcher Abilities and Food Safety Outcomes
BENJAMIN CHAPMAN, North Carolina State University, Raleigh, NC, USA

S20 Quantitative Microbiological Risk Management for Safe Water Re-use in Food Processing
Organizer: Leon Gorris
Convenors: Elisabetta Lambertini, Kang Zhou
Sponsored by International Commission on Microbiological Specifications for Foods (ICMSF)
Food Safety Assessment, Audit and Inspection
International Food Protection Issues
Water Safety and Quality
2:30 Diversity of Re-use Water Sources in Food Processing Operations and Efforts to Develop Quantitative Micro Standards
LEON GORRIS, Food Safety Expert, Nijmegen, The Netherlands
3:00 Operationalizing Quantitative Micro Standards for Water Re-use in Food Processing
SUCHART CHAVEN, PepsiCo, New York, NY, USA
3:30 Statistical Aspects of Microbiological Sampling Plans for Industrial Water Re-use
MARCEL ZWIETERING, Wageningen University, Wageningen, The Netherlands

S21 How Do We Measure the Effectiveness of Food Safety Systems?
Organizers: Caroline Smith DeWaal, Tanya Roberts
Convenor: Tanya Roberts
Epidemiology
Food Safety Assessment, Audit and Inspection
International Food Protection Issues
2:30 Defining Effective National Food Safety Systems and Evaluating Their Performance
CAROLINE SMITH DEWAAL, Global Alliance for Improved Nutrition, College Park, MD, USA
3:00 The Rapid Alert System for Food and Feed in Europe
JAN BAELE, Directorate-General Health & Food Safety, European Commission, European Union, Brussels, Belgium

S22 Safety Considerations for Hemp-derived CBD
Organizer: Imad Saab
Convenor: Brent Kobielush
Food Chemical Hazards and Food Allergy
Food Safety Assessment, Audit and Inspection
2:30 How Does CBD Exert Its Biological Activity; Is It Anti-Inflammatory and What are the Current Data Gaps on Safety?
NORBERT KAMINSKI, Michigan State University, East Lansing, MI, USA
3:00 Analytical Approaches for Standardizing, Detecting and Validating Contaminants in Hemp-derived CBD
SCOTT COATES, Association of Official Analytical Chemists Research Institute, Rockville, MD, USA
3:30 Development of Evidence-based Information on the Health and Safety Risks of CBD Use
MARTIN HAHN, Hogan Lovells, Washington, D.C., USA

RT4 Creating Awareness within IAFP Regarding Food Safety in Africa
Organizer and Convenor: Leon Gorris
Epidemiology
Meat and Poultry
Pathogens
2:30 Panelists:
KEBEDE AMENU, Addis Ababa University, Bishoftu, Ethiopia
LUCIA ANELICH, Anelich Consulting, Pretoria, South Africa
MOSES GATHURA GICHIA, State Department of Livestock of Kenya, Nairobi, Kenya
ABDOULIE JALLOW, Food Safety & Quality Authority of the Gambia, Serre Kunda, KMC, Gambia
ADEWALE OLUSEGUN OBADINA, Federal University of Agriculture Abeokuta, Abeokuta, Nigeria

T5 Technical Session 5 – Developing Scientist Competition Finalists
2:30 Phenotypic Testing and Comparative Genomics of Antibiotic and Heavy Metal Resistance of Salmonella enterica and Escherichia coli isolates from U.S. Swine Feed Mills
GABRIELA MAGOSSI, Raghavendra Amachawadi, T G Nagaraja, Shenia Young, Kelly Domesle, Chih-Hao Hsu, Cong Li, Errol Strain, Beilei Ge, Valentina Trinetta, Kansas State University, Food Science Institute, Manhattan, KS, USA
2:45 Rapid Luminescent Detection of E. coli in Drinking Water Using Click-conjugated Bacteriophage-based Magnetic Nanoprobos
HANNAH ZURIER, Julie Goddard, Sam Nugen, Cornell University, Ithaca, NY, USA
3:00 Evaluation of Zero-valent Iron Filtration in the Removal and Persistence of *Escherichia coli* in Non-traditional Irrigation Water Sources: A Conserve Study

**BRIENNA ANDERSON-COUGHLIN**, Shani Craighead, Pushpinder Kaur Litt, Seongyun Kim, Alyssa Kelly, Pei Chiu, Manan Sharma, Kalmia Kniel, University of Delaware, Newark, DE, USA

3:15 Prevalence of Ciprofloxacin-resistant Genes in *Campylobacter* Isolated from Poultry Breeder Farms and Processing Plants

**JASMINE KATARIA**, Maia Metreveli, Cortney Leone, Matthew Bailey, Harshavardhan Thippareddi, Henk den Bakker, Manpreet Singh, University of Georgia, Athens, GA, USA

3:30 *Listeria monocytogenes* Comes in Different Shades: Clinical and Food Associated Strains Vary in Virulence, Stress Resistance, and Carbon Source Metabolism

**FRANCIS MUCHAAMBA**, Athmanya Eshwar, Ueli von Ah, Marc J.A. Stevens, Roger Stephan, Taurai Tasara, Institute for Food Safety and Hygiene, Vetsuisse Faculty University of Zurich, Zurich, Switzerland

3:45 Radio Frequency (RF) Pasteurization and Drying of Fresh Inshell Hazelnuts Inoculated with *Salmonella* LONG CHEN, Soon Kiat Lau, Jeyam Subbiah, Byron Chaves, David Jones, Yanyun Zhao, Jooyeoun Jung, University of Nebraska-Lincoln, Lincoln, NE, USA

**T6** Technical Session 6 – Food Safety Systems and Modeling with Risk Assessment

2:30 Heat Resistance in *Escherichia coli* from Cattle and Beef Packing Plants in Canada

**PEIPEI ZHANG**, Frances Tran, Tim Reuter, Kim Stanford, Xianqin Yang, Agriculture and Agri-Food Canada, Lacombe, AB, Canada

2:45 Promoting Food Safety Training in a Multicultural Workforce: Concept, Methodologies, and Approach

**ADENIYI ADEDAYO ODUGBEMI**, Archer Daniels Midland Company, Decatur, IL, USA

3:00 Strategic Allocation of Sampling Resources at the United States Department of Agriculture’s Food Safety and Inspection Service

**Joanna Zablotsky Kufel**, REBECCA FIELDS, Jackson Crockett, Matthew Gonzales, Michelle Catlin, Justin Ronca, Philip Derfer, U.S. Department of Agriculture, Food Safety and Inspection Service, Athens, GA, USA

3:15 Validation of Innovative Tools to Assess and to Improve Microbiological Safety in the Food Chain (VITAL)

**LUCA COCOLIN**, Amparo Roca, Gianpaolo Rando, Kalliopi Rantsiou, Trevor Phister, University of Torino-DISAFA, Grugliasco, Italy

3:30 Bayesian Statistical Modeling for Describing Uncertainty of Bacterial Spore Inactivation Behavior

**SHINYA DOTO**, Hiroki Abe, Wataru Ishida, Kento Koyama, Shigenobu Koseki, Hokkaido University, Sapporo, Japan

3:45 Risk Ranking of Food Categories Associated with *Salmonella* ANGÉLICA GODÍNEZ-OVIEDO, Francisco García-Vega, Fernando Sampedro, Montserrat Hernandez-Iturriaga, Universidad Autónoma de Querétaro, Querétaro, Mexico

2:30 Mature Biofilms of *Listeria monocytogenes* Isolated from Vermont Dairy Production Environments are Resistant to QACs in Nutrient Rich Media

**EMILY FORAUER**, Lara Cushman, Aislinn Gilmour, Andrea Etter, The University of Vermont, Burlington, VT, USA

2:45 Effects of Commercially Available Antimicrobials on the Inhibition and Inactivation of *Listeria monocytogenes* Biofilms

**STEPHANIE BROWN**, Catherine Gensler, Dennis D’Amico, University of Connecticut, Storrs, CT, USA

3:00 Development of a Dry Surface Biofilms Rapid Model for Disinfectant Testing

**CARINE NKE MONGO**, Maxwell Voorn, Peter Teska, Xiaobao Li, Haley Oliver, Purdue University, West Lafayette, IN, USA

3:15 Meta-regression Models Describing the Effects of Essential Oils and Added Lactic Acid Bacteria on *Staphylococcus aureus* Inactivation in Cheese

**BEATRIZ NUNES SILVA**, Vasco A. P. Cadavez, José A. Teixeira, Ursula Gonzales-Barron, CEB – Centre of Biological Engineering, University of Minho, Braga, Portugal
**GENERAL SESSION**

**U.S. REGULATORY UPDATE ON FOOD SAFETY**

**TUESDAY, OCTOBER 27**

**9:00 A.M. – 10:00 A.M.**

Frank Yiannas, MPH, is the Deputy Commissioner for Food Policy and Response, a position he assumed in December 2018. Mr. Yiannas is the principal advisor to the U.S. FDA Commissioner in the development and execution of policies related to food safety, including implementation of the landmark FDA Food Safety Modernization Act (FSMA), helping reduce food safety risks and achieve high rates of compliance with FDA food safety standards. He previously served in leadership roles with Walmart and the Walt Disney Company.

Mindy Brashears, Ph.D., serves as Under Secretary for the USDA’s Office for Food Safety. In this position since March 2020, Dr. Brashears oversees development, implementation, and enforcement of all of the Food Safety and Inspection Service’s (FSIS’) regulations, policies, and programs. Prior to this position, Dr. Brashears was Professor of Food Safety and Public Health and the Director of the International Center for Food Industry Excellence at Texas Tech University.
TUESDAY, OCTOBER 27

9:00 A.M.

General Session – U.S. Regulatory Update on Food Safety

Welcome and Introduction of Session
Kali Kniel, IAFP President

Update from U.S. Department of Agriculture
Introduction – Kali Kniel, IAFP President
Mindy Brashears, Under Secretary for Food Safety

Update from U.S. Food and Drug Administration
Introduction – Roger Cook, IAFP President-Elect
Frank Yiannas, Deputy Commissioner for Food Policy and Response

Question & Answer Period
Moderated by Kali Kniel, IAFP President and Roger Cook, IAFP President-Elect

Closing Remarks
Kali Kniel, IAFP President

10:00 A.M. – 11:30 A.M.

S23 How to Talk to People That Don’t Know What You are Talking About: Effectively Communicating Food Safety Information
Organizers: Brita Ball, Christopher (Adam) Baker
Convenors: Shannon Coleman, Sergio Nieto-Montenegro
Food Safety Culture
Food Safety Education
Retail and Foodservice

10:00 Success Stories on Effectively Communicating Food Safety: An Industry Experience
SERGIO NIETO-MONTENEGRO, Food Safety Consulting & Training Solutions, LLC, El Paso, TX, USA

10:30 Food Safety Bites: Scaffolding in Food Safety Education
WENQING (WENNIE) XU, Louisiana State University AgCenter, Baton Rouge, LA, USA

11:00 Two Hats: Scientist/Communicator Success Stories
SHELLEY FEIST, Partnership for Food Safety Education, Arlington, VA, USA

S24 Passport to Food Safety in Low- and Middle-income Countries: Rationale and Reflections for Recent Research Initiatives
Organizers: Barbara Kowalcyk, Haley Oliver, Jessie Vipham
Convenors: Aaron Beczkiewicz, Barbara Kowalcyk, Jessie Vipham
Epidemiology
Pathogens
Risk Assessment

10:00 Investing in Food Safety in Low- and Middle-income Countries: What are the Drivers?
KRISTEN MACNAUGHTAN, Bill and Melinda Gates Foundation, Seattle, WA, USA

10:30 Growth (and/or Toxin Formation) Potential of C. botulinum, C. perfringens, and B. cereus in Cooked Meat and Poultry Products during Cooling (Deviations) and Refrigerated Storage and Distribution
KATHLEEN GLASS, University of Wisconsin-Madison, Madison, WI, USA

11:00 Regulatory Updates on the Proposed Appendix B (2017)
SCOTT UPDIKE, U.S. Department of Agriculture (USDA)-FSIS, Washington, D.C., USA

S25 Best Practices to Manage Produce Risks from Farm to Retail
Organizer and Convenor: Anna Starobin
Antimicrobials
Produce

10:00 CFP Guide for Washing and Crisping Whole, Raw Fruits and Vegetables at Retail Food Establishments
ANNA STAROBIN, Ecolab Inc., Greensboro, NC, USA

10:30 Produce Crisping Risks and Risk Mitigations
JENNIFER MCENTIRE, United Fresh Produce Association, Washington, D.C., USA

11:00 Retail Perspective on Produce Washing
SHARON WOOD, H-E-B, San Antonio, TX, USA

S26 Food Safety Risk from Clostridium perfringens, Clostridium botulinum, and Bacillus cereus in Cooked Meat and Poultry Products
Organizer: Subash Shrestha
Convenors: Max Golden, Dennis Seman, Thomas Taylor
Meat and Poultry Safety and Quality
Microbial Modelling and Risk Analysis

10:00 Quantitative Microbial Risk Assessment for Cooling Deviations and Refrigerated Distribution of Cooked Meat and Poultry Products
ABANI PRADHAN, University of Maryland, Department of Nutrition and Food Science, College Park, MD, USA

11:00 What Should I Eat? Integrating Food Safety Risks and Nutritional Health Outcomes in Multi-risk and Risk-benefit Assessment Frameworks
Organizers: Heidy den Besten, Sofia Santillana Farakos
Convenor: Heidy den Besten

10:00 Food Safety Risk–Risk Assessments: Evaluating the Potential Health Impact of Dietary Shifts through Case Studies
SOFIA SANTILLANA FARAKOS, U.S. Food and Drug Administration – Center for Food Safety and Applied Nutrition, College Park, MD, USA
10:30 Combining Food Safety and Nutrition to Assess the Health Impact of Dietary Changes: Examples of Risk-Benefit Assessments from Denmark
MAARTEN NAUTA, National Food Institute, Technical University of Denmark, Kgs. Lyngby, Denmark

11:00 Ranking New Consumer Dietary Practices in Terms of Food Safety
JEANNE-MARIE MEMBRÉ, Secalim, INRAE, Oniris, Nantes, France

S28 Validation of New and Emerging Molecular Technologies for Pathogen Characterization
Organizers and Convenors: Megan S. Brown, J. David Legan, Stephanie Pollard
Applied Laboratory Methods
Advanced Molecular Analytics

10:00 Validation and Verification of a “Pattern Tracking” Platform
MORGAN WALLACE, Rheonix, Ithaca, NY, USA

10:30 Validation and Verification of Whole Genome Sequencing Technologies for Use in Outbreak Investigations
RUTH TIMME, U.S. Food and Administration–CFSAN, College Park, MD, USA

11:00 Validation and Verification of Databases Underpinning Strain Identification and Outbreak Tracking
NUR HASAN, EzBiome, Rockville, MD, USA

Organizers and Convenors: Nathan Anderson, Elizabeth Grasso-Kelley
Food Safety Culture
Low-water Activity Foods
Sanitary Equipment and Facility Design

10:00 Applying Hygienic Design Principles to the Building, Zoning, and Equipment Design: Greenfield vs. Legacy Systems
TIM HARTTER, Wenger Corporate Project Services, Sabetha, KS, USA

10:30 Critical Points to Primary Processing and Validation: Case Studies for Snack Foods
LISA LUCORE, Shearer’s Foods, Massillon, OH, USA

11:00 Critical Points to Secondary Processing and Process Control: Case Studies for Pet Foods
PABLO CARRION, Nestle Purina, St. Louis, MO, USA

S30 Allergen Control – Challenges, Perspectives and Solutions
Organizer and Convenor: Deb Smith
Food Chemical Hazards and Food Allergy
Food Law
Food Hygiene and Sanitation

10:00 The Perspectives: Allergen Control through Recalls – A Critique
STEVE L. TAYLOR, University of Nebraska-Lincoln, Lincoln, NE, USA

10:30 Effective Strategies for Minimizing Allergen Cross-Contact
DEB SMITH, Vikan (UK) Ltd., Swindon, United Kingdom

11:00 Allergen Removal, Validation, Monitoring and Verification
JOHN HOLAH, Holchem Laboratories, Cardiff Metropolitan University and EHEDG, Bury, United Kingdom

RT5 A Balancing Act: Minimizing Food Waste While Striving to Maximize Food Safety
Live only, not recorded
Organizers: Jenna Brophy, Ellen Shumaker, Sheryl Cates
Convenor: Jenna Brophy
Communication, Outreach and Education
Food Safety Education

10:00 Panelists:
BENJAMIN CHAPMAN, North Carolina State University, Raleigh, NC, USA
ANDY HARIG, FMI, Washington, D.C., USA
MICHAEL ROBERSON, Publix Super Markets, Inc., Lakeland, FL, USA
BRIAN ROE, The Ohio State University, Columbus, OH, USA
ANGIE SIEMENS, Cargill, Towanda, KS, USA
KEVIN SMITH, U.S. Food and Drug Administration, College Park, MD, USA

RT6 A Practical and Science-based Performance Standard as an Alternative to Zero Tolerance
Live only, not recorded
Organizer and Convenor: Donna Garren
Pathogens
Risk Assessment

10:00 Panelists:
DEANN AKINS-LEWENTHAL, Conagra Brands, Omaha, NE, USA
CATHERINE DONNELLY, University of Vermont, Burlington, VT, USA
JEFFERY FARBER, University of Guelph, Guelph, ON, Canada
STEVEN MUSSER, CFSAN-FDA, College Park, MD, USA
DONALD W. SCHAFFNER, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA
MARTIN WIEDMANN, Cornell University, Ithaca, NY, USA

T8 Technical Session 8 – Molecular Analytics, Genomics and Microbiome

10:00 GenomeTRAKR Best Practices for Uploading Sequence Data to NCBI: Assuring Good Sequence Quality and Proper Data Curation
RUTH TIMME, Errol Strain, Maria Balkey, Sai Gubbala, Robyn Randolph, Marc Allard, William Wolfgang, U.S. Food and Drug Administration – CFSAN, College Park, MD, USA

T8-01 The Perspectives: Allergen Control through Recalls – A Critique
STEVE L. TAYLOR, University of Nebraska-Lincoln, Lincoln, NE, USA
10:15  Two-year Monitoring of Environmental Microbial Communities in Three Apple Packing Facilities and Their Association with the Presence of *Listeria monocytogenes*

MARIA ROLON, Xiaoqing Tan, Taejung Chung, Narjol Gonzalez-Escalona, Yi Chen, Dimitru Macarasin, Luke LaBorde, Jasna Kovac, The Pennsylvania State University, University Park, PA, USA

10:30  Inferred *Salmonella enterica* Serotype from Whole Genome Sequencing Data Using SeqSero2

MUSTAFA SIMMONS, Jamie Wasilenko, Marie Maier, Aphrodite Douris, Jessica Battles, Joseph Minicozzi, Cesar Morales, Michael Myers, Labeed Ben-Ghaly, Glenn Tillman, U.S. Department of Agriculture – FSIS, Athens, GA, USA

10:45  Getting a Handle on *Listeria* in New Zealand – Developing a Shared Whole Genome Sequence Database for Food Safety Applications

LUCIA RIVAS, Rob Lake, Pierre Y Dupont, Brent Gilpin, Patrick J. Biggs, Ahmed Fayaz, Graham C. Fletcher, Mark Bradbury, Arnoud van Vliet, Nigel French, Institute of Environmental Science and Research, Christchurch, New Zealand

11:00  Community of Fermenting Microorganisms during Spontaneous and Kefir Fermentation of Soy Milk

AJIBOLA OYEDEJI, Marcel Houngebedji, Basheer Aideh, Rasmus Jakobsen, Witold Kot, John Meilm, Dennis Sandris Nielsen, Oluwatosin Ademola Ijabadeniyi, Durban University of Technology, Durban, South Africa

11:15  Keeping up with the *Bacillus cereus* Group: Leveraging Genomic Data to Counter Bacterial Taxonomic Ambiguity from Farm to Clinic

LAURA CARROLL, Martin Wiedmann, Jasna Kovac, European Molecular Biology Laboratory, Heidelberg, Germany

11:30  Role of Edaphic Soil Factors and Climatic Conditions in Pathogen Survival on the Farm

PUSHPINDER KAUR LITT, Alyssa Kelly, Alexis Omar, Kyle McCaughan, Gordon Johnson, Manan Sharma, Kalmia Kniel, University of Delaware, Newark, DE, USA

11:45  Influence of Soil Microbiota on *Escherichia coli* O157

CHRISTOPHER (ADAM) BAKER, Jaysankar De, Keith Schneider, University of Florida, Gainesville, FL, USA

12:00  Survival of *Salmonella enterica* subsp. Javiana and *Listeria monocytogenes* Is Dependent on Type of Soil-free Hydroponic Growing Medium

Gina Riggio, KRISTEN GIBSON, University of Arkansas, Fayetteville, AR, USA

12:15  Drought Stress Affects Kale Leaf Phytochemical Profiles and *Salmonella enterica* Leaf Association

XINGCHEN LIU, Yue Li, Shirley A. Micallef, University of Maryland, College Park, MD, USA

12:30  Evaluation of a Commercially Available Irrigation Water Chlorination System for Leafy Green Production in the Everglades Agricultural Area (EAA)

Joyjti Saha, German Sandoya Miranda, Haimanote Bayabial, Sandra Guzman, Loretta Friedrich, KateLynn Stull, MICHELLE DANYLUK, Travis Chapin, University of Florida CREC, Lake Alfred, FL, USA

12:45  The Effectiveness of Vegetative Buffer Zones to Reduce the Risk of *Salmonella* and STEC Transmission from Animal Operations to Fresh Produce

AYANNA GLAIZE, Morgan Young, Christopher Gunter, Eduardo Gutierrez-Rodriguez, Siddhartha Thakur, North Carolina State University, Raleigh, NC, USA

11:45 a.m. – 12:30 p.m.

IAFP Business Meeting
TUESDAY AFTERNOON
1:00 P.M. – 4:00 P.M.

S31 Help! I Have a Presumptive Pathogen Detection. What Are My Options?
Organizers: J. David Legan, Jean Schoeni, Edward Sliwinski
Convenors: Megan S. Brown, Larry Cohen, J. David Legan
Advanced Molecular Analytics
Applied Laboratory Methods
Dairy Quality and Safety

1:00 Guilty Until Proven Innocent? The Presumption of Positivity and the Issue of Non Confirming Presumptives in Food Pathogen Diagnostics
DANIEL DEMARCO, Eurofins, Louisville, KY, USA

1:30 How Can I Minimize Non-confirming Presumptives but Find Pathogens if They’re Truly Present?
PATRICK BIRD, PMB BioTek Consulting, West Chester, OH, USA

2:00 I Have a Presumptive Detection – Now What?
VICKIE LEWANDOWSKI, Saputo Cheese, USA, Lincolnshire, IL, USA

2:30 The Confirmation Process – What Must Be Involved?
THOMAS HAMMACK, U.S. Food and Drug Administration – Center for Food Safety and Applied Nutrition, College Park, MD, USA

3:00 “Heroic” Measures in Cultural Confirmation: Are They Ever Justified?
CATHARINE CARLIN, Cornell University, Ithaca, NY, USA

3:30 Confirmation Using a Rapid Platform
ROGER HOOI, DFA Dairy Brands, Dallas, TX, USA

S32 Foodborne Disease Outbreak Update
Organizers and Convenors: Laura Gieraltowski, Katherine Vierk, Ewen Todd
Epidemiology
Fruit and Vegetable Safety and Quality
International Food Protection Issues

1:00 How Canadian Investigators Use WGS to Solve Foodborne Illness Outbreaks with E. coli O121 Clusters in Flour as an Example
CATHERINE CARILLO, CFIA, Ottawa, ON, Canada

1:30 FSIS Investigation of an Outbreak of Salmonella Infantis in Poultry
GAMOLA FORTENBERRY, U.S. Department of Agriculture-FSIS, Washington, D.C., USA

2:00 On Multi-country Outbreak of Salmonella Poona Infections Linked to Consumption of Infant Formula
PETER BEN EMBAREK, World Health Organization, Geneva, Switzerland

2:30 This Smells Fishy: A Look at a 2019 Scombrotxin Outbreak Linked to Tuna
ELISA ELLIOT, U.S. Food and Drug Administration, College Park, MD, USA

3:00 What a Decade of Leafy Green Outbreaks Has Taught Us
TYANN BLESSINGTON, U.S. Food and Drug Administration, College Park, MD, USA

3:30 Proposed Rule: Requirements for Additional Traceability Records for Certain Foods (FSMA Section 204)
KATHERINE VIERK, U.S. Food and Drug Administration, College Park, MD, USA

S33 The Future of the Poultry Gut Health Nexus: Improving Food Safety
Organizer: Kristina Feye
Convenor: Anita Menconi
Applied Laboratory Methods
Pathogens
Risk Assessment

1:00 Probiotics and the Microbiota
NADIA YACOUBI, Evonik Operations GmbH, Frankfurt, Germany

1:30 Defining a Healthy Microbiota
KRISTINA FEYE, University of Arkansas, Fayetteville, AR, USA

2:00 Metabolism of the Microbiome
STEVEN RICKE, University of Arkansas, Fayetteville, AR, USA

S34 From Policy to Practices, Developing Environmental Monitoring Programs for Raw Agricultural Commodity (RAC) Packinghouses
Organizers: Alexis M. Hamilton, Laura K. Strawn, Faith Critzer
Convenors: Alexis M. Hamilton, Faith Critzer, Laura K. Strawn
Fruit and Vegetable Safety and Quality
Sanitary Equipment and Facility Design

1:00 Walking the EMP Tightrope with Fresh Produce
JENNIFER MCENTIRE, United Fresh Produce Association, Washington, D.C., USA

1:30 Observations from the Field, Environmental Sources of Listeria in Packinghouses
LAURA K. STRAWN, Virginia Tech – Eastern Shore AREC, Painter, VA, USA

2:00 Developing Data-driven Programs to Successfully Monitor the Packing Environment
SURESH DECOSTA, Lipman Family Farms, Immokalee, FL, USA

S35 Navigating the Benefits and Barriers of Whole Genome Sequencing (WGS) for the Food Industry from the Food Industry
Organizers and Convenors: Bala Jagadeesan, Pamela Wilger
Applied Laboratory Methods
Novel Laboratory Methods
Pathogens

1:00 Survey and Workshop Outcomes
ADRIANNE KLIJN, Société des Produits Nestlé SA, Lausanne, Switzerland

1:30 Testimony of Use of WGS from a Member of the Industry
PIERRE VENTER, Fonterra, Palmerston North, New Zealand

All times listed in Eastern time (U.S.)
2:00 Traceability, Adaptive Change, and the Sleuthing of *Salmonella* Back to Source: How Whole Genome Sequencing Greatly Augments Food Safety for Industry, Government, and Public Health
ERIC BROWN, U.S. Food and Drug Administration—Center for Food Safety and Applied Nutrition, College Park, MD, USA

S36 Confirmatory Tests for Non-culturable Foodborne Pathogens in Produce for Regulatory Testing Purposes: Recent Advances and Challenges Ahead
Organizers and Convenors: Alexandre DaSilva, Marianne Solomotis
Applied Laboratory Methods
Pathogens
Produce
1:00 Introduction/Purpose of Confirmatory Tests
LEE-ANN JAYKUS, North Carolina State University, Raleigh, NC, USA
1:30 Confirmation of Virus PCR-positive Samples Using WGS of Viral Genome
HAIFENG CHEN, FDA/CFSAN, Laurel, MD, USA
2:00 Confirmation of *C. cayetanensis* PCR-positive Samples Using WGS of Mitochondrial DNA
HEDIYE NESE CINAR, U.S. Food and Drug Administration – CFSAN, OARSA, Laurel, MD, USA

S37 I Will Survive! Molecular Basis of Pathogen Survival in Low-moisture Foods
Organizer: Brienna Larrick
Convenors: Julie Ann Kase, Laurie Post
Sponsored by ILSI North America Food Microbiology Committee
Advanced Molecular Analytics
Low-water Activity Foods
1:00 Genetic Determinants Required for Survival of *Salmonella* in Low-moisture Environments
VICTOR JAYEOLA, North Carolina State University, Raleigh, NC, USA
1:30 Molecular Basis for *Listeria* Survival in Low-moisture Foods
SOPHIA KATHARIOU, North Carolina State University, Raleigh, NC, USA
2:00 Mechanisms of Survival and Genetic Response of Pathogenic *E. coli* in Low-moisture Environments
YUAN FANG, University of Alberta, Edmonton, AB, Canada

S38 Forecasting Hot Topics: Strategies That Signal the Occurrence of Emerging Chemical Threats
Organizers: Paul Hanlon, Alexandria Lau, Anthony Flood
Convenors: Anthony Flood, Alexandria Lau
Communication Outreach and Education
Food Toxicology
Risk Assessment
1:00 Translating Data into Tools That Signal Potential Threats
RON STAKLAND, FoodChain ID Group, Fairfield, IA, USA
1:30 Acrylamide: A Model to Forecast Future Chemical Risks
MARTIN SLAYNE, Slayne Consulting LLC, New York, NY, USA

2:00 Using Social Media to Identify Emerging Trends and Issues
TAMIKA SIMS, IFIC, Washington, D.C., USA

RT7 What Don’t We Know? Cultured Meat vs. Traditional Meat and Fish Food Safety Concerns
Organizers: Christina Wilson, Gloria Swick-Brown
Convenor: Christina Wilson
Meat and Poultry
Seafood
1:00 Panelists:
LOU COOPERHOUSE, BlueNalu, Inc., San Diego, CA, USA
ISHA DATAR, New Harvest, New York, NY, USA
BARBARA KOWALCYK, The Ohio State University, Columbus, OH, USA
MATHEW MICHAEL, USDA FSIS, College Park, MD, USA

RT8 New Insights on Bridging Risk Assessment and Hazard Analysis – How Can We Really Do Both?
Organizers: Robert Brackett, Yuhuan Chen, Balasubrahmanyam Kottapalli
Convenor: Yuhuan Chen
Non-Microbial Food Safety
Pathogens
Risk Assessment
1:00 Panelists:
ROBERT BRACKETT, Institute for Food Safety and Health, Bedford Park, IL, USA
STEVEN HERMANSKY, Conagra Brands, Chicago, IL, USA
DONALD W. SCHAFFNER, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA
WILLIAM WEISSINGER, FDA ORA, Chicago, IL, USA
MARCEL ZWIETERING, Wageningen University, Wageningen, The Netherlands

T10 Technical Session 10 – Antimicrobials
1:00 Can Bacteriophages Contribute Massively to the Food Safety Future? Bacteriophages as a Biosensor Tool for the Detection of Foodborne Pathogens with Emphasis on Immobilization of Bacteriophage for the Detection of Non O157:H7 Shiga Toxin-producing *E. coli*
NADA ALASIRI, Mansel Griffiths, Andrew Kropinski, Hany Anany, Luba Brovko, Balamurali Kannan, University of Guelph, Food Science Department, Guelph, ON, Canada
1:15 Conjugated Linoleic Acid Over-producing *Lactobacillus casei* Reduced Colonization of *Campylobacter jejuni* in Chicken
ZAJEBA TABASHSUM, Mengfei Peng, Zabdiel Alvarado-Martinez, Arpita Aditya, Jacob Bhatti, Paulina De Bravo, Alana Young, Debabrata Biswas, University of Maryland, College Park, MD, USA
1:30 Antimicrobial Efficacy of Probiotic *Lactobacillus rhamnosus* GG in *Salmonella*-infected Chickens
GARY CLOSS, JR., The Ohio State University, Columbus, OH, USA
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<th>Time</th>
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<td>1:45</td>
<td>T10-04 Phenotypic and Genotypic Characterization of Extended-spectrum Beta-lactamase (ESBL)-producing <em>Escherichia coli</em> from Sheep and the Abattoir Environment in North Carolina: A Serial Cross-sectional Study NIGATU ATLAW, Shivaramu Keelara, Suvendu Behera, Valeria Yustyniuk, Siddhartha Thakur, Paula J. Fedorka-Cray, Department of Population Health and Pathobiology, CVM, NC State University, Raleigh, NC, USA</td>
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<td>2:00</td>
<td>T10-05 Quantification of Antimicrobial Resistance in Locally-grown Fresh Produce NIROSHA RUWANI AMARASEKARA, Abdullah Ibn Mafiz, Liyanganirsah Perera, Vidhya Bai Krishnnoj Rao, Yifan Zhang, Wayne State University, Detroit, MI, USA</td>
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<td>2:15</td>
<td>T10-06 Antimicrobial Efficacy of Pecan Shell Extracts Incorporated in Pullulan Film against Bacterial Pathogens and Molds KARUNA KHAREL, Malgorzata Gniewosz, Karolina Krasniowska, Achyut Adhikari, Louisiana State University AgCenter, Baton Rouge, LA, USA</td>
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<td>1:00</td>
<td>T11-01 Evaluating the Effectiveness of Vegetative Buffer Zones at Reducing Transmission of <em>Salmonella</em> and STEC: Challenge Study AYANNA GLAIZE, Morgan Young, Christopher Gunter, Eduardo Gutierrez-Rodriguez, Siddhartha Thakur, North Carolina State University, Raleigh, NC, USA</td>
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<td>1:15</td>
<td>T11-02 Detection of Norovirus, Hepatitis A and Rotavirus in Vegetables and Their Correlation with the Presence of Somatic Coliphages as Viral Contamination Indicators AXEL OSSIO, Norma Heredia, Santos Garcia, Jose Angel Merino-Mascaró, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, NL, Mexico</td>
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<td>1:30</td>
<td>T11-03 Determination of the Levels and Population Composition of Microorganisms on Baby Spinach from Harvest through the End of Shelf Life SRIYA SUNIL, Sarah Murphy, Mary Godec, Renata Ivanek, Martin Wiedmann, Cornell University, Ithaca, NY, USA</td>
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<td>1:45</td>
<td>T11-04 Extracellular Antibiotic-resistance Genes in the Cantaloupe Farm Environment ANDREA HUERTA-ESCOBEDO, Santos Garcia, Eduardo Franco, Juan S. Leon, Lee-Ann Jaykus, Janeth Pérez-Garza, Norma Heredia, Facultad de Ciencias Biológicas, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, NL, Mexico</td>
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<td>2:00</td>
<td>T11-05 Subtyping of Presumptive <em>Bacillus cereus</em> to Distinguish and Trace the Strain Used in SCUTELLO Biopesticide from Field to Fork FLORENCE POSTOLLEC, Emeline Cozien, Pierre Gehannin, Melanie Streit, Marie-Laure Divanac’h, Sebastien Louarn, Rodolphe Vidal, Anne-Gabrielle Mathot, ADRIA Food Technology Institute – UMT ACTIA 19.03 ALTER’IX, France, Quimper, France</td>
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<td>2:15</td>
<td>T11-06 Development, Validation and Comparison of 24 Machine-learning Models That Predict the Presence of Foodborne Pathogens in New York Streams Used to Source Water for Produce Production DANIEL WELLER, Alexandra Belias, Tanzy Love, Martin Wiedmann, State University of New York College of Environmental Science and Forestry, Department of Environmental and Forest Biology, Syracuse, NY, USA</td>
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**2:30 P.M. – 4:00 P.M.**

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<tr>
<td>2:30</td>
<td>S39 Whole Microbial Community and Metagenomics Applications to Characterize Water Used in Food Production Organizers: Xiangyu Deng, Karen Jarvis, Elisabetta Lambertini Convenors: Xiangyu Deng, Elisabetta Lamberti</td>
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<td>3:00</td>
<td>S40 Consumer Animal Welfare Demands and Their Impact to Food Safety Organizers: Savana Everhart, Jessica Meisinger, Rodrigo Santibanez Convenor: Rodrigo Santibanez</td>
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<td>3:30</td>
<td>S41 Jumping into the Deep End: Lessons Learned from Water Treatment Implementation under New LGMA Metrics Organizers: Faith Critzer, Michelle Danyluk, Channah Rock Convenors: Faith Critzer, Michelle Danyluk</td>
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All times listed in Eastern time (U.S.)
3:30 Connecting the Dots between Policy and Practice
CHANNAH ROCK, University of Arizona, Maricopa, AZ, USA

S42 Identifying Tools to Predict Food Safety Failures and Financial Costs
Organizer and Convenor: Allen Saylor
Food Safety Assessment, Audit and Inspection
Food Safety Culture

2:30 Learning from Adjacent Industries: The Case for Digitizing Food Safety, Quality and Sanitation Data
DAVID HATCH, Corvium, Reston, VA, USA

3:00 FDA's Approach to Cost-Benefit Analysis to Justify the Implementation of New Food Safety Regulations
ANGELA LASHER, U.S. Food and Drug Administration, Silver Spring, MD, USA

3:30 Utilizing “Big Food Safety Data” to Predict Food Safety Shortcoming for Food Processors
MEHRDAD TAJKARIMI, EAS Consulting Group, Los Angeles, CA, USA

S43 Microfluidic-based Sensing for Rapid Food and Water Safety
Organizer: Shannon McGraw
Convenor: Genevieve Flock
Advanced Molecular Analytics
Food Defense
Water Safety and Quality

2:30 Enzyme-based Paper Sensors for Foodborne Pathogen Detection
CHUCK HENRY, Colorado State, Fort Collins, CO, USA

3:00 A Portable Bacteriophage-based Electrochemical Biosensor for Direct and Rapid Detection of Shiga Toxin-producing Escherichia coli (STEC)
IRWIN QUINELA, U.S. Department of Agriculture-ARS, Western Regional Research Center, Albany, CA, USA

3:30 CRISPR/CAS-based Paper Diagnostics for Food and Waterborne Pathogen Detection
SHANNON MCGRAW, U.S. Army Combat Capabilities Development Command – Soldier Center, Natick, MA, USA

RT9 Interpreting Results from Enteric Virus Testing: Can Evidence of Viral Nucleic Acid Serve as an Indicator of Human Fecal Contamination or Defined Public Health Risk?
Organizer and Convenor: Sanjay Gummalla
Applied Laboratory Methods
Fruit and Vegetable Safety and Quality
Viral and Parasitic Foodborne Disease

2:30 Panelists:
PAM COLEMAN, Merieux NutriSciences, Chicago, IL, USA
NIGEL COOK, The Food and Environment Research Agency, York, United Kingdom
TIMOTHY JACKSON, Driscoll’s of the Americas, Watsonville, CA, USA
LEE-ANN JAYKUS, North Carolina State University, Raleigh, NC, USA
MARION KOOPMANS, Erasmus University Medical Center, Rotterdam, The Netherlands

RT10 Synthesizing Food Defense Programs for FSMA and Third Party Audits
Organizer and Convenor: Neal Fredrickson
Food Defense
International Food Protection Issues

2:30 Panelists:
KARLEIGH BACON, Kraft Heinz Company, Glenview, IL, USA
JASON BASHURA, PepsiCo, Purchase, NY, USA
JOEL MARTIN, Cargill, Wayzata, MN, USA
RAQUEL MAYMIR, General Mills, Minneapolis, MN, USA
RYAN NEWKIRK, U.S. Food and Drug Administration, College Park, MD, USA
JENNIFER VAN DE LIGT, Food Protection and Defense Institute, Saint Paul, MN, USA

T12 Technical Session 12 – Antimicrobials

2:30 Pre-growth Conditions and Genetic Variation Affect Nisin Treatment against Listeria monocytogenes on Cold Smoked Salmon
RUIXI CHEN, Jordan Skeens, Renato Orsi, Martin Wiedmann, Veronica Guariglia-Oropeza, Cornell University, Ithaca, NY, USA

2:45 Prevalence, Antibiotic Resistance and Genetic Diversity of Salmonella Recovered from Imported and Domestic Seafood, Live only, not recorded
SALINA PARVEEN, Salah Elbashir, John Bowers, Tom Rippen, Jurgen Schwarz, Michael Jahncke, Angelo DePaola, University of Maryland Eastern Shore, Princess Anne, MD, USA

3:00 Antimicrobial Effects of Nisin and Grape Seed Extract on Listeria monocytogenes on Cooked Shrimp (Litopenaeus vannamei) by Metabolomics
HONGSHUN YANG, Xue Zhao, National University of Singapore, Singapore

3:15 Frontiers in Pressure-based Pasteurization: Cost Optimization by Synergism with Natural Bactericidal and Bacteriocin Compounds
ALIYAR FOULADKHAH, Public Health Microbiology Laboratory, Tennessee State University, Nashville, TN, USA

3:30 Antimicrobial Activity of Hydrogen Peroxide, with and without Neutralization, against Listeria monocytogenes on the Surface of High-moisture Cheese
BENJAMIN ROBINSON, Dennis D’Amico, University of Connecticut, Storrs, CT, USA

T13 Technical Session 13 – Communication Outreach and Education

2:30 U.S. Consumers’ Flour Handling and Recall Knowledge
YAOHUA FENG, Juan Archila, Purdue University, West Lafayette, IN, USA

All times listed in Eastern time (U.S.)
2:45  The Role of Hands in the Cross-Contamination of Kitchen Surfaces When Preparing a Meal in a Consumer-style Kitchen
MARGARET KIRCHNER, Donald W. Schaffner, Sheryl Cates, Chris Bernstein, Benjamin Chapman, Lee-Ann Jaykus, North Carolina State University, Raleigh, NC, USA

3:00  Determinants of Food Thermometer Use and Poultry Washing among Canadian Consumers
IAN YOUNG, Fatih Sekercioglu, Richard Meldrum, Ryerson University, Toronto, ON, Canada

3:15  Consumer Preparation and Thermometer Use for Cooking Not-Ready-to-Eat Frozen, Breaded Poultry Products and Vegetables: Findings from an Observational Study
CHRIS BERNSTEIN, Ellen Shumaker, Sheryl Cates, Lisa Shelley, Rebecca Goul 2020 Program Book Covers

3:30  Content Analysis of Online Flour-based Recipes: Cookies, Cookie Dough, and Egg Noodles
Tressie Barrett, Juan Archila, YAOHUA FENG, Purdue University, West Lafayette, IN, USA

3:45  Value of Interactivity in Online Training: Assessment of Interactivity Level in an Online Training Program
STEPHANIE MAGGIO, North Carolina State University, Raleigh, NC, USA

T14  Technical Session 14 – General Microbiology

2:30  The Impact of Different Osmotic Stresses on the Survival, Growth and Detection of Aeromonas hydrophila
Luxin Wang, WENBIN WANG, University of California, Davis and Jiangsu Ocean University, Davis, CA, USA

2:45  Heavy Metal Tolerance of Salmonella Typhimurium Strains with Salmonella Genomic Island 3
CARMEN CANO, Joao Carlos Gomes-Neto, Andrew Benson, Byron Chaves, University of Nebraska-Lincoln, Lincoln, NE, USA

3:00  Application of the Human Intestinal Enteroid System for Culturing Infectious Norovirus Recovered from Surface Swabs
KATIE OVERBEY, Kellogg Schwab, Johns Hopkins University, Baltimore, MD, USA

3:15  Lactobacillus casei expressing Internalins AB Genes of Listeria monocytogenes Protects Caco-2 Cells from Listeriosis-associated Damages under Simulated Intestinal Conditions
MOLOKO MATHIPA, Mapitsi Thantsha, University of Pretoria, Pretoria, South Africa

3:45  Two Multiplex Real-time PCR Assays for the Detection of > 30 Beverage-relevant Beer Spoilage Bacteria
Astrid Groenewald, Cordt Groenewald, STEVEN WAGNER, Benjamin Junge, Kornelia Berghof-Jaeger, BIOTECON Diagnostics, Potsdam, Germany

All times listed in Eastern time (U.S.)
IAFP acknowledges your efforts to preserve the safety of the world’s food supply.

Our Sincere Thanks!
Join Dr. Peter K. Ben Embarek in an in-depth discussion and question-and-answer session, moderated by Dr. Leon Gorris, Food Safety Expert in Nijmegen, The Netherlands.

Dr. Ben Embarek will provide updates and information on how the World Health Organization (WHO), together with partners, is responding to the COVID-19 pandemic, providing nutrition and food safety guidance and advice for governments, food businesses, health workers, and the general public, to maintain good health and prevent malnutrition in all its forms.

Dr. Peter K. Ben Embarek currently works with the World Health Organization (WHO) at its Geneva, Switzerland headquarters, where he manages WHO’s International Food Safety Authorities Network (INFOSAN), covering food-related issues as part of the WHO assessment and response efforts to new and emerging public health issues, such as COVID-19, MERS-CoV, Avian Influenza, and SARS. Dr. Ben Embarek is also head of the unit covering the monitoring of nutrition and food safety events in the Department of Nutrition and Food Safety.

Dr. Ben Embarek was previously with WHO’s China Office, where he provided policy and technical advice to the government of China on food safety and nutrition issues. In 2001, he joined WHO headquarters in Switzerland, where he worked in lending support to Member States on how to develop and strengthen integrated and multisectoral national food safety strategies and policies. He was also responsible for the microbiological aspects of food safety matters in the work of WHO, including the development of microbiological risk assessment work at the international level. From 2014–2017, he managed the WHO MERS-CoV Virus Task Force and coordinated the investigations into the animal source of the disease.

Dr. Ben Embarek received his M.Sc. in Food Science and Technology and his Ph.D. in Food Safety, both from the Royal Agricultural and Veterinary University of Copenhagen, Denmark.
WEDNESDAY MORNING, OCTOBER 28
9:00 A.M.

General Session – John H. Silliker Lecture

Welcome and Introduction of Session
Kali Kniel, IAFP President

An Interview with Peter Ben Embarek
Interviewer–Leon Gorris, Food Safety Expert
Lecture–Peter Ben Embarek, World Health Organization

Closing Remarks
Kali Kniel, IAFP President

10:00 A.M. – 12:00 P.M.

S44 Multidisciplinary Perspectives on Salmonella Reading Illnesses Linked to Turkey
Organizers and Convenors: Alida Sorenson, Matthew Wise

10:00 Salmonella Reading Infections Associated with Raw Turkey Pet Food, Minnesota, 2018
SEAN BUUCK, Minnesota Department of Health, St. Paul, MN, USA

10:25 Multistate Outbreak of Salmonella Reading Infections Linked to Raw Turkey Products, 2018–2019
COLIN BASLER, Centers for Disease Control and Prevention, Atlanta, GA, USA

10:50 Salmonella Reading Outbreak: the FSIS Perspective
DOUG NOVEROSKE, U.S. Department of Agriculture-FSIS, Washington, D.C., USA

11:15 Outbreak of Salmonella Reading Infections Linked to a Community Dinner
OLUWAKEMI ONI, Iowa Department of Public Health, Des Moines, IA, USA

S45 What is Ready-to-Eat and How Safe is My Smoothie?
Organizers and Convenors: Michael Bazaco, Sherri McGarry

10:00 Outbreaks Linked to Healthy Foods
LAURA GIERALTOWSKI, Centers for Disease Control and Prevention, Atlanta, GA, USA

10:30 What is Ready-to-Eat?
JENNY SCOTT, U.S. Food and Drug Administration – CFSAN, College Park, MD, USA

S46 Spoiler Alert! Food Spoilage is Eating Our Lunch!
Organizer: Brienna Larrick
Convenor: Pamela Wilger

S47 They Get by with a Little Help from Their Friends
Organizers: Elaine Black, Shira Kramer, Ruth Petran
Convenor: Clyde Manuel

S48 How to Protect Foods Delivered to Your Consumers’ Doorstep
Organizer and Convenor: Fatemeh Ataei

All times listed in Eastern time (U.S.)

- Symposia  - Roundtables  - Technicals  - Developing Scientist Competitor  - Topic Areas
S49 Novel Technologies for Extended Shelf Life
Organizer: Genevieve Flock
Convenor: Shannon McGraw
Food Packaging
Low Water Activity Foods
10:00 Extending Shelf Life with a Protein Derived from Natural Silk
SEZIN YIGIT, Mori, Somerville, MA, USA
10:30 Stabilized Foods for Use in Extended Space Flight: Preservation of Shelf Life, Nutrient Content and Acceptability
BARRETT ANN, U.S. Army CCDC – Soldier Center, Natick, MA, USA
11:00 Investigation of Microbial Response to Vacuum Microwave Drying Processed Ration Components
DOMINIQUE PACITTO, U.S. Army CCDC – Soldier Center, Natick, MA, USA
11:30 Ethylene Co-Vinyl Alcohol (EVOH) as a Functional Barrier against Organic Compounds
DAVID HAGEN, Kuraray America, Inc., Pasadena, TX, USA

S50 Creating Meaningful Quantitative Microbial Risk Assessments Using Imperfect Data
Organizers and Convenors: Joyjit Saha, Kaitlyn E. Casulli, Dennis Seman
Meat and Poultry
Produce
Risk Assessment
10:00 From Imperfect Data to Uncertainty Analysis: An Example for Campylobacter Risk Assessment in Europe
MAARTEN NAUTA, National Food Institute, Technical University of Denmark, Kgs. Lyngby, Denmark
10:30 Case Studies for Using Imperfect Data in Fresh Produce Quantitative Microbial Risk Assessments
DONALD W. SCHAFFNER, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA
11:00 Risk Assessment of Clostridium perfringens in Cornish Pasties in the United Kingdom
LEON GORRIS, Food Safety Expert, Nijmegen, The Netherlands
11:30 Risk Assessment in the Era of Rapid and Digital Food Safety
CLAIRE ZOELLNER, iFoodDecisionSciences, Inc., Seattle, WA, USA

S51 Inspire Future Consumers through Formal and Informal Food Safety Education
Organizers and Convenors: Yaohua (Betty) Feng, Vijay Juneja
Communication Outreach and Education
General Microbiology
10:00 Mixed Method to Evaluate Food Safety High School Curricula with Both Surveys and Observation
YAOHUA (BETTY) FENG, Purdue University, West Lafayette, IN, USA
10:30 Development of a Curriculum That Integrated Food Safety with Environmental Sciences
KALMIA KNIEL, University of Delaware, Newark, DE, USA

11:00 Reaching Youth Audiences through Digital Media and Games: Challenges and Personal Experience
BARBARA CHAMBERLIN, New Mexico State University, Las Cruces, NM, USA
11:30 Teacher Motivation to Delivering Food Safety Curricula to Students: Specific Barriers
GREG MCCURDY, Salem Community Schools, Salem, IN, USA

S52 “One Health” Syst-Omics Approach to Combat Campylobacter in Agri-Food Chain
Organizer and Convenor: Xiaonan Lu
General Microbiology
Meat and Poultry
Pathogens
10:00 Campylobacter Whole Genome Sequencing: What We Can Learn from These “Big Data”?
EDUARDO TABOADA, National Microbiology Laboratory, Public Health Agency of Canada, Winnipeg, MB, Canada
10:30 Campylobacter Biofilm and Dormancy
XIAONAN LU, Department of Food Science and Agricultural Chemistry, McGill University, Sainte-Anne-de-Bellevue, QC, Canada
11:00 Campylobacter Antimicrobial Resistance and Its Control in the Agri-Food Chain
QIJING ZHANG, Iowa State University, Ames, IA, USA
11:30 Novel Vaccination Approaches to Reduce Campylobacter in Poultry
MICHAEL KONKEL, Washington State University, Pullman, WA, USA

RT11 This is How We Do It: Challenges and Strategies for Implementing Water Treatment in the Field
Organizers: Michelle Danyluk, Channah Rock, Faith Critzer
Convenor: Faith Critzer
Fruit and Vegetable Safety and Quality
Pre-harvest Food Safety
10:00 Panelists:
FAITH CRITZER, Washington State University, School of Food Science, Pullman, WA, USA
CHELSEA DAVIDSON, U.S. Food and Drug Administration, College Park, MD, USA
TIMOTHY JACKSON, Driscoll’s of the Americas, Watsonville, CA, USA
PAUL MONDRAGON, Ag Partners Southwest, Yuma, AZ, USA
VICKI-LYNNE SCOTT, Amigo Farms, Inc., Yuma, AZ, USA
JAY SUGHROUE, BioSafe Systems, Los Angeles, CA, USA

All times listed in Eastern time (U.S.)
Technical Session 15 – Meat, Poultry, Eggs and Dairy

10:00 Environmental Sources of Lymph Node Infections with Non-typhoidal Salmonella in Calves
Samantha Locke, Nicole Aulik, Donald Sackett, The Ohio State University, Columbus, OH, USA

10:15 Prevalence of Salmonella enterica in Backyard Chickens in Vermont and Survey of Owners’ Salmonella Knowledge and Biosecurity Practices
Melissa Decicco, Andrea Etter, The University of Vermont, Burlington, VT, USA

11:00 Foodborne Pathogen Surrogates Reduction Using Antimicrobial Interventions Capable of Reduced Water Use Demand during Beef Harvest
Kourtney Daniels, Katherine Modrow, Welsey Osburn, Thomas Taylor, Texas A&M University, College Station, TX, USA

11:15 Virulence Attenuation Effect of Medium- and Long-chain Fatty Acids on Listeria monocytogenes
Yuan Yao Chen, Arun Kommadath, Mike Dugan, Xianqin Yang, Agriculture and Agri-Food Canada, Lacombe, AB, Canada

11:30 Protective Cultures Inhibit Staphylococcus aureus Growth and Enterotoxin Production
Sulaiman Aljasir, Dennis D’Amico, University of Connecticut, Storrs, CT, USA

11:45 Listeria monocytogenes in Cheese – A Model to Determine the Concentrations of Undissociated Lactic Acid in Cheese and to Predict Complete Growth Inhibition
Ellen Wemmenhove, Marjon Wells-Bennik, Marcel Zwietering, NIZO, Ede, The Netherlands

Technical Session 16 – Produce and Epidemiology

10:00 Role of Plant Type in the Colonization of Mature Fruit
by Salmonella
Kellie Burriss, Otto Simmons, Robin Moore, Hannah M. Webb, Lauren Deese, Lee-Ann Jaykus, Jie Zheng, Elizabeth Reed, Laurenne M. Ferreira, Eric Brown, Rebecca L. Bell, U.S. Food and Drug Administration, Center for Food Safety & Applied Nutrition, Raleigh, NC, USA

10:15 Chlorine Resistance and Sub-lethal Injury of Long-term Survival Phase Escherichia coli in In-Vitro Planktonic Cells and Cells Attached to Romaine Lettuce
Manreet Bhullar, Angela Shaw, Aubrey Mendonca, Ana Monge, Lilian Nabwiri, Kansas State University, Olathe, KS, USA

10:30 The Use of International Genomic Data to Complement Traditional Hypothesis-generation Methods during a Multi-provincial Salmonella Enteritidis Outbreak Investigation (Canada, 2019)
Anna Manore, April Hexemer, Rachel McCormick, Marsha Taylor, Eleni Galanis, Victor Mah, Bijay Adhikari, Joy Wei, Yvonne Whitfield, Danielle Reimer, Colette Gaulin, Lorelee Tschetter, Meghan Griffin, Outbreak Management Division, Centre for Food-Borne, Environmental and Zoonotic Infectious Diseases, Public Health Agency of Canada, Guelph, ON, Canada

10:45 Use of Molecular Typing in the Investigation of Cases of Cyclosporiasis, 2019
Joel Barratt, Katelyn Houghton, Travis Richins, Jana Manning, Carolyne Bennett, Shannon Casillas, Anne Straily, Michael Arrowood, Yvonne Qvarnstrom, Centers for Disease Control and Prevention (CDC), Atlanta, GA, USA

11:00 Investigating a Salmonella Outbreak: How North Carolina Public Health, Environmental Health and Department of Agriculture Collaborated to Find a Source of Listeria monocytogenes in Cheese – A Model to Determine the Concentrations of Undissociated Lactic Acid in Cheese and to Predict Complete Growth Inhibition
Ellen Wemmenhove, Marjon Wells-Bennik, Marcel Zwietering, NIZO, Ede, The Netherlands

11:15 Retrospective Foodborne Illness Cluster Evaluation, Outbreak Investigation, and Interagency Collaboration
Allison Wellman, Tyann Blessington, Michael Bazaco, Stelios Viazis, Jennifer Beal, U.S. Food and Drug Administration, College Park, MD, USA
**WEDNESDAY AFTERNOON**

1:00 P.M. – 4:00 P.M.

**SS1**  
**Food Safety Considerations Relating to COVID-19**  
Organizers and Convenor: Martin Duplessis  
**Epidemiology, International Food Protection Issues**

1:00  
COVID-19 Pandemic Impact on Food Safety System  
MOEZ SANAA, Department of Risk Assessment, French Agency for Food, Environmental and Occupational Health and Safety (ANSES), Maisons-Alfort, France

1:30  
Additional Measures for High-touch Surfaces against SARS-CoV-2  
LEEN BAERT, Nestle, Vers-ches-les Blanc, Switzerland

2:00  
Indirect Contact Transmission of Viruses in Retail Foodservice Operations: Critical Gaps in Prevention and Control  
KRISTEN GIBSON, University of Arkansas, Fayetteville, AR, USA

2:30  
SARS-CoV-2 Message in Wastewater  
ALBERT BOSCH, University of Barcelona, Barcelona, Spain

**S55**  
**Foodborne Parasites of Emerging Importance**  
Organizers and Convenors: Sonia Almeria, Alexandre da Silva  
Food Defense

1:00  
Emerging Cases of *Cyclospora cayetanensis* and *Angiostrongylus cantonensis* in the U.S.  
BLAINE MATHISON, ARUP Laboratories, Salt Lake City, UT, USA

1:30  
Importance of Molecular Characterization to Unravel Transmission of Water and Foodborne Parasite *Cryptosporidium*  
MONICA SANTIN-DURAN, USDA, ARS, Environmental Microbial and Food Safety Lab, Beltsville, MD, USA

2:00  
Trypanosoma cruzi and Chagas Disease as an Example of a Re-emerging Parasite – Foodborne Transmission  
RENE TROTTA, Instituto Nacional de Controle de Qualidade em Saúde, Fundação Oswaldo, Rio de Janeiro, Brazil

**S56**  
**Breeding Crops for Enhanced Food Safety**  
Organizers: Isabel Walls, Jodi Williams, Paul Zankowski

1:00  
Breeding Crops for Enhanced Food Safety  
MAELI MELOTTO, University of California, Davis, CA, USA

1:30  
Exploring Plant Metabolite Traits That Restrict Enteric Pathogens in Fruit and Vegetables  
SHIRLEY A. MICALLEF, University of Maryland, College Park, MD, USA

2:00  
Genome Sequencing to Assist Maize Breeding for Aflatoxin Reduction  
XUEYAN SHAN, Mississippi State University, Mississippi State, MS, USA

**S57**  
**A Global Perspective on New Generation of Food Processing/Preservation Techniques for Food Safety: Riding the Tides of Clean Labels**  
Organizers and Convenors: Yaohua (Betty) Feng, Vijay Juneja  
Meat and Poultry

1:00  
Recent Trends/Advances in Processing/Preservation Techniques and the Applicable Regulations for Food Safety and Quality  
JEYAM SUBBIAH, University of Arkansas, Fayetteville, AR, USA

1:30  
Plant-derived Extracts for Pathogen Control in Foods: Opportunities for Clean Labeling – An Asian Perspective  
JEETU TANEJA, National Institute of Food Technology Entrepreneurship and Management, Kundli, India

2:00  
Adoption of Emerging Technologies by the Food Industry Worldwide: Issues and Challenges  
SADHANA RAVISHANKAR, University of Arizona, Tucson, AZ, USA

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All times listed in Eastern time (U.S.)

- Symposia
- Roundtables
- Technicals
- Developing Scientist Competitor
- Topic Areas

**PROGRAM BOOK**

**41**
S58  *Salmonella and Ground Beef – Persistent, Recurring, or Emerging Risk?*
Organizers: Laura Gieraltowski, Doug Noveroske, Katherine Marshall, Misha Robyn
Convenors: Katherine Marshall, Misha Robyn
Epidemiology
Meat and Poultry Safety and Quality
Pre Harvest Food Safety
1:00 Burden of *Salmonella* Outbreaks Linked to Ground Beef and Epidemiologic Investigation Challenges
LAURA GIERALTOWSKI, Centers for Disease Control and Prevention, Atlanta, GA, USA

1:30 *Salmonella* Outbreaks Linked to Ground Beef: Industry Perspective on Outbreaks and Prevention
ANGIE SIEMENS, Cargill, Inc., Wichita, KS, USA

2:00 Latest Science on Pre-harvest Interventions to Reduce *Salmonella* in Cattle
KERI NORMAN, College of Veterinary Medicine and Biomedical Sciences, Texas A&M University, College Station, TX, USA

S59  *Microbial Warfare: The Effect of Native Microbial Communities on the Survival, Growth, and Persistence of Foodborne Pathogens Along the Food Processing Continuum*
Organizers: Alexis M. Hamilton, Sarita Raengpradub Wheeler, Hongye Wang, Justin Falardeau
Convenors: Justin Falardeau, Christopher (Adam) Baker, Daniel Well
Advanced Molecular Analytics
Microbial Modelling and Risk Analysis
1:00 Milk Microbiomes throughout the Dairy Value Chain: Implications on Food Safety
ERIKA GANDA, The Pennsylvania State University, University Park, PA, USA

1:30 Pathogens in the Phyllosphere: A Regulatory Perspective on How Changes in the Microbiome May Affect Food Safety
ANDREA OTTESEN, U.S. Food and Drug Administration, CVM, Laurel, MD, USA

2:00 Microbiota of Built Tree Fruit Processing Environments: Their Potential Role in *Listeria monocytogenes* Persistence
JASNA KOVAC, The Pennsylvania State University, University Park, PA, USA

S60  *Linking Predictive Analytics with Artificial Intelligence, Machine Learning, and Other Innovative Technologies to Enhance Risk-based Food Safety Approaches*
Organizers and Convenors: Hao Pang, Elizabeth Noelia Williams
Fruit and Vegetable Safety and Quality
Meat and Poultry Safety and Quality
Microbial Modelling and Risk Analysis
1:00 Can New Machine Learning Modeling Tools Improve Quantitative Microbiological Risk Assessments?
HAO PANG, U.S. Food and Drug Administration, College Park, MD, USA

1:30 Machine Learning and Advanced Data Analytics for Food Safety Risk Assessment – Case Study for *Salmonella* in Chicken
MARC ALLARD, U.S. Food and Drug Administration – CFSAN, College Park, MD, USA

T17  **Technical Session 17 – Laboratory and Detection Methods**
1:00 Addition of Potassium Sulfite Improves Recovery and Detection of *Listeria monocytogenes* from Garlic Powder
JIAOJIE ZHENG, Sarita Raengpradub Wheeler, Andrea Cipriani, Timothy Freier, Wendy McMahon, Mérieux NutriSciences, Crete, IL, USA

1:15 Automated Surface-scanning Detection of *Salmonella*
OMAR HERNANDEZ, Sofia Arvizu-Medrano, Montserrat Hernandez Iturriaga, Juan Ramiro Pacheco Aguilar, Ana Lorena Gutierrez Escolano, Cleotilde Cancio Lonches, Rocio Morales-Rayas, University of Queretaro, Queretaro, QA, Mexico

1:30 Multiple Detection of Murine Norovirus, *Salmonella* spp., *Shigella* spp., and Shiga Toxin-producing *Escherichia coli* from the Same Fresh Produce Portion
DEANN AKINS-LEWENTHAL, Conagra Brands, Omaha, NE, USA

1:50 Typhimurium on Chili Pepper
HWA-EUN LEE, In Young Choi, Vijayalakshmi Selvakumar, Mi-Kyung Park, Kyungpook National University, Daegu, South Korea

2:00 Paper Chromogenic Array Empowered by Machine Learning – A Promising Toolkit for Surveillance and Monitoring of Viable Pathogens in Food
BOCE ZHANG, University of Massachusetts, Lowell, MA, USA

S61  *Regulatory Testing for Viruses and Parasites: The Crossroads between Public Health and Industry*
Organizers and Convenors: Alexandre da Silva, Ken Yoshitomi
Applied Laboratory Methods
Fruit and Vegetable Safety and Quality
Viral and Parasitic Foodborne Disease
1:00 Application of Regulatory Methods to Estimate the Prevalence of Foodborne Viruses and Parasites in Produce
WILLIAM BURKHARDT, U.S. Food and Drug Administration – Center for Food Safety and Applied Nutrition, Mobile, AL, USA

1:30 Hurdles and Rewards When Developing ISO Standard for Detection of Parasites
RACHEL CHALMERS, Public Health Wales, Swansea, United Kingdom

2:00 Viral Evolution and Its Impact on Diagnostic Methods for the Detection of Foodborne Viruses
JAN VINJÉ, Centers for Disease Control and Prevention, Atlanta, GA, USA
PROGRAM BOOK

1:45 Application of Magnetic Nanoparticles for the Detection of Pathogenic Microorganisms
YAN CUI, Yalong Bai, Xianming Shi, Shanghai Jiao Tong University, Shanghai, China

2:00 Evaluation of Real-time Nanopore Sequencing for Salmonella Serotype Prediction
Feng Xu, CHONGTAO GE, Hao Luo, Shaoing Li, Martin Wiedmann, Xiangyu Deng, Guantao Zhang, Abigail Stevenson, Robert Baker, Silin Tang, Mars Global Food Safety Center, Beijing, China

2:15 Single Lab Validation Study for Simultaneous Isolation of Norovirus and Hepatitis A Virus from High Fat Dairy Products
EFSTATHIA PAPAFRAGKOU, Diana Ngo, U.S. Food and Drug Administration, Laurel, MD, USA

1:30 Competing Interests of Food Safety and Food Waste Reduction – What is the Role of Food Date Labels?
MELISSA KAVAUGH, Jennifer Quinlan, Drexel University, Cherry Hill, NJ, USA

1:30 Evaluation of the Production Safety Alliance Grower Training Course: Two Years of Outcomes and Impacts for Small Farms
GRETCHEN WALL, Laura Acufa-Maldonado, Elizabeth Bihn, Donna Clements, Connie Fisk, Don Stoeckel, Kristin Woods, Cornell University, Geneva, NY, USA

1:45 Empowering Small Manufacturers to Obtain Food Safety Certification by Identifying and Overcoming the Barriers
HELEN TAYLOR, Jessica Lacey, Ellen W. Evans, ZERO2FIVE Food Industry Centre, Cardiff Metropolitan University, Cardiff, United Kingdom

2:00 Food Safety Listening Sessions with Local Food Producers
Elizabeth Bihn, LAURA PINEDA-BERMUDEZ, Lindsay Springer, Chelsea Matzen, Cornell University, Geneva, NY, USA

2:30 Using the Triple Helix Mechanism to Support Food Safety Development and Its Impact on Food Safety Systems and Commercial Performance.
DAVID LLOYD, Cardiff Metropolitan University, Cardiff, South Wales, United Kingdom

2:30 Simple Critical Steps for Evaluating Potential Risks of Food Allergy or Celiac Disease from Alternative Protein Sources
RICHARD GOODMAN, University of Nebraska, Lincoln, NE, USA

2:30 Climate Change: Impacts on Food Safety and What Food Safety Professionals Can Do to Prepare and Respond
Organizers and Convenors: Michael Bazaco, Ewen Todd
Communication, Outreach and Education
Food Safety Culture
International Food Protection Issues

1:00 Web-based Game Engages Post-secondary Students in Food Safety and Shifts Perceptions
ADIENNE SHEARER, Dallas Hoover, Jeanne Gleason, Barbara Chamberlin, David Abraham, Pamela Martinez, Jeffrey Klein, Sue Snider, Kalmia Kniel, University of Delaware, Newark, DE, USA

1:30 Process Validation – Challenges and Best Practices
Organizer: Anett Winkler
Convenor: Pablo Alvarez
Food Safety Assessment, Audit and Inspection
HACCP Utilization and Food Safety Systems
Microbial Modelling and Risk Analysis

1:00 Food Safety Considerations for Alternative Protein Sources
CARRIE MCMAHON, U.S. Food and Drug Administration, Office of Food Additive Safety, College Park, MD, USA

2:30 Food Safety Listening Sessions with Local Food Producers
Elizabeth Bihn, LAURA PINEDA-BERMUDEZ, Lindsay Springer, Chelsea Matzen, Cornell University, Geneva, NY, USA

2:30 (How) Could Products for Process Validations be Grouped?
ROY BETTS, Campden BRI, Chipping Campden, United Kingdom

2:30 How Many Log Reductions Would be Needed to Achieve a Safe Product?
MARCEL ZWIETERING, Wageningen University, Wageningen, The Netherlands

2:30 Does That Work in Practice? A Case Study
ANETT WINKLER, Cargill, Inc., Munich, Germany

2:30 The Genetics of Biocide Resistance and Tolerance among Foodborne Pathogens
MARIA HOFFMANN, U.S. Food and Drug Administration – Center for Food Safety and Applied Nutrition, College Park, MD, USA

2:30 The Long and Short of Bacterial Filaments
BYRON BREHMM-STECHER, Iowa State University, Ames, IA, USA

2:30 YEN-CON HUNG

All times listed in Eastern time (U.S.)


WEDNESDAY PM

PROGRAM BOOK 43
S66 Stay out of the Weeds: Three Simpler Things That Accomplish Produce Safety
Organizers: Michelle Smith, Don Stoeckel
Convenor: Audrey Draper
2:30 Let the Sick Worker Rest: The Real Costs and Benefits of Harvest Worker Health and Hygiene Policies
CRISTINA MCLAUGHLIN, FDA, College Park, MD, USA
3:00 Where’s Waldo (and his siblings pathogenic E. coli or Cyclospora): Observational Approaches to Characterize Risks to Water Quality
DON STOECKEL, Cornell University, Geneva, NY, USA
3:30 Kissing Dogs and Other Risks Associated with Animals and Animal Inputs on the Farm
JEFFREY LEJEUNE, The Food and Agriculture Organization of the United Nations (FAO), Rome, Italy

Organizers: Sarita Raengpradub Wheeler, Jiaojie Zheng
Convenors: Joelle K. Salazar, Jiaojie Zheng
2:30 Can We Predict the Future? Introduction to Machine Learning and Its Application to Metagenomics and Whole Genome Sequencing
XUWEN WIENEKE, Mérieux NutriSciences, Crete, IL, USA
3:00 Emerging Applications of Machine Learning in Food Safety: Potentials and Pitfalls with Genomic Data
XIANGYU DENG, University of Georgia, Center for Food Safety, Griffin, GA, USA
3:30 Machine Learning: To Reveal Potential Pathogen Indicators When Other Approaches Cannot
JASNA KOVAC, The Pennsylvania State University, University Park, PA, USA

S68 Pesticides in Food – The Big Picture: Registration, Monitoring, Enforcement
Organizers: Randolph Duverna, John Johnston, Shanker Reddy
Convenors: Charlotte Liang, Shanker Reddy
2:30 Pesticide Residues in Foods: An Overview of Registration and Tolerance Setting at the U.S. EPA
DÁVID HRDY, U.S. EPA, Washington, D.C., USA
3:00 U.S. National Residue Program
JOHN JOHNSTON, U.S. Department of Agriculture – FSIS, Fort Collins, CO, USA
3:30 Industry Perspective on Federal Pesticide Registration, Monitoring and Enforcement
CHERYL CLEVELAND, BASF, Research Triangle Park, NC, USA

RT13 Beyond the Lab, What Does Culture-independent Diagnostic Tests (CIDTs) Mean for Industry and Public Health Officials?
Organizers and Convenors: Sherri McGarry, Michael Roberson
Epidemiology
Novel Laboratory Methods
Pathogens
2:30 Panelists:
STEVEN HERMANSKY, Conagra Brands, Chicago, IL, USA
MAILE HERMIDA, Hogan Lovells U.S. LLP, Washington, D.C., USA
CARRIE RIGDON, Minnesota Department of Agriculture, Saint Paul, MN, USA
ROBERT TAUXE, Centers for Disease Control and Prevention, Atlanta, GA, USA

RT14 Mutual Reliance – FDA’s Vision for an Integrated Food Safety System
Organizers: Joseph Corby, Steven Mandernach
Convenor: Steven Mandernach
Sponsored by Association of Food & Drug Officials (AFDO)
Food Safety Assessment, Audit and Inspection
Viral and Parasitic Foodborne Disease
2:30 Panelists:
JOSEPH CORBY, Association of Food and Drug Officials, New York, NY, USA
FRANK GREENE, CT Dept. of Consumer Protection, Hartford, CT, USA
ERIK METTLER, FDA/ORA, Rockville, MD, USA
PAMELA MILES, Virginia Department of Agriculture and Consumer Services, Richmond, VA, USA
MARK SESTAK, Alabama Dept. of Public Health, Montgomery, AL, USA

T19 Technical Session 19 – Low-water Activity Foods
2:30 Modeling Salmonella Inactivation in Flour under Dynamic Heating Conditions
KAITLYN CASULLI, Jin Jung, Kirk Dolan, Donald W. Schaffner, Michigan State University, East Lansing, MI, USA
2:45 Inactivation Kinetics of Salmonella spp., Shiga Toxin-producing Escherichia coli (STEC), Listeria monocytogenes, and a Surrogate (Pediococcus acidilactici) on Macadamia Nuts, Dried Apricots, and Raisins Following Treatment of Low-Temperature, Vacuum-assisted Steam
JENNIFER ACUFF, Claire Marik, Kim Waterman, Jian Wu, Daniel Gallagher, Monica Ponder, Virginia Tech, Blacksburg, VA, USA
3:00 Thermal Death Kinetics of Salmonella Enteritidis in Peanut Butter and the Effect of Water Activity
REN YANG, Lina Wei, Jianwu Dai, Juming Tang, Washington State University, Pullman, WA, USA
3:15 Predicting Pathogen Survival in Soy Sauce-based Acidified Foods by Using Real Food-matrix Data: An Academia-industry Collaboration
ONAY BURAK DOGAN, Jayne Stratton, Jennifer Clarke, Bing Wang, University of Nebraska-Lincoln, Lincoln, NE, USA
3:30 Development of a Monte Carlo Simulation Model to Predict Pasteurized Fluid Milk Spoilage Due to Post-pasteurization Contamination
SAMANTHA LAU, Sarah Murphy, Michael Phillips, Nicole Martin, Martin Wiedmann, Cornell University, Ithaca, NY, USA
MONDAY POSTERS

**Beverages and Acid/Acidified Foods**

P1-01 Multi-stress Adaptation of *Lactobacillus plantarum* Enhances Its Survival in Different Food Matrices and in Simulated Gastrointestinal Fluids — Thobeka Dlangalala, Moloko Mathipa, MAPITSI THANTSHA, University of Pretoria, Pretoria, South Africa

P1-02 Synergistic Antimicrobial Activities of Essential Oils Against Lactic Acid Bacteria in Organic Hallabong Tangor (*Citrus kiyomi × Citrus ponkan*) Juice — JIWON KIM, Jiwon Oh, Jee-Hoon Ryu, Korea university, Seoul, South Korea


P1-04 Effect of Heat and Acidic pH on *Salmonella* Resistance in Tomato and Mango Extracts — JESÚS ANDRÉS TORRES-VELEZ, Montserrat Hernandez-Iturriaga, Universidad Autónoma de Querétaro, Querétaro, QA, Mexico

**Food Chemical Hazards and Food Allergens**

P1-05 Effect of Storage Time and Temperature on the Recovery of Milk and Peanut Residue from Environmental Swabs — JESSICA HUMPHREY, Shyamali Jayasena, Steve L. Taylor, Joseph Baumert, University of Nebraska-Lincoln, Lincoln, NE, USA

P1-06 Airline Food Allergy Risk Communication — Ayman Safi Abdelhakim, ELIZABETH C. REDMOND, ZERO2FIVE Food Industry Centre, Cardiff Metropolitan University, Cardiff, United Kingdom

P1-07 Determination of Aflatoxin B1 in Oil Seeds Using Immunomagnetic Solid Phase Extraction — Xi Yu, HONGSHUN YANG, National University of Singapore, Singapore

P1-08 Droplet Digital PCR for Detection of Allergenic Peanut — ANNE EISCHEID, U.S. Food and Drug Administration, College Park, MD, USA

P1-09 Incompatibility Group FIB Plasmid-positive *Salmonella enterica* Serovar Typhimurium Isolates from Food Animal Sources — NESRÉEN ALJAHDALI, Kennedi Weston, Joanna Deck, Bijay Khajanchi, Yasser Sanad, Jing Han, Rajesh Nayak, Steven Foley, FDA National Center for Toxicological Research, USA and King Abdul-Aziz University, KSA, Jefferson, AR, USA

P1-10 Estimation of Variance Associated with Measuring Gluten Content in an Oat Flour Sample — GIRDHARI SHARMA, Marion Pereira, Binaifer Bedford, Shizhen Wang, Paul Wehling, Mark Arlinghaus, Josh Warren, Thomas Whitaker, Lauren Jackson, Stuart Chirtel, U.S. Food and Drug Administration, Laurel, MD, USA

P1-11 Effects of Emulsifiers on Intestinal Barrier Integrity and Exposure to Food Allergens — SEFAT KHUDA, Ann Nguyen, Girdhari Sharma, Andrew Do, Mohammad Alam, Kristina Williams, Kannan Balan, Marion Pereira, U.S. Food and Drug Administration — OFSAN, Laurel, MD, USA

P1-12 Withdrawn

P1-13 Detection of Single Kernel Aflatoxin and Fumonisn Contamination Using Visual Factors Associated with Mycotoxin Contamination through Reflectance Spectroscopy — RUBEN CHAVEZ, Matthew J. Stasiewicz, University of Illinois, Champaign, IL, USA

P1-14 Development and Validation of Aflatoxin M1 — ELISA Assay for Milk Products — BYUNGCHUL KIM, Thu Huynh, Wondu Wonde-Mariam, Martin Easter, Hygiena, Santa Ana, CA, USA

P1-15 Withdrawn

P1-16 Withdrawn


P1-18 Withdrawn

P1-19 Hazard Ranking in Smoke-cured Fish in Ghana — KENNEDY BOMFEH, Liesbeth Jacxsens, Wisdom Kofi Amoa Awua, Bruno De Meulenaer, Ghent University, Ghent, Belgium

P1-20 Removal of Heavy Metal Contaminants from Skin Using Commercially Available Soaps — MICHAEL MACINGA, Chip Manuel, Chris Fricker, David Macinga, GOJO Industries, Akron, OH, USA


P1-22 Detection and Monitoring of 16 PFAS in Beef — Alexander Domelse, J. Emilio Esteban, IVAN LENOV, U.S. Department of Agriculture – FSIS, St. Louis, MO, USA

P1-23 Withdrawn

P1-24 Performance Verification of an ELISA-based Assay and a Rapid Lateral Flow Immunoassay for Specific Quantification and Detection of Egg White Protein in Food Matrices, Clean-in-Place (CIP) Rinse Water and Environmental Samples — GABRIELA LOPEZ VELASCO, Patrick Mach, Sarah Sykora, 3M, St. Paul, MN, USA

P1-25 Verification Study to Assess the Detection of Food Allergens in Swabs and Clean-in-Place (CIP) Rinse Water Utilizing Rapid Lateral Flow Immunoassays in the Presence of Commercial Sanitizers — GABRIELA LOPEZ VELASCO, Patrick Mach, Sarah Sykora, 3M, St. Paul, MN, USA

P1-26 Temporal Co-occurrence of Antimicrobial Class Residue in Tissue and Antimicrobial Sensitivity Profile from Cecal Content Strains — Gamola Fortenberry, Uday Dessa, Berhanu Tameru, Sheryl Shaw, EMILIO ESTEBAN, USDA Food Safety & Inspection Service, Washington, D.C., USA

P1-27 Extraction Efficacy of Three Different Extraction Buffers in Solubilizing Proteins from Nine Commercially Important Fish Species — TENGFEI LI, Justin Marsh, Shyamali Jayasena, Philip Johnson, Joseph Baumert, University of Nebraska-Lincoln, Lincoln, NE, USA
P1-28 Detection of Food Adulterants Using Multi-spectral Imaging — BRADY CARTER, Bradley Taylor, Neutec Group, Farmingdale, NY, USA

P1-29 Development of a Microfluidic Paper-based Analytical Device to Detect Allergens in Food Samples — MARTI HUA, Xiaoan Lu, Food, Nutrition and Health Program, Faculty of Land and Food Systems, The University of British Columbia, Vancouver, BC, Canada

Food Toxicology

P1-30 Withdrawn

P1-31 Effect of Probiotic Bacteria on Fungal Growth and Mycotoxin Production by *Aspergillus* spp. — CHIH-HSUAN CHANG, Yung-Chen Hsu, Dawit Gizachew, W. T. Event Ting, Purdue University Northwest, Hammond, IN, USA

P1-32 Withdrawn

P1-33 Evaluation of *Listeria monocytogenes* Composite Enrichment with and without Food Matrix — CHRISTINE ECKERT, Joelle K. Salazar, Diana Stewart, Kristin Pfeiffer, Megan Fay, Vanessa Cranford, Mary Lou Tortorello, Illinois Institute of Technology, Institute for Food Safety and Health, Bedford Park, IL, USA

P1-34 Comparative Study between 3M™ Petrifilm™ Aerobic Count Plate and Conventional Agar Method for Setting Expiration Date of Ready-to-Eat Food Sold by Japan’s Convenience Store — TAKAYUKI SUDA, Yuji Kanai, Satoshi Fujii, Tetsuya Mori, 3M Japan Limited, Kanagawa, Japan

P1-35 A Novel Chromogenic Detection System for the Isolation of *Arcobacter butzleri*, *Arcobacter cryaerophilus*, and *Arcobacter skirrowii* — PAUL T. NGUYEN, Linda M. Wind, John E. Grosse, Lawrence Restaino, R & F Products, Inc., Downers Grove, IL, USA

P1-36 Comparisons of Diluting Solvents to Enhance the VapORIZATION of Essential Oils — JIWON OH, Jiwon Kim, Jee-Hoon Ryu, Korea University, Seoul, South Korea

P1-37 Mammalian Cell-based Immunoassay for Detection of Viable *Salmonella enterica* Serovar Enteritidis from Poultry Products — LUPING XU, Xingjian Bai, Arun Bhunia, Department of Food Science, Purdue University, West Lafayette, IN, USA

P1-38 Assessing the Ability of Acid Treatment and Plating on Selective and Non-selective Differential Agar Plates to Improve the Recovery of *Shigella* and Enteroinvasive *Escherichia coli* (EIEC) Post Enrichment — OLUVASEUN AGBAJE, Jina Kim, Robert Duvall, Rachel Binet, U.S. Food and Drug Administration, College Park, MD, USA

P1-39 Analysis of Five Methods for the Concentration of Genetic Material from the Apple Peel — ALEXIS HAMILTON, Faith Critzer, Washington State University, School of Food Science, Pullman, WA, USA

P1-40 Process Validation of Hepatitis A Virus Inactivation in Spinach Using *Staphylococcus cannovus* CS 300 Grown with 20% Glycerol at 42°C — Alexander Bowman, DORIS D’SOUZA, University of Tennessee, Knoxville, TN, USA

P1-41 Immunodetection of Meat Adulterants — XINGYI JIANG, Qinchen Rao, Florida State University, Tallahassee, FL, USA

P1-42 Evaluation of a Microbial ATP Bioluminescence-based Method as a Rapid Detection System for Testing Commercial Sterility in Ultra High Temperature (UHT) Pasteurized Milk — KAYELEN WAN WAN, Yajuel Gong, Subiao Lu, Hongkun Wang, Gabriela Lopez Velasco, 3M China, Shanghai, China

P1-43 Impact of Gas Nanobubbles on the Efficacy of Commonly Used Antimicrobials in the Food Industry — ARSHDEEP SINGH, Amninder Singh Sekhon, Phoebe Unger, Monipel Ansong, Minto Michael, Washington State University, Pullman, WA, USA

P1-44 Detection of *Listeria monocytogenes* in Mixed Environmental Sponge Swab Enrichment Cultures Using the bioMérieux VIDAS® Lis Assay or USDA and FDA Reference Methods — Ryan Zimmerman, LEANNE HAHN, Sue Kelly, Lauren Post, Brian Farina, Charles Deibel, Deibel Laboratories, Inc., Madison, WI, USA

P1-45 Independent Evaluation of the Real-time BAX® PCR Assay for *Listeria monocytogenes* in Food Samples for Health Canada Compendium Inclusion — NISHA CORRIGAN, Carlos Leon Verlarde, Saleema Saleh-Lakha, Kathy Wilson, Shannon Bullard, Qualicon Diagnostics, LLC, New Castle, DE, USA

P1-46 A Novel Optical Biosensor Based on Target-induced Immunomagnetic Beads Aggregation for Label-free and Portable Detection of Enrofloxacin — YAFANG SHEN, Fei Jia, Aoming Liang, Huang Dai, Yaping Peng, Yingchun Fu, Yanbin Li, College of Biosystems Engineering and Food Science, Zhejiang University, Hangzhou, China

P1-47 Withdrawn

P1-48 BAX® System SalQuant from Farm to Final Product: What’s Your Number? — APRIL ENGLISHBETH, Savannah Forgey, Marcos X. Sanchez-Plata, Tyler Stephens, Hygiena, Magnolia, TX, USA

P1-49 Evaluation of a Loop-mediated Isothermal Amplification (LAMP) – Bioluminescent Assay for *Salmonella* Detection in Boot Swabs from Brazilian Poultry Industry — VANESSA TSUHAKO, Daiane Martini, Jaqueline Hanauer, 3M, Sumaré/SP, Brazil

P1-50 Evaluation of a Loop-mediated Isothermal Amplification (LAMP) – Bioluminescent Assay for *Campylobacter* Detection in Cooked Breast Chicken from the Brazilian Poultry Industry — VANESSA TSUHAKO, Felipe Zattar, Cristiano Magalhães, 3M, Sumaré/SP, Brazil

P1-51 Performance of Rapid Enumeration Methods for Indicators in Brazilian Concentrated Juices — VANESSA TSUHAKO, Fernanda Campos, Amanda Geraldi, Juliana Contiero, 3M, Sumaré/SP, Brazil

P1-52 MALDI-TOF MS Analysis for Simultaneous Discrimination of Cereulide-producing *Bacillus cereus* and Psychrotolerant *Bacillus cereus* Group from Other B. cereus Group — NAOMI TAKAHASHI, Satomi Nagai, Akane Fujita, Yousuke Ido, Kenji Kato, Ayumi Saito, Yuka Moriya, Yumiko Tomimatsu, Naoko Kaneta, Yoshinori Tsujimoto, Hiroto Tamura, Meiji Co., Ltd., Tokyo, Japan

P1-53 Evaluation of Rapid *Cronobacter* and *Salmonella* Detection in Powder Infant Formula and Related Matrices Using Loop-mediated Isothermal Amplification (LAMP)–Bioluminescent Assay Compared with the GB Methods — CHENYAN NIU, Jichao Liu, Feng Liu, Yong Jiang, Xue Na, Xing Wang, Zhiyong Dai, Can Yi, Jun Zhou, Qing Tao, Yan Huang, Jianwei Hao, Yajuel Gong, Subiao Lu, RAJ RAJAGOPAL, 3M, St. Paul, MN, USA

P1-54 Evaluation of a Loop-mediated Isothermal Amplification (LAMP)–Bioluminescent Assay for *Salmonella* Detection in Yogurt and Yogurt-based Drinks as Compared to the GB Method — JIANWEI HUO, Yan Huang, Subiao Lu, Wei Zhang, Jingquan Lan, Yanmei Song, RAJ RAJAGOPAL, 3M, St. Paul, MN, USA
P1-55 Rapid Detection of STEC and Salmonella in Beef and Poultry Matrices Using Loop-mediated Isothermal Amplification (LAMP)–Bioluminescent Assays — Jesse Goseland, Kong Thao, Christina Barnes, RAJ RAJAGOPAL, 3M, St. Paul, MN, USA


P1-57 Automated System for Pathogen Detection Using Loop-mediated Isothermal Amplification (LAMP)–Bioluminescence Detection — Gregory Sitton, Ryan Ghan, RAJ RAJAGOPAL, 3M, St. Paul, MN, USA

P1-58 Evaluation of a Loop-mediated Isothermal Amplification (LAMP)–Bioluminescent Assay for Salmonella Detection in Ice Cream as Compared to the GB Method — Jianwei Huo, Subiao Lu, Yuxia Wang, Dongmei Wang, Yang Liu, RAJ RAJAGOPAL, 3M, St. Paul, MN, USA


P1-60 Development of a Test Method to Evaluate the Inhibitory Properties of Swabbing Materials — Guy Joseph Ejenguele, Martha Ntsame Ondo, Alina Ciobanu, Benoit Brouillette, MARIE-HELENE DUFRESNE, Labplas Inc., Ste-Julie, QC, Canada

P1-61 Comparison of Sampling Devices for Detection of Listeria monocytogenes from Stainless Steel and Plastic Surfaces — DIANA STEWART, Arlette Shazer, Joelle K. Salazar, Mary Lou Tortorello, U.S. Food and Drug Administration, Bedford Park, IL, USA

P1-62 Performance Evaluation of a Loop-mediated Isothermal Amplification (LAMP)–Bioluminescent Assay for Rapid Detection of Salmonella spp. in Boot Swabs, Feces and Visceral Flour from Brazilian Poultry Industry — DAIANE MARTINI, Vanessa Tsuchako, Sylnie Santos, Camila Pileski, 3M, Chapecó, Brazil

P1-63 Acid Treatments for Improved Detection and Isolation of E. coli O157:H7 from Mung Bean Sprout Irrigation Water — WILLIS FEDIO, Ruben Zapata, Lyssa White, Yatziri Preciado, Brian Lorber, Ken Yoshitomi, Karen Jinneman, Steve Weagant, New Mexico State University, Las Cruces, NM, USA

P1-64 Improved Detection Efficiency with Modified Enrichment Broth and qPCR with Iap Primer and Tm Value for Listeria monocytogenes in Golden Needle Mushroom — YEONGEUN SEO, Jihye Ryu, Kyoung-Hee Choi, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P1-65 Withdrawn

P1-66 The Use of a Novel Selective Supplement in the Rapid Recovery and Detection of Pathogenic Gram-negative Organisms from Challenging Food Matrices — SIMON ILLINGWORTH, Nevin Perera, Solus Scientific Solutions Ltd., Mansfield, United Kingdom

P1-67 Application of a High-throughput Targeted Amplicon Sequencing Approach for Detection of Foodborne Pathogens from Produce Samples — ISHA PATEL, Mark Mammel, Zhihui Yang, Michael Kulka, Jayanthi Gangiredla, Efstatia Papafragkou, U.S. Food and Drug Administration, Laurel, MD, USA

P1-68 Withdrawn

P1-69 Evaluations of Lactose Broth and Three Buffered Pre-enrichment Broths for Use in the Bacteriological Analytical Manual Salmonella Culture Method for the Analysis of Low Microbial Load/Low-moisture Foods — ANDREW JACOBSON, Hua Wang, Anna Maounouen-Laasri, Lanlan Yin, Thomas Hammack, U.S. Food and Drug Administration, Center for Food Safety & Applied Nutrition, College Park, MD, USA

P1-70 Detection of Campylobacter jejuni in Water Using Dead-end Ultrafiltration and Its Application for Field Testing — LISA HARRISON, Kannan Balan, Mauricio Durigan, Kelli Hiett, Uma Babu, U.S. Food and Drug Administration – CFSAN, Laurel, MD, USA

P1-71 Environmental Indicators for Norovirus and Hepatitis A in the Agricultural Environment: A Systematic Review — Courtney Victor, Karen Ellis, Frederica Lamar, JUAN S. LEON, Emory University, Atlanta, GA, USA

P1-72 ISO 16140-2 (2016) Performance Assessment of a New Protocol for Iq-Check® Cronobacter spp. and RAPID' Sakazakii for the Detection of Cronobacter spp. in 375 g Samples of Infant Formula, Infant Cereals with and without Probiotics — Lizaig Gouguet, Gaëtan Plouzeauc, Rebecca Dievart, Émilie Chauveau, Christophe Quiring, Gulustan Kuckuk, Yannick Bichot, Jean-Philippe Tournaire, Nicholas Nguyen Van Long, FLORENCE POSTOLLEC, Maryse Rannou, ADRIA Food Technology Institute, Quimper, France

P1-73 Assessment of a Real-time PCR Method for the Detection of Shiga Toxin-producing Escherichia coli — Muriel Bernard, Cécile Bernez, Christophe Quere, David Crabtree, Dean Leak, Ana-Maria Leonte, Nicholas Nguyen Van Long, FLORENCE POSTOLLEC, Maryse Rannou, ADRIA Food Technology Institute, Quimper, France

P1-74 ISO 16140-2 (2016) Performance Assessment of a Shorter Protocol for Iq-Check® Solutions for the Detection of Listeria spp. and L. monocytogenes in Production Environmental Samples — Sarah Peron, Gaëtan Plouzeauc, Émilie Chauveau, Laurent Jain, Christophe Quiring, Sophie Pierre, Jean-Philippe Tournaire, Mike Clark, Nicholas Nguyen Van Long, FLORENCE POSTOLLEC, Maryse Rannou, ADRIA Food Technology Institute, Quimper, France

P1-75 ISO 16140-2 (2016) Method Comparison and Interlaboratory Study of GENE-up® EHEC Method for the Detection of Shiga Toxin-producing Escherichia coli (STEC) and STEC from O26, O103, O111, O145 and O157 Serogroups in Raw Meat, Raw Milk and Raw Milk Cheeses — Justine Baguet, Cécile Bernez, Dean Leak, Ana-Maria Leonte, Nicholas Nguyen Van Long, FLORENCE POSTOLLEC, Maryse Rannou, ADRIA Food Technology Institute, Quimper, France

P1-76 ISO 16140-2 (2016) Method Comparison of TEMPO® CAM Method for the Enumeration of Thermotolerant Campylobacter spp. in Raw Poultry and Ready-to-Cook Poultry Products — Sarah Peron, Gaëtan Plouzeauc, Nicholas Nguyen Van Long, FLORENCE POSTOLLEC, Maryse Rannou, ADRIA Food Technology Institute, Quimper, France
P1-77 Direct Metatranscriptome RNA-Seq and Multiplex RT-PCR Amplicon Sequencing on Nanopore MinION — Promising Strategies for Multiplex Identification of Viable Pathogens in Food — MARY YANG, Minugen Xu, Boce Zhang, UMass Lowell, Lowell, MA, USA

P1-78 Validation of the 3M™ Petrifilm™ Rapid E. coli/Coliform Count Plate for the Enumeration of Coliform in a Variety of Foods Against the Canadian Reference Method (MFHPB-31) — SALEEMA SALEMA SALEH-LAKHA, Carlos Leon-Velarde, Jennifer Fischer-Jenssen, Emily Wilson, Anli Gao, Shu Chen, Ana Lozano, Agriculture and Food Laboratory (AFL), University of Guelph, Guelph, ON, Canada

P1-79 Evaluation of the BAX® System Real-time PCR Assays for the Detection of E. coli O157:H7 and STEC O121 from Stainless Steel Surfaces — JULIE WELLER, Anastasia Likanchuk, Victoria Kuhnel, Qualicon Diagnostics LLC, A Hygienia Company, New Castle, DE, USA


P1-81 Flow Cytometry Detection Studies with Plant-based and Alternative Beverage Drinks — PATRICIA RULE, Michelle Keener, Ary Wellborn, J. Stan Bailey, bioMérieux Inc., Hazelwood, MO, USA

P1-82 Use of Proficiency Test Data to Evaluate Method Performance for Sulfite Analysis in Dried Fruits — ION TIVA, University of Tokyo, Tokyo, Japan

P1-83 Improvement of Cronobacter sakazakii and Salmonella spp. Detection in Powdered Infant Formula — REBECCA DIEVART, Antoine Riviere, Gulustan Kuccuk, Jean-Philippe Toumaire, Yannick Bichot, Christophe Quiring, Sophie Pierre, Bio-Rad, Marnes-la-Coquette, France

P1-84 Validation of the Enviro® Assay for the Detection of Listeria, Listeria monocytogenes and Salmonella in Environmental Surface Samples — BENJAMIN KATCHMAN, Michael Hogan, PathogenDx, Tucson, AZ, USA

P1-85 Validation of the 3M™ Petrifilm™ Rapid E. coli/Coliform Count Plate for the Enumeration of Escherichia coli in a Variety of Foods Against the Canadian Reference Method (MFHPB-27) — SALEEMA SALEMA SALEH-LAKHA, Carlos Leon-Velarde, Jennifer Fischer-Jenssen, Emily Wilson, Anli Gao, Shu Chen, Ana Lozano, Agriculture and Food Laboratory (AFL), University of Guelph, Guelph, ON, Canada

P1-86 Evaluation of 3M Rapid Yeast & Mold (RYM) Petrifilm Testing Method for Yeast in Salad Dressings and Acid-Formulated Sauces — MAY YEOW, Judy Chen, Joseph Higgs, Rob Beauseau, Ventura Foods, Brea, CA, USA

P1-87 Withdrown

P1-88 Characterization of Campylobacter Flagellin Protein Specific Monoclonal Antibodies and Evaluation of Their Binding Affinities Using Surface Plasmon Resonance — SHREYA SINGH HAMAL, Tennessee State University, Nashville, TN, USA


P1-90 Application of bioMérieux D-COUNT™ as the Rapid Solution for Commercial Sterility Test in Coconut Products — QIONGQIONG YAN, Phunathorn Phuchivathanapong, Krongkaew Ramwong, Melvin Sumpio, Arpi Settyawan, Johnny Queck, bioMérieux Singapore, Singapore

P1-91 Impact of the Quality of Buffered Peptone Water on the Detection of Salmonella spp. in Food — ANTOINE RIVIERE, Yannick Bichot, Gulustan Kuccuk, Rebecca Dievart, Christophe Quiring, Sophie Pierre, Bio-Rad, Marnes-la-Coquette, France

P1-92 Evaluation of STEC Detection from 25 g and 375 g Beef Samples with a PCR Method Workflow vs. ISO and USDA Reference Methods — DAVID CRABTREE, Dean Leak, Jessica Williams, Ana-Maria Leonte, Laura Vaahortonanta, Hanna Lehmusto, Nina Wickstran, MATTHEW HAHS, Thermo Fisher Scientific, Lenexa, KS, USA

P1-93 A Comparison of Two Commercially Available PCR Detection Assays for Vibrio from Seafood Samples — Annette Hughes, David Crabtree, Laura Vaahortonanta, Hanna Lehmusto, MATTHEW HAHS, Thermo Fisher Scientific, Lenexa, KS, USA

P1-94 Performance Comparison of the Two Multiplex PCR Assays for Detection of Campylobacter from Poultry Samples — Patrick Stephens, David Crabtree, Laura Vaahortonanta, Jukka-Pekka Palomäki, MATTHEW HAHS, Thermo Fisher Scientific, Lenexa, KS, USA

P1-95 Testing the Inclusivity and Exclusivity of Two PCR Assays for the Detection of Vibrio Species — Annette Hughes, David Crabtree, Laura Vaahortonanta, Hanna Lehmusto, MATTHEW HAHS, Thermo Fisher Scientific, Lenexa, KS, USA

P1-96 Evaluation of STEC Isolation from Food Samples Using Chromogenic Coliform Agar — David Crabtree, Dean Leak, MATTHEW HAHS, Thermo Fisher Scientific, Lenexa, KS, USA

P1-97 Withdrawn

P1-98 Evaluation of the Post-enrichment Process Times for Commercial E. coli O157:H7 Molecular Detection Systems — JOSEPH BOSILEVAC, Mohammed Ahmed, Vikrant Dutta, USDA/ARS, Clay Center, NE, USA

P1-99 AOAC PTM Certification of the BACGene E. coli STEC Solution in Two Modular Workflows — LAURA BLEICHNER, Christoph Bahrdt, Felix Haesler, Nadine Goehring, Jana Kizina, Eurofins GeneScan Technologies GmbH, Freiburg, Germany

P1-100 Validation Studies for the BACGene Kits, Including Preraster Free DNA Removal Treatment and Fastfinder Evaluation, as Alternative Methods — LAURA BLEICHNER, Christoph Bahrdt, Felix Haesler, Nadine Goehring, Jana Kizina, Eurofins GeneScan Technologies GmbH, Freiburg, Germany

P1-101 Combined Nonthermal Processing and Antimicrobial Packaging for Juice Pasteurization — TONY JIN, Ramadan Abokelhaggag, USDA-ARS-Eastern Regional Research Center, Wyndmoor, PA, USA

Laboratory and Detection Methods

P1-102 Evaluation of Improved Automated Rapid Microbiological Assay System — TINA CASKEY, JAMES HLAINE, CAROLYN MONTEI, MIKE KILLINGSWORTH, JASON KIRCO, LEI ZHANG, ROBERT DONOFRIO, PREETHA BISWAS, NEOGEN CORPORATION, LANSING, MI, USA

P1-103 Performance Evaluation of Real-time PCR for Salmonella Detection in Nutraceutical and Dietary Supplements — DEBORAH BRIESE, JOY DELLARINGA, VIKRANT DUTTA, BIOMERIEUX, INC., HAZELWOOD, MO, USA

Blue Text – Developing Scientist Competitor

Green Text – Undergraduate Student Competitor
P1-131 Reduction of Shiga Toxin-producing *Escherichia coli* (STEC) and *Salmonella* on Beef Tissues Subjected to Far-UV Sterilray™ Technology — BROCK BRETHOUR, Joshua Maher, Daniel Vega, Katia Pozuello, Jessie Vipham, Valentina Trinetta, Randall Phebus, Sara Gragg, Kansas State University, Manhattan, KS, USA

P1-132 *Salmonella* Concentrations, Prevalence, Serovars Distribution and Antimicrobial Resistance Associated with Informal Raw Poultry Processing in Accra, Ghana — ANGELA P.H. KUNADU, Richard Otwety, Lydia Mosi, University of Ghana, Department of Nutrition and Food Science, Accra, Ghana


P1-134 Prevalence and Antimicrobial Resistance of *Salmonella* from Poultry Processing Operations — CORTNEY LEONE, Matthew Bailey, Estefania Nova Rama, Harshavardhan Thippareddi, Manpreet Singh, University of Georgia, Athens, GA, USA


P1-136 Improving Microbiological Quality and Safety of Chicken Breast Fillets from Salvage Line during Poultry Processing — SASIKALA VADDU, Avani Gouru, Rob Larose, Jeff Madewell, Vijay K. Choppakatla, Manpreet Singh, Harshavardhan Thippareddi, University of Georgia, Athens, GA, USA

P1-137 A Reduced Head-space Enrichment for BAX® System Detection of *Campylobacter* from Poultry Parts Incubated Under Aerobic Conditions — JULIE WELLER, Anastasia Likanchuk, Victoria Kuhnel, Qualicon Diagnostics LLC, A Hygiene Company, New Castle, DE, USA

P1-138 A Simultaneous Enrichment for *E. coli* O157:H7 and *Salmonella* from Microtally™ Swabs Using the BAX® System — JULIE WELLER, Anastasia Likanchuk, Victoria Kuhnel, Qualicon Diagnostics LLC, A Hygiene Company, New Castle, DE, USA

P1-139 Co-evolved Wide Host Range Phage Demonstrated Better Lytic Capacity in a *Felixunavirus Phage-Salmo- nella* Infants Model on Chicken Meat — DACIL RIVERA, Lauren Hudson, Thomas Denes, Andrea Moreno-Switt, School of Veterinary Medicine, Faculty of Life Sciences, Universidad Andres Bello, Santiago, Chile

P1-140 Inactivation of *Salmonella* in Ground Chicken Meat by High-pressure, Allyl Isothiocyanate, and Acetic Acid — Hui-Erh Chai, SHOWSHUH SHEEN, Cheng-An Hwang, USDA/ARS/ERRC, Wyndmoor, PA, USA

P1-141 Shelf-life Extension of Raw Chicken Breasts and Drumsticks by Dip Application of a Novel, Vinegar-based Antimicrobial Solution — Sara LaSuer, Robert Ames, Garrett McCoy, Saurabh Kumar, DANIEL UNRUH, Corbion, Lenexa, KS, USA

P1-142 Shelf-life Extension of Water-chilled Whole Chickens without Giblets (WOGs) by Vinegar Powder Addition — DANIEL UNRUH, Sara LaSuer, Saurabh Kumar, Garrett McCoy, Corbion, Lenexa, KS, USA

P1-143 Thermal Lethality to *Salmonella* and the *Salmonella* Surrogate *Enterococcus faecium* on Black Solider Fly Larvae Meal — KOURTNEY DANIELS, Thomas Taylor, Texas A&M University, College Station, TX, USA

P1-144 Use of Sous Vide to Cook Chicken Liver Pâté: Thermal Inactivation of *Salmonella* spp. — JOHN LUCHANSKY, Laura Shane, Manuela Osoria, Bradley Shoyer, Benjamin Chapman, Anna Porto-Felt, U.S. Department of Agriculture-ARS, Wyndmoor, PA, USA


P1-146 Microbial Shifts in Raw Chicken Marinated with Natural Preservatives — MATT HUNDT, Shelly Gebert, Jack Mouradian, Third Wave Bioactives, Wauwatosa, WI, USA

P1-147 Effects of Photosensitizer Curcumin on the Inactivation of Foodborne Pathogens and Physicochemical Properties of Chicken — JINGWEN GAO, Karl Matthews, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA

P1-148 Thermal Inactivation of *Campylobacter jejuni* in Moisture Enhanced Non-intact Chicken Patties by Double Pan-broiling as Affected by Pump Rates and Cooking Temperatures — WENTAO JIANG, Ka Wang Li, Cangliang Shen, West Virginia University, Morgantown, WV, USA

P1-149 VNIR Hyperspectral Imagery and Machine Learning-based Processing for Temperature Dependent Meat Characterization — Nicholas Scott, SARAH JENSEN, Savor Safe Food, Columbus, OH, USA

P1-150 Validation of Commercial Antimicrobial Intervention Technologies to Control *Salmonella* on Pre-rigor, Skin-on Market Hog Carcasses and Chilled Pork Wholesale Cuts — KATIA POZUELO, Daniel Vega, Joshua Maher, Valentina Trinetta, Travis O’Quinn, Sara Gragg, Randall Phebus, Kansas State University, Manhattan, KS, USA

P1-151 Evaluating a *Salmonella* Lethality Prediction Tool for the Surface of Cooked Meat and Poultry Products — IAN KLUG, Ian Hildebrandt, Michael James, Bradley Marks, Michigan State University, East Lansing, MI, USA

P1-152 Safety of Shell Eggs as Affected by Rate of Heating during Pasteurization to Inactivate *Salmonella Enteritidis* — YUMIN XU, Ahmed Abdelhamid, Ahmed Yousef, The Ohio State University, Columbus, OH, USA

P1-153 Quantitative Risk Assessment of *Salmonella* Foodborne Illness through Egg Consumption — Yukyung Choi, Hyemin Oh, Se-Wook Oh, Jang Won Yoon, YOHAN YOON, Sookmyung Women’s University, Seoul, South Korea

P1-154 Effects of Temperature on the Efficacy of Peroxyacetic Acid and Citric Lactic Blend Spray for Beef Carcasses — Xianqin Yang, HUI WANG, Madhu Badoni, Agriculture and Agri-Food Canada, Lacombe, AB, Canada

P1-155 Impact of Supplemental Critical Controls on *Salmonella* Reductions in Ready-to-Eat Beef Products — IAN HILDEBRANDT, Nicole Hall, Michael James, Bradley Marks, Michigan State University, East Lansing, MI, USA

P1-156 Inhibition of *Clostridium perfringens* in Uncured Turkey Products with Clean-label Antimicrobials during Extended Phase 1 Cooling — MCKENNA MAHNKE, Max Golden, Andrew Milkowski, Kathleen Glass, Food Research Institute, University of Wisconsin-Madison, Madison, WI, USA

P1-157 Identification of *Salmonella* spp. and Differentiation between Enteritidis and Typhimurium in One Real-time PCR Test — Anne Röfing, BENJAMIN JUNGE, Cordt Grönewald, Olaf Degen, Kornelia Berghof-Jäger, BIOTECON Diagnostics, Potsdam, Germany
Retail and Food Service Safety

P1-187 Refining a Listeria monocytogenes Predictive Risk Tool for Retail Deli Departments — BRIANNA BRITTON, Sophie Tongyu Wu, Haley Oliver, Purdue University, West Lafayette, IN, USA

P1-188 A Survey of the Prevalence of Foodborne Pathogens on Selected Local Food Products Procured from Farmers’ Markets in Central Virginia — CHYER KIM, Abeer Fatani, Rehab Almuqati, Paul Kaseloo, Crystal Wynn, Theresa Nartea, Virginia State University, Petersburg, VA, USA

P1-189 Withdrawn

P1-190 Cross-contamination is a Continuous Challenge to Listeria monocytogenes Control in Retail Grocery Produce Environments — SOPHIE TONGYU WU, John Burnett, Jingjin Wang, Susan Hammons, Deklin Veenhuizen, Manpreet Singh, Haley Oliver, Purdue University, West Lafayette, IN, USA

P1-191 Introduction of Hygiene InSITE Salmonella as a Rapid Method for Surface Surveillance of Stressed Salmonella — PAUL MEIGHAN, Hygiene, Guildford, United Kingdom

P1-192 Ability of No Rinse Food Contact Sanitizers to Impart Undesirable Flavors to Food Via Cutting Boards — AMBER EISCHEN, Chip Manuel, Todd Cartner, GOJO Industries, Akron, OH, USA

P1-193 Characterizing Microbial Cross-Contamination on Full-sized Surfaces Using a Traditional ‘Cloth and Bucket’ Disinfection Method — ROBIN GRANT MOORE, Rebecca Goulter, James Clayton, Jason Frye, Esa Puntch, Lee-Ann Jaykus, North Carolina State University, Raleigh, NC, USA

P1-194 Evaluating the Performance of an Ethanol-based Sanitizing Surface Wipe Using a Newly Developed Quantitative Carrier Test Method — CHIP MANUEL, Bahram Zargar, Rachel Leslie, James Arbogast, Syed Sattar, GOJO Industries, Akron, OH, USA

P1-195 Survey of Microbial Contamination of Touch Screens Used by the Public in Retail Food Establishments — JAMES ARBOGAST, Luisa Ikner, Chip Manuel, Jason Torrey, Walter Betancourt, Charles Gerba, GOJO Industries, Akron, OH, USA

P1-196 Microbiological Survey of Sushi Sold in Ontario — Carlos Leon-Velarde, Jeanne Boulter-Bitzer, Susan Lee, Nicola Linton, Kelly Shannon, Jiping Li, Saleema Saleh-Lakha, SHU CHEN, Agriculture and Food Laboratory (AFL), University of Guelph, Guelph, ON, Canada

P1-197 Assessing Brazilian Food Establishments’ Hygienic Handling of Leafy Vegetables and Their Microbiological Quality — MARINA R. FERREIRA, THIAGO S. SANTOS, Daniele F. Maffei, University of São Paulo, Piracicaba, Brazil

P1-198 Understanding Supply-chain Food Safety Vulnerability of Foods in Model Meal Kit Delivery Boxes — CHARLES HERRON, Amit Morey, Auburn University, Auburn, AL, USA

P1-199 Survey of Locally Small Produce Growers’ Perception of Antibiotic-resistance Issues at Farmers’ Markets — WENTAO JIANG, Ka Wang Li, Sumit Paudel, Nirosha Ruwami Amarasekara, Lisa Jones, Yifan Zhang, Cangliang Shen, West Virginia University, Morgantown, WV, USA

P1-200 Comparison of Sanitary Management Status in Community Child Centers with or without Sanitary Guidance Visits by Dietitians — HYE-KYUNG MOON, Mi-Suk Lee, Changwon National University, Changwon, South Korea

P1-201 Effects of Disinfection on Raw Vegetables and Fruits Not Heated in Children’s Foodservices — HYE-KYUNG MOON, Jae-hee Park, Seo-jin Kim, Hee Jin Park, Changwon National University, Changwon, South Korea

P1-202 Good Manufacturing Practices and Microbiological Quality in Cafeterias of the Meal Program in Santiago, Chile — Claudia Lataste, Natalia Rossi, Angelica Reyes-Jara, Nelly Bustos, Lydia Lera, MAGALY TORO, INTA, Universidad de Chile, Santiago, Chile

P1-203 Safety and Regulatory Implications of Clean Label: Stats, Trends, Challenges and Lessons Learned — KANTHA SHELKE, Corvus Blue LLC/Johns Hopkins University, Chicago, IL, USA

Seafood

P1-204 A Study of the Freshness of Scallops — Ayani Yui, Tomomi Konda, Misaki Kikuchi, HIROKO SEKI, Tamagawa University, Department of Advanced Food Sciences, College of Agriculture, Tokyo, Japan

P1-205 Effect of Soy Sauce Pickling on Taste Components of Tuna — Tomomi Konda, Misaki Kikuchi, Ayari Yui, HIROKO SEKI, Tamagawa University, Department of Advanced Food Sciences, College of Agriculture, Tokyo, Japan

P1-206 Effect of Slurry Ice and Flake Ice Preservation Techniques on the Microbial and Physicochemical Properties of Black Drum (Pogonias cromis) — HOPE ESEOYE, Katheryn Parraga, Hunter Songy, Maggie Morris, Evelyn Watts, LSU AgCenter, Baton Rouge, LA, USA

P1-207 Reduction of Fecal Coliforms and Male-specific Coliphage after Chlorine and Ultraviolet Disinfection during Wastewater Treatment — JESSICA NASH, Kevin Calci, U.S. Food and Drug Administration, Gulf Coast Seafood Laboratory, Dauphin Island, AL, USA

P1-208 Withdrawn

P1-209 Withdrawn

P1-210 Quantitative Microbial Risk Assessment for Highly Pathogenic Vibrio spp. in Sea Squirt in Korea — Jimyeong Ha, Il-Shik Shin, Young-Mog Kim, Kwon-Sam Park, YOHAN YOON, Sookmyung Women’s University, Seoul, South Korea

P1-211 Risk Assessment of Highly Pathogenic Vibrio (Vibrio vulnificus and Vibrio cholerae) in Gizzard Shad — Jeeyeon Lee, Il-Shik Shin, Young-Mog Kim, Kwon-Sam Park, YOHAN YOON, Sookmyung Women’s University, Seoul, South Korea

P1-212 Quantitative Microbial Risk Assessment for Highly Pathogenic Vibrio spp. (Vibrio cholerae and Vibrio vulnificus) in Ganjiang-gjeang, Soy Sauce-marinated Raw Blue Crab — YJJIN KIM, Jimyeong Ha, Jeeyeon Lee, Sejeong Kim, Il-Shik Shin, Young-Mog Kim, Kwon-Sam Park, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P1-213 Withdrawn

P1-214 Study of the Survival of Vibrio parahaemolyticus in the Stomach Compartment in a Simulator of the Human Intestinal Microbial Ecosystem (SHIME), in Presence of Food — VIRGINIA F. ALVES, Valeria R. Parreira, Jeffrey Farber, Universidade Federal De Goiás, Goiânia, Brazil

P1-215 Evaluation of the BAX® System Real-time PCR Assay for Vibrio for the Detection of Vibrio cholera, Vibrio vulnificus, and Vibrio parahaemolyticus in Raw Seafood Products — CARLOS LEON-VELARDE, Mohamed Mohamed, Divyang Bhatt, Saleema Saleh-Lakha, Kathy Wilson, Agriculture and Food Laboratory (AFL), University of Guelph, Guelph, ON, Canada

P1-216 Detection of Human Norovirus and Other Human Enteric Viruses in Sanaga Clams, Cameroon — PATRICE BONNY, Julien Schaeffer, Marion Desdouits, Pascal Garry, Jean Justin Essia Ngang, Soizick Le Guayder, Ifremar, Laboratoire de Microbiologie, Nantes, France
P1-217 Microbiological Quality and Salmonella Prevalence in Catfish from Small Louisiana Wild-caught Catfish Processors — KATHRYN PARRAGA, Evelyn Watts, Cesar Escaletante, Louisiana State University AgCenter, Baton Rouge, LA

P1-218 Influence of Surface Material, Sanitizer Concentration, Shear Stress, Contact Time, and Water Temperature on Surface-adhered Fungal Spoilage and Bacterial Pathogen Control — SHIYU CAI, David Phinney, Dennis Heldman, Abigail Snyder, Cornell University, Ithaca, NY, USA

P1-219 Quantitative Risk Assessment of Bacillus cereus in Salted and Fermented Squid (Squid Jeotgal) — YEWON LEE, Doyeon Kim, Min Suk Rhee, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P1-220 Histamine and Proteolytic Bacteria Levels in the Fermentation of Carcinus maenas — DELANEY GREINER, Denise Skonberg, Jennifer Perry, University of Maine, Orono, ME, USA

P1-221 Multidetermination of Nitrofurans and Chloramphenicol in Aquaculture Products by Enzyme-linked Immunosorbent Assay — HWEE CHEN MABEL NG, Markus Kainz, Yong Wee Liau, Karen Ong, Belvick Lee, Romer Labs Singapore Pte. Ltd., Singapore

P1-222 Withdrawn

P1-223 Withdrawn

**Water**

P1-224 Source Tracking Metabolically-active Bacterial Communities from Roofed Harvested Rainwater to Irrigated Soil and Produce — LEENA MALAVIL, Suhana Chattopadhyay, Lauren Hittle, Emmanuel Mongodin, Sarah Allard, Rachel Rosenberg Goldstein, Amy Sapkota, Maryland Institute for Applied Environmental Health, University of Maryland, School of Public Health, College Park, MD, USA

P1-225 Coupled DNA-labeling and Sequencing Approach Enables the Detection of Viable But Non-culturable Vibrio spp. in Irrigation Water Sources in the Chesapeake Bay Watershed — SUHANA CHATTOPADHYAY, Leena Malayil, Lauren Hittle, Emmanuel Mongodin, Amy Sapkota, Maryland Institute for Applied Environmental Health, University of Maryland, School of Public Health, College Park, MD, USA

P1-226 Quantification of Salmonella enterica in Maryland Irrigation Ponds — SHIRLEY A. MICALLEF, Mary Callahan, Nikki Shariat, Xingchen Liu, Yisrael Katz, University of Maryland, College Park, MD, USA

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P1-233 Antimicrobial Resistance of Enterococci in Surface and Recycled Water: A Conserve Study — SULTANA SOLAIMAN, Rebecca Patterson, Kaitlyn Davey, Yisrael Katz, Devon Payne-Sturges, Amy R. Sapkota, Shirley A. Micallef, University of Maryland, College Park, MD, USA

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P1-235 Prevalence of Foodborne Pathogenic Bacteria and Shiga-toxigenic Escherichia coli Virulence Genes in Conocochague Creek, Pennsylvania — Chi-Hung Chen, HSIN-BAI YIN, Suyeun Byun, Jitu Patel, University of Maryland, College Park, MD, USA

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P2-85 Thermal Inactivation of Escherichia coli, Listeria monocytogenes, Salmonella and Enterococcus faecium in Grains — ABDULLATIF TAY, Tay, Rico Suhalim, Nicole Cuthbert, Erdogan Ceylan, PepsiCo, Barrington, IL, USA

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<td>HYEON WOO PARK, Abigail B. Snyder, V. M. Balisubramaniam, The Ohio State University, Columbus OH, USA</td>
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<td>P2-129</td>
<td>Understanding the Impact of Inoculation Methods on Thermal Inactivation Rates of Edible Insect Powder Using <em>Enterococcus faecium</em></td>
<td>CHRISTINA ABEL, Quincy Suehr, Sanghyup Jeong, Michigan State University, East Lansing, MI, USA</td>
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<td>P2-130</td>
<td>Effect of UV-C Light and Hot Air on Quality and Microbiological Safety of Chia, Amaranth and Sesame Seeds</td>
<td>CRISTIAN JUÁREZ-ARANA, Eduardo Morales-Sánchez, Marcela Gaytan-Martínez, Montserrat Hernandez-Iturriaga, Universidad Autónoma De Querétaro, Querétaro, Mexico</td>
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<td>P2-131</td>
<td>Thermal Resistance of <em>Salmonella</em> spp. and <em>Enterococcus faecium</em> NRRL-B2354 in Whole Chia Seeds</td>
<td>Soon Kiat Lau, Rajendra Panth, Byron Chaves, Jeyam Subbiah, University of Arkansas, Fayetteville, AR, USA</td>
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<td>P2-132</td>
<td>Effect of Inoculated Ingredient on the Isothermal Inactivation of <em>Enterococcus faecium</em> NRRL B-2354 in a Multicomponent Cookie Dough</td>
<td>XIYANG LIU, Nathan Anderson, Philip Steinbrunner, Elizabeth Grasso-Kelley, Illinois Institute of Technology, Institute of Food Safety and Health, Bedford Park, IL, USA</td>
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<td>P2-133</td>
<td>Validation of Simulated Commercial Baking of Peanut Butter Cereal Bars to Control <em>Salmonella</em>, Shiga Toxin-producing <em>Escherichia coli</em> and <em>Listeria monocytogenes</em></td>
<td>DANIEL VEGA, Nicholas Sevart, Katia Pozuelo, Lakshmikanitha Channaiah, Harshavardhan Thipparreddi, Randall Phebus, Kansas State University, Manhattan, KS, USA</td>
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P2-134 Heat Resistance of Salmonella, Shiga Toxin-producing Escherichia coli and Listeria monocytogenes in Peanut Butter Cereal Bar Dough with Lowered Water Activity — DANIEL VEGA, Nicholas Sevart, Katia Pozuelo, LakshmiKantha Channaiah, Harshavarthan Thippareddi, Randall Phebus, Kansas State University, Manhattan, KS, USA

P2-135 Validation of a Low-moisture Viscous Cookie Baking Process — BUFFY MONTGOMERY, Kelly Dawson, Balasubrahmanyam Kottapalli, Conagra Brands, Omaha, NE, USA

P2-136 Efficacy of Automatic Dishwashing in Reducing Microbial Load of Porous and Non-porous Surfaces Soiled with Cake Batter — KAYLAN HAYMAN, Govindaraj Kumar, Abhinav Mishra, University of Georgia, Griffin, GA, USA

P2-137 Modeling the Effect of Temperature and Water Activity on the Survival of Escherichia coli during Dehydration of Plant-based Food Products — YADWINDER SINGH RANA, Quincy Suehr, Ian Hildebrandt, Bradley Marks, Abigail B. Snyder, Cornell University, Ithaca, NY, USA

P2-138 Patented Organic Peracetic Acid and Hydrogen Peroxide-based Sanitizing Solution Achieves > 4 Log CFU/g Reduction in Salmonella, Listeria monocytogenes, STEC and Enterococcus faecium NRRL B-2354 on Almonds While Maintaining Nutrition and Shelf Life — Pooneh Peyvandi, Goze Demircioglu, Rebecca Karen Hylton, Fatemeh Rahmany, Jay Pandya, Fadi Dagher, AMIR HAMIDI, Agri-Neo Inc., Toronto, ON, Canada

P2-139 Patented Organic Peracetic Acid and Hydrogen Peroxide-based Sanitizing Solution Achieves > 5 Log CFU/g Reduction in Salmonella Surrogate Enterococcus faecium NRRL B-2354 on Cashews While Maintaining Shelf Life and Nutrition — Rebecca Karen Hylton, Jay Pandya, Pooneh Peyvandi, Goze Demircioglu, Fatemeh Rahmany, Fadi Dagher, AMIR HAMIDI, Agri-Neo Inc., Toronto, ON, Canada

P2-140 Population Dynamics of Listeria monocytogenes in Nut and Seed Butters — XINYUAN ZHANG, Joelle K. Salazar, Megan Fay, Kristin Pfeiffer, Diana Stewart, Illinois Institute of Technology, Institute for Food Safety and Health, Bedford Park, IL, USA

P2-141 Listeria monocytogenes Growth Kinetics during Rehydration and Storage of Dehydrated Potatoes — ZIHUI WU, Joelle K. Salazar, Yuying Ren, Megan Fay, Girvin Liggans, Mary Lou Tortorello, Illinois Institute of Technology, Institute for Food Safety and Health, Bedford Park, IL, USA

Modeling and Risk Assessment

P2-142 Quantitative Microbial Risk Assessment to Evaluate the Public Health Risk of Avian Influenza H7N9 in Chicken from Live Poultry Markets — SHRADDHA KARANTH, Weixin Jia, Abani Pradhan, University of Maryland, College Park, MD, USA

P2-143 Assessing the Risk of Salmonellosis from Consumption of Conventionally and Alternatively Produced Broiler Meat in the United States — CHASE GOLDEN, Abhinav Mishra, University of Georgia, Athens, GA, USA

P2-144 The Public Health Outcome of the Continued Removal of Specified Risk Materials (SRMs) from Regulated Beef Products in Domestic Production — BERHANU TAMERU, Gurinder Saini, Eric Ebel, Michael Williams, Michelle Catlin, Joanna Zablotsky Kufel, USDA Food Safety & Inspection Service, Washington, D.C., USA

P2-145 Quantitative Microbial Risk Assessment of Diarrhea Bacillus cereus in the Ready-to-eat Lunch Box and Dried Mango — JEONG YEON LEE, Su Jin Kim, Min Suk Rhee, Ki Sun Yoon, Kyung Hee University, Seoul, South Korea

P2-146 Quantitative Microbial Risk Assessment of Listeria monocytogenes in Raw Julienned Beef Purchased from Online and Offline Markets — HA YEON JO, Jeong Yeon Lee, Kun-Ho Seo, Ki Sun Yoon, Kyung Hee University, Seoul, South Korea

P2-147 Microbial Risk Assessment of Highly Pathogenic Vibrio spp. by Raw Oyster Consumption — Jeeyeong Ha, Il-Shik Shin, Young-Mog Kim, Kwon-Sam Park, YOHAN YOON, Sookmyung Women’s University, Seoul, South Korea

P2-148 Quantitative Microbial Risk Assessment of Highly Pathogenic Vibrio spp. in Whipped Octopus in Korea — Jimyeong Ha, Il-Shik Shin, Young-Mog Kim, Kwon-Sam Park, YOHAN YOON, Sookmyung Women’s University, Seoul, South Korea

P2-149 Modeling the Invasion of Campylobacter jejuni into Small Intestinal Cells for the Key Events Dose-response Framework — HIROKI ABE, Kento Koyama, Shigenobu Koseki, Hokkaido University, Sapporo, Japan

P2-150 Quantitative Microbial Risk Assessment for Salmonella Foodborne Illness by Chicken Nugget Consumption — EUNYOUNG PARK, Hyemin Oh, Se-Wook Oh, Jang Won Yoon, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P2-151 Estimation for Probability of Staphylococcus aureus Foodborne Illness from Ready-to-Eat Salad Consumption — YEWON LEE, Dongyeon Kim, Sang-Do Ha, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P2-152 Estimated Risk of Bacillus cereus Foodborne Illness by Perilla Leaf Pickle Consumption in Korea — YEWON LEE, Dongyeon Kim, Min Suk Rhee, Yohan Yoon, Sookmyung Women’s University, Seoul, South Korea

P2-153 Modeling the Risk of Salmonellosis/Listeriosis from the Consumption of Frozen Food Products under Alternative Consumer Handling Scenarios — KELLY DAWSON, Brian Hawkins, Kevin Wegman, Balasubrahmanyam Kottapalli, Conagra Brands, Omaha, NE, USA

P2-154 Assessing Foodborne Risk of Metal Exposure Associated with Produce Crops Irrigated with Oilfield Produced Water — Jennifer Redmon, ELISABETTA LAMBERTINI, Donna Womack, Ted Lillys, A. J. Kondash, Luis Cabrales, Rockville, MD, USA

P2-155 Organophosphate Pesticide Exposure and Risk Assessment from the Consumption of Vegetables in Thailand — Weeraya Karnpanit, YAOHUA (BETTY) FENG, Elizabeth Jara Torres, Ishani Roychowdhury, Wischada Jongmevasna, Kanokporn Atisook, Purdue University, West Lafayette, IN, USA

P2-156 Integration of Pathogen Reduction Models within Computational Fluid Dynamics Simulations of the Spray Drying Process — QUINCY SUEHR, Bradley Marks, Sanghyup Jeong, Michigan State University, East Lansing, MI, USA

P2-158 Pork “Gyros”: Assessment of Microbial Safety Under Commercially Occurring Roasting Scenarios — ANASTASIA KAPETANAKOU, Konstantina Athanasieli, Maria Kolostompi, Panagiotis Skandamis, Laboratory of Food Quality Control and Hygiene, Department of Food Science and Human Nutrition, Agricultural University of Athens, Athens, Greece

P2-159 Simulating Shelled-corn Sampling to Improve Sampling Plans for Mycotoxin Detection — XIANBIN CHENG, Matthew J. Stasiewicz, University of Illinois — Urbana-Champaign, Urbana, IL, USA

P2-160 Hazard Identification and Characterization for the Development of a Share Table Quantitative Microbial Risk Assessment — GUSTAVO A. REYES, Jessica Kassuelke, Melissa P. Prescott, Matthew J. Stasiewicz, Jennifer Clarke, Bing Wang, University of Illinois Urbana-Champaign, Champaign, IL, USA

P2-161 Effect of Type of Staphylococcal Enterotoxins on the Risk of Ready-to-eat (RTE) Triangle-Sushi at Retail Market — CHAE LIM LEE, Yeon Ho Kim, Sang-Do Ha, Min Suk Rhee, Ki Sun Yoon, Kyoung Hee University, Seoul, South Korea

P2-162 A Meta-analysis of Worldwide Mycotoxin Prevalence in Beers — Danieli C. Schabo, DONALD W. SCHAFFNER, Marciane Magnani, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA

P2-163 A Meta-regression Model Describing the Effects of Essential Oils on Escherichia coli Inactivation in Cheese — BEATRIZ NUNES SILVA, Vasco A. P. Cadavez, José A. Teixeira, Ursula Gonzales-Barron, CEB – Centre of Biological Engineering, University of Minho, Braga, Portugal

P2-164 Inactivation of Antimicrobial-resistant Bacteria during Manure Storage as Static Stockpiles — ENAKSHY DUTTA, Ece Bulut, Xu Li, Amy Schmidt, Galen Erickson, Jennifer Clarke, Bing Wang, University of Nebraska – Lincoln, Lincoln, NE, USA

P2-165 Survival of Listeria monocytogenes in Cow Milk through a Dynamic Human Stomach Model — LINKANG ZHANG, Valeria R. Parreira, Jeffrey Farber, University of Guelph, Canadian Research Institute in Food Safety (CRIFS), Guelph, ON, Canada

P2-166 Effect of Relative Humidity on Survival of Salmonella enterica in Raw Cut Peppers Stored at Distinct Temperatures — Italo Henrique Rodrigues Marques Ferreira, Donald W. Schaffner, JIIN JUNG, Marciane Magnani, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA

P2-167 Validation of Existing Combase Models for Suitability in Ten Different Types of Whole Uncut Fresh Produce — MARINA GIBRAL, Laura K. Strawn, Claire Marik, Cameron Bardsley, Joyce Zuchel, Donald W. Schaffner, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA

P2-168 Predictive Model for Growth of Clostridium perfringens during Cooling of Cooked Pork Supplemented with Sodium Chloride and Sodium Pyrophosphate — VIJAY JUNEJA, Marangeli Osoria, Sudarsan Mukhopadhyay, Anuj Purohit, Chase Golden, Udit Minocha, Govindaraj Devkumar, Harshavardhan Thippareddi, Abhinav Mishra, U.S. Department of Agriculture-ARS-ERRC, Wyndmoor, PA, USA

P2-169 Growth Kinetics of Salmonella, Escherichia coli O157:H7, and Listeria monocytogenes on the Surface of Whole Cantaloupes and Watermelons during Storage — JOYJIT SAHA, Loretta Friedrich, Lawrence Goodridge, Michelle Danyluk, University of Florida CREC, Lake Alfred, FL, USA

P2-170 Withdrawn

P2-171 Withdrawn

P2-172 Withdrawn

P2-173 Models for Growth of Listeria monocytogenes on Whole Intact Fresh Produce from Literature Data — MATTHEW IGO, Laura K. Strawn, Claire Marik, Cameron Bardsley, Joyce Zuchel, Donald W. Schaffner, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA

P2-174 Quantification of the Influence of Strain Type and Inoculum Preparation on the Survival of Salmonella in Whole Milk Powder — MATTHEW IGO, Donald W. Schaffner, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA

P2-175 Withdrawn

P2-176 Source Attribution at the Fish Sub-product Level for 11 Foodborne Pathogens of Importance in Fish for the Development of a Risk Assessment Model — Suzanne Savoie, Elisabeth Mantli, Manon Racicot, Alexandre Leroux, Anna Mackay, Julie Arsennault, Mansel Griffths, Jeffrey Farber, Richard Holley, Tom Gill, Sylvain Charlebois, Aamir Fazli, Sylvain Queusss, ROMINA ZANABRIA, Canadian Food Inspection Agency, Ottawa, ON, Canada

P2-177 Assessing the Relative Risk of Feed Safety Criteria Included in the Canadian Food Inspection Agency Risk Assessment Model for Feed Mills through an Expert Elicitation — Virginia Lachapelle, Manon Racicot, Genevieve Comeau, Alexandre Leroux, Mohamed Rhouma, France Provost, ROMINA ZANABRIA, Omella Wafo Noubisise, Richard Holley, John Smillie, My-Lien Bosch, Andre Dumas, Sylvain Queusss, Canadian Food Inspection Agency, Ottawa, ON, Canada

P2-178 Predicting the Growth of Listeria monocytogenes in a Deli-style, Uncured Turkey Meat Product Formulated with Vinegar Powder as a Function of Product pH, Moisture, and Salt — SUBASH SHRESTHA, Daniel Unruh, Gis Lommerse, Karin Beekman, Thanh Tran, Saurabh Kumar, Cargill, Inc., Wichita, KS, USA

Molecular Analytics, Genomics and Microbiome

P2-179 Progress Toward Standardizing Metagenomics: Application of Metagenomic Reference Materials to Develop a Reproducible Microbial Lysis Methodology with Minimum Bias — MICHAEL WEINSTEIN, David Danko, Elaine Wolfe, Shuqiang Tang, Karen Jarvis, Christopher Grimm, Venu Lagishetty, Jonathan Jacobs, Jason Arnold, Ryan Kemp, Christopher Mason, Zymo Research, Irvine, CA, USA

P2-180 Development of a Bacterial Metabarcoding Analysis Pipeline — XUWEN WIENEKE, Damien Chauveau, Yocious Adrouji, Yao Amouzou, Erwann Scaon, Sarita Raengpradub Wheeler, Sebastien Leuillet, Mérieux NutriSciences, Crete, IL, USA

P2-181 Serotype Characterization of Salmonella Isolates from Traditional Wet Markets from Cambodia through Whole-genome Sequencing — CARLA SCHWAN, Sara Lomonaco, Valentina Trinetta, Sara Gragg, Randall Phebus, Justin Kastner, Jessie Vipham, Peter W. Cook, Kansas State University, Manhattan, KS, USA

P2-182 Withdrown

P2-183 Genometrakr Database and Network: Lessons on What Can Be Done with a Quarter Million Salmonella Genomes — Marc Allard, Ruth Timme, MARIA BALKEY, Eric Stevens, Maria Hoffmann, George Kastanis, Guojie Cao, Tim Muruvanda, Sara Lomonaco, Justin Payne, Arthur Pightling, Hugh Rand, James Pettengill, Yan Luo, Narjol Gonzalez-Escalona, David Melka, Phillip Curry, Sabrina Lindley, Jacob Marogi, Karina Reyes-Gordillo, Yi Chen, Sandra Tallent, Eric Brown, U.S. Food and Drug Administration – CFSAN, Silver Spring, MD, USA
P2-184 Campylobacter jejuni Clonal Complex 45 Isolates Harboring Multiple Resistance Determinants are Largely Restricted to Sequence Type 2109 — JESSICA CHÉN, Lavin Joseph, Kaitlin Tagg, Justin Kim, Charlotte Lane, Lee Katz, Louise Francois Watkins, Christy Bennett, Janet Pruckler, Hattie Webb, Rafael Aubert, Jason Folster, Centers for Disease Control and Prevention, Atlanta, GA, USA

P2-185 Genomic Characterization and Growth Rates of B. cereus Group Isolates from Diverse Sources — TAEJUNG CHUNG, Cassidy Prince, Naomi Niyah, Sophia Johler, Jasna Kovac, The Pennsylvania State University, University Park, PA, USA

P2-186 Withdrawn

P2-187 Genomic Characterization of Prophage Encoding Regions in Cronobacter sakazakii — LEAH WEINSTEIN, Hyein Jang, Gopal Gopinath, Flavia Negrete, Jayanthi Gangiredia, Isha Patel, Ben Tall, U.S. Food and Drug Administration, Laurel, MD, USA

P2-188 Evaluation and Comparison of Salmonella Genome-based Serotyping Methods with Bead-based Molecular Serotyping and Traditional Methods for Salmonella Isolated from Food and Environmental Samples — Kayleigh McMaster, Shauna Madson, Melissa Nucci, Karen Jinneman, MICHELLE MOORE, Food and Drug Administration, Office of Regulatory Affairs, Office of Regulatory Science, Bothell, WA, USA

P2-189 Identification of Mobile Genetic Elements and Evolutionary Analysis Based on Long-read Sequencing of Listeria monocytogenes in the Food Processing Environment — HEE JIN KWON, Zhao Chen, Jianghong Meng, Peter Evans, University of Maryland, College Park, MD, USA

P2-190 Withdrawn

P2-191 Whole Genome Sequence Analysis of Campylobacter jejuni and coli from Ovine Carcasses in New Zealand — LUCIA RIVAS, Pierre Y. Dupont, Brent Gilpin, Helen Withers, Institute of Environmental Science and Research, Christchurch, New Zealand

P2-192 Whole Genome Sequencing-based Analyses of Campylobacter Isolates from Clinical Samples and Retail Poultry Meats — RUNAN YAN, Emma Mills, Lauren Hudson, Nkuchia M. Mikanatha, Irving Nachamkin, Thomas G. Dones, Jasna Kovac, The Pennsylvania State University, University Park, PA, USA

P2-193 Whole Genome Sequencing Analysis of Non-top 7 STEC Serogroups Suggests Novel Serotypes and Relatedness to Human Clinical Isolates — XINYANG HUANG, Xiaorong Shi, T. G. Nagaraja, Jianghong Meng, University of Maryland, College Park, MD, USA

P2-194 Evolutionary Relationship, Virulence and Stress Response Genes in a Persister S. Typhimurium PT4 Strain Involved in Foodborne Outbreaks in Brazil — Adma Nadja Ferreira de Melo, Geany Targino de Souza Pedrosa, GUOJIE CAO, Dumitru Macarisin, Marciane Magnani, U.S. Food and Drug Administration, Center for Food Safety & Applied Nutrition, College Park, MD, USA

P2-195 AMR Determinants and Virulence Factors in Salmonella Typhimurium Isolated from Outbreak Patients and Implicated Foods — Adma Nadja Ferreira de Melo, Daniel Monte, GUOJIE CAO, Dumitru Macarisin, Marciane Magnani, U.S. Food and Drug Administration, Center for Food Safety & Applied Nutrition, College Park, MD, USA

P2-196 Application of Metagenomics to Define Microbiomes and Resistomes in Food Manufacturing Facilities and Seafood — BRANDON KOCUREK, Karen Jarvis, Christopher Grim, Paul Morin, Laura Howard, Andrea Ottesen, Ruth Timme, Padmini Ramachandran, Susan Leonard, Hugh Rand, Errol Strain, James Pettengill, David Lacher, Mark Mammel, Daniel Tadesse, Oak Ridge Institute for Science and Education, Oak Ridge, TN, USA

P2-197 Microbiome-informed Food Safety and Quality: A Longitudinal and Cross-sectional Survey of Retail Chicken Microbiomes — SHAOTING LI, David A. Mann, Xiangyu Deng, University of Georgia, Center for Food Safety, Griffin, GA, USA


P2-200 Gut Microbiota in Beef Cattle and Its Association with Antimicrobial Resistance — PEIXIN FAN, Lin Teng, Zhengxin Ma, Shinyoung Lee, Corwin Nelson, Joseph Driver, Mauricio Elzo, KwangCheol Casey Jeong, University of Florida, Gainesville, FL, USA

P2-201 Genomic Characterization of a Subset of Listeria monocytogenes Isolates from Fresh Produce Packing Facilities in California — Mariya Skots, Janneth Pinzon, TREVOR SUSLOW, University of California, Davis, Davis, CA, USA

P2-202 Withdrawn

P2-203 Phylogenetic Characterization of Cronobacter Species Isolated from Fresh Produce, Frozen Vegetables, and Farm Environments in the Czech Republic — HYEIN JANG, Leah Weinstein, Gopal Gopinath, Flavia Negrete, Jayanthi Gangiredia, Ben Tall, Monika Moravkova, U.S. Food and Drug Administration, Laurel, MD, USA

P2-204 Salmonella Survival and Transcriptomic Response on Cantaloupe Flesh With and Without Organic Acid Pretreatment — XINYI ZHOU, Joelle K. Salazar, Yingshu He, Megan Fay, Wei Zhang, Illinois Institute of Technology, Institute for Food Safety and Health, Bedford Park, IL, USA

P2-205 The Effect of Sequential Antimicrobial Treatments on Listeria Biofilm-forming Ability and Survival — ELLEN MENDEZ, Jie Zheng, Valentina Trinetta, KSU Food Science Institute, Manhattan, KS, USA

P2-206 Metagenomic Analysis of Refrigerated Products Treated with High-pressure Process and Natural Antimicrobials — Davide Quaranta, Bradley Ziebell, Jairus David, DEANN AKINS-LEWENTHAL, Conagra Brands, Omaha, NE, USA

P2-207 Organic Amendments Alter Soil Microbiome: Implications for Produce Microbial Safety — JAVAD BAROUEI, Mahta Moussavi, Tesfamichael Kebrom, Kimani Bradley, Ellen-Ashley Williams, Dalais Bailey, Haimanote Bayabil, Almoutaz El-Hassan, Ripendra Awal, Deland Myers, Ali Fares, Prairie View A&M University, Prairie View, TX, USA
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<td>P2-208</td>
<td>Biomarker Identification from Next-generation Sequencing Data Using Bioinformatics Analysis</td>
<td>WEN ZOU, Huyen Le, Weizhong Zhao</td>
<td>National Center for Toxicological Research, USFDA, Jefferson, AR, USA</td>
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<td>P2-209</td>
<td>Utilization of Metagenomics for Evaluation of Three Enrichment Procedures for Detection and Isolation of <em>E. coli</em> O157:H7 in Mung Bean Sprout Irrigation Water</td>
<td>WILLIS FÉDIO, Ruben Zapata, Lyssa White, Susan Leonard, Mark Mammel, David Lacher</td>
<td>New Mexico State University, Las Cruces, NM, USA</td>
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<td>P2-210</td>
<td>Current Processing Practices are Ineffective for Removing Residual Silver Nanoparticles from Contaminated Fresh Produce</td>
<td>GAYATHRI GUNATHILAKA, Jianzhou He, Hui Li, Wei Zhang, Elliot Ryser</td>
<td>Michigan State University, East Lansing, MI, USA</td>
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<td>P2-211</td>
<td>The Molecular Mechanisms of Nonthermal Plasma (NTP) Induced Viable but Nonculturable (VBNC) <em>Staphylococcus aureus</em></td>
<td>XINYU LIAO, Tian Ding, Zhejiang University</td>
<td>Hangzhou, China</td>
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<td>P2-212</td>
<td>Deactivation of <em>Aspergillus flavus</em> Spores and the Fungal Toxin Deoxynivalenol Using High Voltage Atmospheric Cold Plasma</td>
<td>LOGAN OTT, Holly Appleton, Hu Shi, Kevin Keener, Melha Mellata</td>
<td>Department of Food Science and Human Nutrition, Iowa State University, Ames, IA, USA</td>
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<td>P2-213</td>
<td>Microbial Load Reduction in Chia (<em>Salvia hispanica</em> L.) Seeds with High Intensity Light Pulses and Lemongrass (<em>Cymbopogon citratus</em>) Essential Oil in Vapor Phase</td>
<td>Alejandro Miguel Guzmán-Flores, RAUL AVILA SOSA, Fatima Reyes Jurado, Enrique Palou, Aurelio Lopez-Malo, Carlos Enrique Ochoa-Velasco, Paola Hernández-Carranza, Teresa Soledad Cid-Pérez</td>
<td>Benemérita Universidad Autónoma de Puebla, Puebla, PU, Mexico</td>
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**WEDNESDAY POSTERS**

**P3** Poster Session 3 – Antimicrobials, Dairy, Microbial Food Spoilage, Pre-harvest Food Safety, Produce Sanitation and Hygiene, Viruses and Parasites

**Antimicrobials**

**P3-01** Withdrawn

**P3-02** Reduction of *Escherichia coli* O157:H7 Contamination of Romaine Lettuce by Switchgrass Extractives — **EMILY CAMFIELD**, Alexander Bowman, Joseph Choi, Kalavathy Rajan, Nicole Labbe, Kimberly Gwinn, Bonnie Ownley, Naima Moustaid-Moussa, Doris D’Souza, University of Tennessee, Knoxville, TN, USA

**P3-03** Hemp Extractives to Control *Escherichia coli* O157:H7 and *Salmonella* Typhimurium Populations on Formica Coupons — **RITI KRISHNA**, Joseph Choi, Kalavathy Rajan, Nicole Labbe, Kimberly Gwinn, Bonnie Ownley, Doris D’Souza, Hillsborough High School, Hillsborough, NJ, USA

**P3-04** Reduction of Aichi Virus in Ozonated Water — **JACKSON CRAIG**, Doris D’Souza, University of Tennessee, Knoxville, TN, USA

**P3-05** Withdrawn

**P3-06** Substantial Thermal Stability of *Escherichia* phage OSYSP and Potential Use in Combined Phase-thermal Treatment Against Shiga Toxin-producing *Escherichia coli* — **MUSTAFA YESIL**, En Huang, Ahmed Youssef, The Ohio State University, Columbus, OH, USA

**P3-07** Molecular Mechanism of Metabolites Produced by *Lactobacillus casei* on Lysis of Enterohemorrhagich E. coli — **ARPITA ADITYA**, Mengfei Peng, Debabrata Biswas, University of Maryland, College Park, MD, USA

**P3-08** *Salmonella* Control in Raw Minced Meat by Vinegar-derived Clean Label Ingredients — **EELCO HEINTZ**, Allison Fredman, Divya Jaroni, Weiyan Guan, University of Georgia Center for Food Safety, Griffin, GA, USA

**P3-09** Disinfectant Wipes Transfer *Clostridioides difficile* Spores across Hard, Non-porous Surfaces — **CARINE NKEMINGONG**, Peter Teska, Xiaobao Li, Haley Oliver, Purdue University, West Lafayette, IN, USA

**P3-10** Strain-specific Response of *Escherichia coli* Biofilms to Chlorine Dioxide — **ALISON LACOMBE**, Vivian Chi-Hua Wu, David F. Bridges, USDA, ARS, Western Regional Research Center, Albany, CA, USA

**P3-11** Modeling the Efficacy of Gaseous Chlorine Dioxide against *Listeria* on Apple Surfaces — **JIEWEN GUAN**, Alison Lamcombe, Juning Tang, David F. Bridges, Bhargavi Rane, Shyam Sablani, Vivian Chi-Hua Wu, Washington State University, Pullman, WA, USA

**P3-12** Characterization of Three Lytic Bacteriophages as an Antimicrobial Agent for Biocontrol of Shiga Toxin-producing *Escherichia coli* O145 — **VALENZUELA JOSE**, Yen-Te Liao, Vivian Chi-Hua Wu, Western Regional Research Center, Agricultural Research Service, USDA, Albany, CA, USA

**P3-13** Efficacy of Bacteriophage and Its Depolymerase Enzyme against *Escherichia coli* O45 Biofilms on Food Contact Surfaces — **PABASARA WEERARATHNE**, Tony Kountoupis, Divya Jaroni, Oklahoma State University, Stillwater, OK, USA

**P3-14** Formation of Filamentous Morphotypes of Shiga-toxicogenic *Escherichia coli* in Response to Antimicrobial Stressors — **PABASARA WEERARATHNE**, Divya Jaroni, Oklahoma State University, Stillwater, OK, USA

**P3-15** Application of Chemical and Biological Methods to Prevent Formation of Shiga-toxicogenic *Escherichia coli* Biofilms on Poly-vinyl Chloride Surfaces — **PABASARA WEERARATHNE**, Allison Fredman, Divya Jaroni, Oklahoma State University, Stillwater, OK, USA

**P3-16** Withdrawn

**P3-17** The Effect of a *Carnobacterium maltaromaticum* Strain on Quality of and Inhibition of Pathogenic Bacteria on Vacuum-packaged Beef — **PEIPEI ZHANG**, Devin B. Holman, Xianjin Yang, Agriculture and Agri-Food Canada, Lacombe, AB, Canada

**P3-18** Combinations of Phenolic Compounds and Cold Shock Alters *Escherichia coli* Pathotype Survival and Genetic Expression of Virulence Factors — **ANA RÍOS-LÓPEZ**, Luisa Solís-Soto, Jose Angel Marín-Mascorro, Norma Heredia, Santos García, Jorge Dávila-Arrieta, Universidad Autónoma de Nuevo León, Mexico, San Nicolás de los Garza, NL, Mexico

**P3-19** Antibiotic Resistance Influences the Growth and Biofilm Formation in *E. coli* O157:H7 — **IKECHUKWU OGUADINMA**, Abhinav Misra, Govindaraj Dev Kumar, The University of Georgia, Griffin, GA, USA

**P3-20** Emerging and Multidrug Resistance of *Listeria* spp. Recovered from Produce Processing Environments — **REBECCA BLAND**, Joy Waite-Cusic, John Jorgensen, Jovana Kovacevic, Oregon State University, Corvallis, OR, USA

**P3-21** Decontamination of *Escherichia coli* O157:H7 from Watermelon Seeds by Combined Treatments of Gaseous Chlorine Dioxide and Mild-Wet Heat — **MINYOUNG CHUNG**, Woorim Yeom, Jee-Hoon Ryu, Korea University, Seoul, South Korea

**P3-22** Inactivation Kinetics and Metabolic Responses of *Escherichia coli* in Organic Broccoli Sprouts by the Combination Treatment of Lactic Acid and Mild Heat — **LIN CHEN**, Hongshun Yang, National University of Singapore, Singapore

**P3-23** Metabolic Characterization of Eight *Escherichia coli* Strains Including “Big Six” and Acidic Responses of Selected Strains Revealed by NMR Spectroscopy — **LIN CHEN**, Hongshun Yang, National University of Singapore, Singapore

**P3-24** Withdrawn

**P3-25** Identification of Antimicrobial-resistance Genes in Whole-Genome Sequences of Canadian *Campylobacter* spp. Isolates Recovered from Poultry or Clinical Sources — **LISA HODGES**, Adam Koziol, Steven Mutschall, David Haldane, Dillon Barker, Eduardo Taboada, Catherine Carrillo, Canadian Food Inspection Agency, Dartmouth, NS, Canada

**P3-26** Population Dynamics and Resistance of *Salmonella Enteritidis* to a Lytic Phage — **LUANA REICHERT**, Luana Reichert, Dacil Rivera, Roberto Riquelme-Neira, Rodrigo Garcia, Roberto Bastias, ANDREA MORENO SWITT, School of Veterinary Medicine, Faculty of Life Sciences, Universidad Andres Bello, Santiago, Chile

**P3-27** The Effect of Natural Antimicrobials on *Clostridium perfringens* Endospores and Vegetative Cells — **CLAYTON SMITH**, FRANCISCO DIEZ-GONZALES, University of Georgia Center for Food Safety, Griffin, GA, USA

**P3-28** Withdrawn

**P3-29** Differential Inhibitory Potential of Prebiotics Alone and in Combination with Antibiotics on Strains of *Salmonella* — **COLLINS TANUI**, Cristina L. Moscoso, Shradhha Karanth, Zabdiel Alvarado, Debabrata Biswas, Abani Pradhan, University of Maryland, Department of Nutrition and Food Science, College Park, MD, USA
P3-30 Effects of Phenolic Acids on Outer Membrane Integrity and Functionality of *Salmonella* Typhimurium — ZABDIEL ALVARADO-MARTINEZ, Debarbata Biswas, University of Maryland, College Park, MD, USA

P3-31 Efficacy of Natural and Synthetic Antimicrobials to Inhibit Adhesion of EHEC, EAEC and Serotype O154:H4 to HEp-2 Cells — YARAIMY ORTIZ, Alain Garcia-Heredia, Angel Menno-Mascorro, Santos Garcia, Norma Heredia, Facultad de Ciencias Biológicas, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, NL, Mexico

P3-32 Prevalence of Triazole-resistance Aspergillus fumigatus Isolated from a Tomato Production Environment — ALEJANDRA M. JIMENEZ MADRID, Sally A. Miller, Melanie L. Lewis Ivey, The Ohio State University, Wooster, OH, USA

P3-33 Withdrawn

P3-34 All Surfaces are Not Created Equal: Inactivation of RNase a on Food-contact Surfaces Using HI-intensity 278 Nm UV LED — THERESA THOMPSON, Kayla Taggard, Phoseon Technology, Hillsboro, OR, USA

P3-35 Antilisterial Efficacy of Cranberry Extract in Produce Wash Treatments — CHAYAPA TECHATHUVANAN, Beining Ouyang, Christopher McNamara, Margarita Gomez, Ocean Spray Cranberries, Inc., Lakeville-Middleboro, MA, USA

P3-36 Plant-based Antimicrobials Inactivate *Salmonella enterica* and *Listeria monocytogenes* on Melon Rinds — Libin Zhu, Qi Wei, Paul Brierley, Martin Porchas, Bhimanagouda Patil, SADHANA RAVISHANKAR, University of Arizona, Tucson, AZ, USA

P3-37 Green Sanitizers: Improved Safety and Shelf Life of Iceberg Lettuce Washed with Plant-based Antimicrobial Microemulsions — STEPHANIE ARELLANO, Sadhana Ravishankar, Bibiana Law, University of Arizona, Tucson, AZ, USA

P3-38 Inhibition of Surface Spoilage Bacteria on Refrigerated Catfish Fillets by Various Chitosan Applications — TAYLOR LADNER, Katie Evans, Dianna Wilson, Jessa Goodeaux, Emily Sherman, Dennis Burnett, Shecoya White, Mississippi State University, Starkville, MS, USA

P3-39 Inhibition of *Listeria* Biofilms by Cranberry Extract — CHRISTOPHER MCNAMARA, Adam Leff, Laura Leff, Chayapa Techathuvanan, Margarita Gomez, Ocean Spray Cranberries, Inc., Lakeville-Middleboro, MA, USA

P3-40 Assessing the Efficacy of Addition of Sodium Bisulfate (SBS) in Stored Wheat Grains to Control *Aspergillus flavus* (ATCC 15548) — JANAK DHAKAL, Charles Alfred, Kansas State University, Manhattan, KS, USA

P3-41 Effect of Sub-inhibitory Concentrations of Antimicrobials on *Listeria monocytogenes* Motility and Its Ability to Adhere to and Invade Caco-2 Cells — STEPHANIE BROWN, Catherine Gensler, Dennis D’Amico, University of Connecticut, Storrs, CT, USA

P3-42 Inactivation of Biofilms of Multiple Foodborne Pathogens Using Antimicrobial Nanoconjugates — XINGJIAN BAI, Luping Xu, Xiaolin Qiu, Mai Liu, Atul Singh, Arun Bhunahon, NUR HASAN, EZBIOME, Rockville, MD, USA

P3-43 Microbial Diversity, Antimicrobial Resistance and Virulence Genes in Small-scale Poultry and Cattle Farms — Agnes Kilonzo-Nthenge, Siqin Liu, Samuel Nahashon, NUR HASAN, EZBIOME, Rockville, MD, USA

P3-44 Withdrawn

P3-45 Lytic Bacteriophage Help to Reduce *Salmonella* Typhimurium from Raw Chicken Breast — SHERITA LI, Hannah Strauss, Nicole Walker, Siroj Pokharel, Cal Poly State University, San Luis Obispo, CA, USA

P3-46 Inactivation of *Campylobacter jejuni* on Artificially Inoculated Chicken Skin by Organic Acids Alone or Combined with Yucca Extract — ARMITRA JACKSON-DAVIS, Aubrey Mendonca, Shecoya White, Emalie Thomas-Popo, Alabama A&M University, Madison, AL, USA

P3-47 Efficacy of Sodium Bisulfate (SBS) in Reducing the Shiga Toxin-producing *E. coli* STEC (O121) Load of Wheat During Tempering — JARED RIVERA, Janak Dhakal, Charles. G. Aldrich, Kaliramesh Slikeru, Kansas State University, Manhattan, KS, USA

P3-48 Antimicrobial Properties of Proanthocyanidins in *Oehl Berry (Vaccinium calycinum)* against *Escherichia coli* O157:H7 — BIYU WU, Stuart Nakamoto, Yong Li, University of Hawaii At Manoa, Honolulu, HI, USA

P3-49 Effect of Neem Oil Nanoparticles on the Growth Inhibition of Peanut Mold, *Aspergillus flavus* — YAGMUR YEGIN, Jun Kyun Oh, Alejandro Castillo, Mustafa Akbulut, Texas A&M University, College Station, TX, USA

P3-50 Antimicrobial, Physical and Mechanical Properties of Polyvinyl Alcohol Films Incorporated with Modified Bacterial Nanocellulose — KAI WEN CHOO, Liang Mao, Charles. G. Aldrich, Kaliramesh Slikeru, Kansas State University, Manhattan, KS, USA

P3-51 Evaluation of Natural Chelating Compounds for Use as Enhancers of Quaternary Ammonium Compound Efficacy — Allison Brost, Aubrey Mendonca, BYRON BREHM-STECHER, Iowa State University, Ames, IA, USA

P3-52 Isoeugenol Prevents Yeast Spoilage of Refrigerated Raw Pineapple Juice Containing an Extract of *Quillaja saponaria* or *Yucca schidigera*. — EMALIE THOMAS-POPO, Aubrey Mendonca, Jessica Aguilar, Ali El-sadiq, Shannon Coleman, Iowa State University, Ames, IA, USA

**Dairy**

P3-53 Withdrawn

P3-54 Inactivation of *Listeria monocytogenes* in Cheese Brines Treated with Hydrogen Peroxide — QUINN HUIBREGTSE, Jieyin Lim, Kathleen Glass, Food Research Institute, University of Wisconsin-Madison, Madison, WI, USA

P3-55 Inhibition of *Listeria monocytogenes* by Bacterial Species Isolated from Wooden Boards Used for Aging Semi-soft Cheese — Kirby Wadhawan, Scott A. Rankin, Garret Suen, CHARLES CZUPRYNSKI, University of Wisconsin-Madison, Food Research Institute, Madison, WI, USA

P3-56 Growth Potential of *Listeria monocytogenes* in Soft Ripened Cheeses — JUSTIN FARLARDEAU, Erkan Yildiz, Siyun Wang, Food, Nutrition and Health, University of British Columbia, Vancouver, BC, Canada

P3-57 Effect of pH, Salt, Temperature, and Hydrogen Peroxide on the Survival of *Listeria monocytogenes* in Model Cheese Brines — JIEYIN LIM, Kathleen Glass, Food Research Institute, University of Wisconsin-Madison, Madison, WI, USA

P3-58 The Effect of pH and Cultured Sugar-Vinegar on the Growth of *Listeria monocytogenes* in a Model High-moisture Cheese — KORY ANDERSON, Sarah Engstrom, Kathleen Glass, Food Research Institute, University of Wisconsin-Madison, Madison, WI, USA

P3-59 Control of *Listeria monocytogenes* in High-moisture Mexican Queso Fresco Style Cheese — Upasana Hariram, SHUOPENG YANG, Wendy McMahan, Kraft Heinz Company, Glenview, IL, USA
Microbial Food Spoilage

P3-60 Rapid Detection of Microbial Contaminants in UHT Milk and Other Aseptic Dairy Products by an Application of the BactAlert 3D System for Industrial Sterility Testing — MARIA DANIELA ESPANA GUTIERREZ, Maria Cristina Brinez Espinel, Bernadette Franciscas Kloz Cebelio, Juan Manuel Henriquez, Alpina, Cundinamarca, Colombia

P3-61 Evaluation of a Rapid Technology to Detect UHT Microbial Contamination in Milk and Dairy Products — Angélica De La Torre, Erandy Cabello, Gustavo González-González, Anibal Ancona, Elena López, Gabriela Ávila, RAJ RAJAGOPAL, 3M, St. Paul, MN, USA

P3-62 Microbial Community Shift during Cheddar Cheese Making Process — Jumgmin Choi, Robin Frojen, Lisbeth Goddik, Sang-Do Ha, SI HONG PARK, Oregon State University, Corvallis, OR, USA

P3-63 Microbial and Chemical Properties of Fructooligosaccharides (FOS) or Inulin Supplemented Cheddar Cheese — JUNGMIN CHOI, Melanie Hanlon, Robin Frojen, Sang-Do Ha, SI Hong Park, Oregon State University, Corvallis, OR, USA

P3-64 Effect of Water Activity on Thermal Resistance of Salmonella in Dairy Powders — XINYAO WEI, Soon Kiat Lau, Byron Chaves, Mary-Grace Danao, Shantanu Agarwal, Jeyam Subbiah, University of Nebraska-Lincoln, Lincoln, NE, USA

P3-65 Withdrawn

P3-66 Thermal Lethality of Listeria monocytogenes to Improve the Safety of Cheeses Made with Unpasteurized Cheese Milk — SARAH ENGSTROM, Kathleen Glass, Food Research Institute, University of Wisconsin-Madison, Madison, WI, USA

Pre-harvest Food Safety

P3-73 Influence of Using Biological Soil Amendments of Animal Origin (Dairy and Poultry Manure) on the Prevalence of Campylobacter, E. coli O157, Listeria monocytogenes and Salmonella on Fresh Produce — MICHAEL KAUFFMAN, Jen Schrock, Nick Anderson, Sochina Ranjit, Gireesh Rajashekar, The Ohio State University, Wooster, OH, USA

P3-74 Precipitation and Soil Moisture Effects on Survival and Transfer of Escherichia coli to Fresh Produce in Manure-amended Certified Organic — ANNETTE KENNEY, Pawzy Hashem, Alda Pires, Michele Jay-Russell, Patricia Millner, Amy Colick, University of Maryland Eastern Shore, Princess Anne, MD, USA

P3-75 Inactivation of Salmonella Typhimurium in Urea and Ammonia Solutions — ALAN GUTIERREZ, Jayanskay De, Keith Schneider, University of Florida, Gainesville, FL, USA

P3-76 Application of Competitive Exclusion Microorganisms to Inhibit the Growth of Listeria monocytogenes in Compost Extract — HONGYE WANG, Xiuping Jiang, Clemson University, Clemson, SC, USA

P3-77 Inactivation of E. coli O157:H7 in Fresh Dairy Manure Compost by Addition of Slow-pyrolysis Walnut Biochar — JOSHUA GURTLE, Akwasi Boateng, Charles Mullen, U.S. Department of Agriculture-ARS, Eastern Regional Research Center, Wyndmoor, PA, USA

P3-78 Escherichia coli O157 Survival in Liquid Culture and Artificial Soil Microcosms with Different pH, Humic Acid, and Clay Levels — CHRISTOPHER (ADAM) BAKER, Jayanskay De, Keith Schneider, University of Florida, Gainesville, FL, USA

P3-79 Effect of Anaerobic Soil Disinfection on Salmonella Populations — CLAIRE MARIK, Cameron Bardsley, Joyce Zuchel, Jill R. Pollok, Steve Rideout, Mark S. Reiter, Joseph Eifert, Monica Ponder, Laura K. Strow, Virginia Tech – Eastern Shore AREC, Painter, VA, USA

P3-80 The Prevalence and Persistence of Listeria monocytogenes in the Leafy Green Produce Production Chain — GABBY BUI, Valeria R. Parreira, Keith Warriner, Lawrence Goodridge, Jeffrey Farber, Canadian Research Institute for Food Safety (CRIFS), Department of Food Science, University of Guelph, Guelph, ON, Canada

P3-81 Pre-harvest Biocontrol of Listeria on Spinach by Lactic Acid Bacteria — HSIN-BAI YIN, Chi-Hung Chen, Ashley Boomer, Jitu Patel, Oak Ridge Institute for Science and Education, Oak Ridge, TN, USA

P3-82 Determination of Salmonella Javiana and Listeria monocytogenes Transfer to Sunflower Microgreens Cultivated in Soil-free Growing Media — Gina Riggio, KRISTEN GIBSON, University of Arkansas, Fayetteville, AR, USA

P3-83 Understanding the Cross-contamination of Melons via Environmental Matrices Under Field Conditions and Prevalence of Foodborne Pathogens — RICHARD PARK, David Rowlands, Martin Porchas, Paul Brieler, Bhimanagouda Patil, Sadhana Ravishankar, University of Arizona, Tucson, AZ, USA

P3-84 Effect of Fumigants and Bactericides on Salmonella during Tomato Production — Ganyu Gu, LAURA K. STRAWN, Joshua Freeman, Steve Rideout, Virginia Tech – Eastern Shore AREC, Painter, VA, USA

P3-85 White-rot Fungi Species Used as a Biocontrol Method in Bioreactors to Inhibit Escherichia coli for Pre-harvest Food Safety — ALEXIS OMAR, Sivaranjani Palani, Pushpinder Kaur Litt, Kyle McCaughan, Anastasia E. M. Chirnside, Kaimia Kniel, University of Delaware, Newark, DE, USA
P3-86 Prevalence of *Arcobacter* Species in Irrigation Water from the Midwestern United States — UMA BABU, Lisa Harrison, Jayangani Gangireddy, Chiu-Kang Hsu, Kelli Hiett, Michael Kaufman, Gireesh Rajashekar, Kannan Balan, FDA, Laurel, MD, USA

P3-87 Factors Associated with the Implementation and Documentation of Risk Management Practices on Strawberry Farms in the Southeastern United States — THOMAS YEARGIN, Angela Fraser, Kristin Gibson, University of Arkansas, Fayetteville, AR, USA

P3-88 Validation of an In-Field Produce Sampling Simulation Using Experimental Field Data — JORGE QUINTANILLA PORTILLO, Alexandra Belias, Xinbin Cheng, Daniel Weller, Martin Wiedmann, Matthew J. Stasiewicz, University of Illinois at Urbana-Champaign, Urbana, IL, USA

P3-89 Reduction of *Escherichia coli* O157:H7 in Finishing Cattle-fed Enogen Feed Corn — Joshua Maher, James Drouillard, Adrian Baker, Vanessa Veloso, Qing Kang, SARA GRANG, Kansas State University, Manhattan, KS, USA

P3-90 Evaluation of Bacteriophages to Prevent Attachment of *Escherichia coli* O157:H7 to Intestinal Cell Lines — EMMA TURNER, Pabasara Weeraratne, Divya Jaroni, Oklahoma State University, Stillwater, OK, USA

P3-91 Comparative Analysis of Miniaturized Most Probable Number and BAX© System SalQuant to Quantify *Salmonella enterica* in Chicken Ceca — REMIO MOREIRA, Evan Chaney, Savannah Forbes, Tyler Stephens, April Englishbey, Qualicon Diagnostics, A Hygienia Company, Lubbock, TX, USA

P3-92 Drought Stress Shifts the Exometabolome Profile of Leaves in Juvenile Kale and Affects *Salmonella enterica* Growth in Leaf Exudates — XINGCHEN LIU, Yue Li, Shirley A. Micallef, University of Maryland, College Park, MD, USA

P3-93 Inactivation of *Escherichia coli* O157:H7, *Salmonella*, and *Listeria monocytogenes* in Soil by Glucosinolate Hydrolysis Products in Mustard Seed Meal — MYKAYLA LATRONICA, Amanda Lathrop, Chris Lu, California Polytechnic State University, San Luis Obispo, CA, USA

**Produce**

P3-94 Isolation of *Salmonella* spp. from Fresh Produce Sold at Farmers’ Markets and Urban Gardens — SUMIT PAUDEL, Nirosha Rukmani Amarasekara, Amrita Subramanaya Swamy, Mahamad Alasadi, Ka Wang Li, Wentao Jiang, Cangliang Shen, Yifan Zhang, Wayne State University, Detroit, MI, USA

P3-95 Oklahoma Weather Effects on *E. coli* in Surface Water and Produce Safety — JUSTIN MCCONAGHY, Oklahoma Department of Agriculture, Food and Forestry, Oklahoma City, OK, USA

P3-96 A Simulation Model of Fresh Spinach Microbial Spoilage Along a Chinese Supply Chain from Harvest to Consumption — SARAH MURPHY, Ruixu Chen, Alexandra Belias, Martin Wiedmann, Renata Ivanek, Cornell University, Ithaca, NY, USA

P3-97 Application of Sonodynamic Therapy for Foodborne Pathogens Disinfection — CUONG NGUYEN, Nitin Nitin, University of California, Davis, CA, USA

P3-98 Biofilm Formation Ability of *Escherichia coli* O157:H7 and *Listeria monocytogenes* — Ashley Boomer, HSIN-BAI YIN, Chi-Hung Chen, Nicole Irizarry, Jitu Patel, Oak Ridge Institute for Science and Education, Oak Ridge, TN, USA

P3-99 Detection of *Salmonella* Enteritidis on Fresh Produce Having Different Surface Properties Using Phage-based Surface-scanning System — JAEIN CHOE, Hwa-Eun Lee, Gi Yeon Song, Mi-Kyung Park, Kyungpook National University, Daegu, South Korea

P3-100 Utility of Rapid Tests to Assess Populations of Indicator Organisms (Aerobic Plate Count, *Enterobacteriaceae*, Coliforms, *Escherichia coli*) and Detection of *Listeria* spp. in Apple Packinghouses — BLANCA RUIZ-LLAC-SAHUANGA, Alexis M. Hamilton, Robyn Zaches, Faith Critzer, Washington State University, School of Food Science, Pullman, WA, USA

P3-101 Impact of the Colonization of *Lactobacillus curvatus* on the Formation of *Listeria monocytogenes* Biofilm on Stainless Steel — CHAO LIAO, Alejandro Tomas-Callejas, Kalpana Kushwaha, De Ann Davis, Besnik Hidi, Veronique Zuliani, Luxin Wang, University of California, Davis, Davis, CA, USA

P3-102 Identification of the Genes of *Salmonella enterica* Serotype Tennessee Involved in Biofilm Formation — SEULGI LEE, Jinru Chen, Department of Food Science and Technology, The University of Georgia, Griffin, GA, USA

P3-103 Withdrawn

P3-104 Characterization of the Relationship between Post-harvest Fungal Rot and Indicator Organism Die-off Rates on Gala Apples during Three Months of Storage — ALEXIS HAMILTON, Blanca Ruiz-Llacsahuanga, Robyn Zaches, Manoella Mendoza, Ines Hanrahant, Faith Critzer, Washington State University, School of Food Science, Pullman, WA, USA

P3-105 Bio-control of *Listeria monocytogenes* on the Surface of Fresh Produce — TONG ZHAO, Govindaraj Kumar, University of Georgia, Griffin, GA, USA

P3-106 Antimicrobial Evaluation of an In-Situ UV Treatment Unit for Fresh Produce Decontamination — SHIYUN YAO, Haiqiang Chen, University of Delaware, Newark, DE, USA

P3-107 Wax On! Pathogen Off! — GOVINDARAJ DEV KUMAR, Dumitru Macarisis, Francisco Diez-Gonzalez, Abhinav Mishra, University of Georgia Center for Food Safety, Griffin, GA, USA

P3-108 Use of Combined Ultraviolet Light, Ultra-Sonication, and Agitation Treatments to Enhance Fresh Produce Decontamination Efficacy — SHIYUN YAO, Haiqiang Chen, University of Delaware, Newark, DE, USA

P3-109 Withdrawn

P3-110 Microbial Quality Assessment of Fresh Produce Sold in Food Desert Areas in Central Virginia — CHYER KIM, Sakinah Albukhayan, Brian Goodwyn, Theresa Nartea, Eunice Ndegwa, Paul Kaseloo, Virginia State University, Petersburg, VA, USA

P3-111 Validation of Triple-wash Procedures with Sodium Hypochlorite, Lactic-Citric Acid Blend, and Mixer of Peroxyacetic Acid-hydrogen Peroxide to Inactivate *Salmonella, Listeria monocytogenes*, and Surrogate *Enterococcus faecium* on Cucumbers and Tomatoes — KA WANG LI, Wentao Jiang, Lisa Jones, Cangliang Shen, West Virginia University, Morgantown, WV, USA

P3-112 Withdrawn

P3-113 Examining the Distribution of *Listeria monocytogenes* in a Hydroponic System from Contaminated Seeds — JANNY MENDOZA, Achyut Adhikari, Louisiana State University, Baton Rouge, LA, USA

P3-114 Development of Rapid Molecular Detection Methods for Foodborne Pathogens in Fresh Produce — IAN MOPPERT, Si Hong Park, Oregon State University, Corvallis, OR, USA

P3-115 Evaluation of Produce Safety Training Delivery Methods Using Quantitative On-farm Assessments — LONDA NWADIKE, Joshua Maher, Cal Jamerson, Cary Rivard, Sara Gragg, Kansas State University/University of Missouri, Olathe, KS, USA
P3-116 Impact of Organic and Conventional Practices in the Microbiological Quality of Fresh Leafy Vegetables Produced in Piracicaba, SP — BRAZIL — THIAGO S. SANTOS, Nicolle F. A. Padovani, Priscila Almeida, Meriellen Dias, Maria Anita Mendes, Daniele F. Maffei, University of São Paulo, Piracicaba, Brazil

P3-117 Detection of Culturable Bacteria in Greenhouse-grown Romaine Lettuce Using the Light Scattering Technology (BEAM) — HANSEL A. MINA, ROBERT E. PRUITT, AMANDA J. DEERING, Purdue University, West Lafayette, IN, USA

P3-118 Modeling Cross-contamination and Inactivation Dynamics of Escherichia coli O157:H7 in Chlorine Wash of Fresh-cut Iceberg Lettuce — MOHAMMADREZA ABNAVI, Chandra Kothapalli, Daniel Munther, Panthasarathy Srinivasan, Cleveland State University, Cleveland, OH, USA

P3-119 A Pilot-scale Study of Cold Plasma-activated Hydrogen Peroxide Technology: Effect on Populations of Salmonella Typhimurium and Listeria innocua and Quality Changes of Apple, Tomato and Cantaloupe During Storage — YUANYUAN SONG, BASSAM ANNOUS, XUETONG FAN, USDA-ARS, Eastern Regional Research Center, Wyndmoor, PA, USA

P3-120 Sensitivity of Foodborne Pathogens to Chlorine and Peracetic Acid in Sterile Water and Rinse Water of Spinach and Lettuce — GANYU GU, ANDREA OTTESEN, SAMANTHA BOLTON, JOSEPH MOWERY, YAGUANG LOU, XIANGWU NOU, EMFSL, USDA-ARS, Beltsville, MD, USA

P3-121 Effect of Lettuce Cultivar and Irrigation Water Source on the Dynamics of Innate Microbiota and Survival of Pathogenic E. coli and Salmonella spp. on Lettuce — GANYU GU, HSIN-BAI YIN, ANDREA OTTESEN, SAMANTHA BOLTON, JITU PATEL, YAGUANG LOU, XIANGWU NOU, EMFSL, USDA-ARS, Beltsville, MD, USA

P3-122 Survival of Planktonic- and Biofilm-grown Listeria monocytogenes on Apples as Affected by Apple Variety, Grower Region, and Storage Conditions — NATASHA SLONIKER, OURANIA RAFTOPOULOU, SOFIA KATHARIOU, ELLIOT RYSER, Michigan State University, East Lansing, MI, USA

P3-123 Learning from the On-Farm Readiness Review: Farmer Preparedness and Educational Needs of New Jersey Farms for FSMA PSS Compliance — MEREDITH MELENDEZ, Wesley Kline, Rutgers NJAES Cooperative Extension, Trenton, NJ, USA

P3-124 Food Safety Needs Assessment for Produce Gleaning Organizations in California — ALDA PIRES, XI WU, ERIN DICAPRIO, Department of Food Science and Technology, University of California-Davis, Davis, CA, USA

P3-125 Withdrawn

P3-126 Survival of Inoculated Generic Escherichia coli on Almonds at Different Phases of Maturity — CHRIS THEOFEL, VANESSA LIEBERMAN, LINDA J. HARRIS, University of California-Davis, Davis, CA, USA

P3-127 Withdrawn

P3-128 Withdrawn

P3-129 Withdrawn

P3-130 Survival of Listeria monocytogenes on McIntosh, Fuji, and Honeycrisp Apples Stored at 22°C — JEANNA LABARBARA, ANNA LOYD, KA WANG LI, WENTAO JIANG, CANGJIANG SHEN, West Virginia University, Morgantown, WV, USA

P3-131 Survey of Agricultural Water Microbial Quality in Kansas and Missouri — JOSHUA MAHER, LONDA NWADIKE, SARA GREGG, MANREET BHULLAR, Kansas State University, MANHATTAN, KS, USA

P3-132 Trace Back SCUTELLO Bacillus thuringiensis Strain Used for Crop Protection from Field to Fork — FLORENCE POSTOLLEC, EMELINE COZIEN, PIERRE GEHANNIN, MELANIE STREIT, MARIE-LAURE DIVANACH, SEBASTIEN LOUAR, RODOLPHE VIDAL, ANNE-GABRIELLE MALHOT, ADRIA FOOD TECHNOLOGY INSTITUTE — UMT ACTIA 19.03 ALTERIX, FRANCE, QUIPER, FRANCE

P3-133 Evaluate the Effectiveness of Air Bubbles during Washing to Dislodge Microorganisms from Cucumber and Bell Peppers — JULYSA BENITEZ, ACHYUT ADHIKARI, LSU, BATON ROUGE, LA, USA

P3-134 Prevalence and Concentration of Listeria Species and Listeria monocytogenes for Raw Produce Arriving into Frozen Food Manufacturing Facilities — BRITTANY MAGDOVITZ, SANJAY GUMMALLA, HARSHAVARDHAN THIPPERAID, MARK HARRISON, University of Georgia, ATHENS, GA, USA

P3-135 Effect of the Attachment Level of Listeria monocytogenes on the Efficacy of Chlorine Treatment on Bell Pepper Surfaces — JYOTTI ARYAL, VYJAY CHETNI, ACHYUT ADHIKARI, LOUISIANA STATE UNIVERSITY, BATON ROUGE, LA, USA

P3-136 Role of Biological Soil Amendments in Pathogen Persistence and Transfer to Foliar and Root Crop in a Pre-harvest Environment — PUSHPINDER KAUR LITT, ALYSSA KELLY, ALEXIS OMAR, KELVIN MCCGAUGHAN, MICAH GREENZWEIG, Gordon Johnson, Manaran Sharma, KAILMIA KNIEL, University of Delaware, Newark, DE, USA

P3-137 Withdrawn

P3-138 Kitchen-scale Treatments for Reduction of Listeria monocytogenes in Prepared Produce for Immunocompromised Populations — CARLY GOMEZ, BRADLEY MARKS, ELLIOT RYSER, MSU, TROY, MI, USA

P3-139 A Pilot-Plant Study Evaluating a New Technology to Accelerate Escherichia coli Die-Off on Fresh-Cut Lettuce during Cold Storage — GABRIELLA MENDES CANDIDO DE OLIVEIRA, BIN ZHOU, DANIEL PEARLSTEIN, SAMANTHA BOLTON, GANYU GU, EUNHEE PARK, ZI TENG, ELLEN THERMAN, PATRICIA MILLNER, XIANGWU NOU, YAGUANG LOU, EMFSL, USDA-ARS, BELTSVILLE, MD, USA

P3-140 Use of Lactic Acid Bacteria to Control Listeria monocytogenes on Apples during Simulated Storage Conditions — DEEPA ASHWARYA KUTTAPPAN, MAIRUI GAO, Mary Anne Amalaradjou, University of Connecticut, STORRS, CT, USA

P3-141 Growth of Listeria innocua on Broccoli Stalk, Beet Greens, Brussels Sprouts, and Kale under Simulated Storage and Distribution Conditions — EMMA SANDQUIST, JAY SINGH, KOUSHIK SAHA, ANDREW SCHAFFNER, AMANDA LATHROP, CALIFORNIA POLYTECHNIC STATE UNIVERSITY, SAN LUIS OBISPO, CA, USA

P3-142 Ethanol Vapor to Control Salmonella on Fresh Produce — MICHAEL WESOLOWSKI, ROBERT WILLIAMS, RENEE BOYER, HAIBO HUANG, VIRGINIA TECH, BLACKSBURG, VA, USA

P3-143 Survival of Salmonella Typhimurium in Hydroponic Lettuce Systems — MARGARET MOODISPAW, MELANIE L. LEWIS IVEY, SANJA ILIC, THE OHIO STATE UNIVERSITY, WOOSTER, OH, USA

P3-144 Withdrawn

P3-145 Risk Factors Associated with Escherichia coli Persistence in Soils Amended with Raw Manure in Certified Organic Farming Systems in Four Regions of USA — ALDA PIRES, THAIS RAMOS, PATRICIA MILLNER, JAMES STOVER, PAULO PAGLIARI, MARK HUTCHINSON, JASON LILEY, NICHOLAS ROWLEY, PEIMAN AMINABADI, JEROME BARON, ANNETTE KENNEY, FAWZY HASHEM, MICHELE JAY-RUSSELL, DEPARTMENT OF POPULATION HEALTH AND REPRODUCTION, SCHOOL OF VETERINARY MEDICINE, UNIVERSITY OF CALIFORNIA-DAVIS, DAVIS, CA, USA
Sanitation and Hygiene

P3-146 Evaluating the Efficacy of Peroxyacetic Acid at Lower Than Recommended Levels as a Sanitizer for Tomato Fluming Operations — CHRISTOPHER PABST, Jaysankar De, Alisa Smovzhenko, Keith Schneider, University of Florida, Gainesville, FL, USA

P3-147 Validation of the BAX® System Real-time PCR Assays for Salmonella, E. coli O157:H7 and Non-O157 STEC in Cruciferous Vegetables — ANASTASIA LIKANCHUK, Victoria Kuhnel, Julie Weller, Qualicon Diagnostics LLC, A Hygiene Company, New Castle, DE, USA

P3-148 Establishing a Scientific Basis for Buffer Zones Following Animal Intrusion in Florida Tomato Fields — MATTHEW KRUG, Eugene McAvoy, Travis Chapin, Loretta Friedrich, Min Li, Arie Havelaar, Michelle Danylyk, University of Florida, Immokalee, FL, USA

P3-149 Withdrawn

P3-150 Transfer of Indicator Escherichia coli to Spinach, Carrots and Tomatoes Grown in Organic Soil Amended with Raw Animal Manure in California, 2018–2019 — PEIMAN AMINABADI, Alda Pires, Anna Zwieneicka, Thais Ramos, Michele Jay-Russell, Western Center for Food Safety, University of California-Davis, Davis, CA, USA

P3-151 Determination of the Presence of Foodborne Pathogens, Total Coliforms, and Escherichia coli in Ready-to-Eat Leafy Greens Sold at Retail — SANA MUJAHID, Robyn Miranda, Tunde Akinyele, Andrew Cohen, Keith Newsom-Stewart, Winnie Mukuna, James Rogers, Consumer Reports, Yonkers, NY, USA

P3-152 Leafy Greens as Source of Cefazidime- and/or Ciprofloxacin-resistant Enterobacteriaceae — CARLA BARRIA, Aiko Adell, Lina Rivas, Jose Munita, Constanza Diaz, Tamara Gonzalez, Andrea Moreno-Switt, Millennium Nucleus for Collaborative Research on Bacterial Resistance (MICROB-R), Santiago, Chile

P3-153 Whole-Genome Analysis of Shiga Toxin-producing Escherichia coli and Salmonella spp. Isolates from Untreated Cattle and Poultry Manures in California and Arizona — ZHAO CHEN, Peiman Aminabadi, Paula Rivadeneira, Jiaghong Meng, Michele Jay-Russell, University of Maryland, College Park, MD, USA

P3-154 Experimental Field Trial to Assess Escherichia coli Presence and Concentration in Organic Soil and Tomatoes Following Sheep Rotational Grazing on Cover Crop — MICHELE JAY-RUSSELL, Laura Patterson, Kyuyoung Lee, Anna Zwieneicka, Peiman Aminabadi, Alda Pires, Western Center for Food Safety, University of California-Davis, Davis, CA, USA

P3-155 Environmental Screening of a Cannabis Production and Processing Facility Using Multiplexed DNA Microarrays: A Method to Enhance Growth and Prevent the Spread of Contamination — BENJAMIN KATCHMAN, Chelsea Adamson, Michael Hogan, PathogenDx, Tucson, AZ, USA

P3-156 Hygiene Status of Fresh Peach Packing Lines in Georgia — PEIEN WANG, Joycelyn Quansah, Katie B. Pitts, Jinru Chen, Department of Food Science and Technology, The University of Georgia, Griffin, GA, USA

P3-157 Detection of Listeria monocytogenes from Plastic Surfaces Using the Inside L. mono Glo Swab with Confirmation on the BAX® System Standard and Real-time PCR Assays — ANASTASIA LIKANCHUK, Julie Weller, Victoria Kuhnel, Qualicon Diagnostics LLC, A Hygiene Company, New Castle, DE, USA

P3-158 Withdrawn

P3-159 Quantitative and Qualitative Comparison of Commercially Available Indicator Organism Methods — SAVANNAH FORGEY, Marcos X. Sanchez-Plata, April Englishby, Texas Tech University, Lubbock, TX, USA

P3-160 Novel Hygiene Assessment Technology Exhibits Higher Frequency of Soil Contamination Detection Than ATP Assessment — CASEY WHYTE, Ting Fung Ma, Jeffrey Sindelar, Scott A. Rankin, University of Wisconsin - Madison, Department of Food Science, Madison, WI, USA

P3-161 AMP, ADP, and ATP Concentrations Differentially Affected by Common Manufacturing Steps in Meat Processing — NICHOLAS SMITH, Jeffrey Sindelar, Scott A. Rankin, University of Wisconsin-Madison, Department of Food Science, Madison, WI, USA

P3-162 Differential Biofilm Formation of Listeria monocytogenes Strains Under Single- and Dual-species (with Lactobacillus spp.) Conditions — MAGDALENA OLSZEWSKA, Francisco Diez-Gonzalez, University of Georgia Center for Food Safety, Griffin, GA, USA

P3-163 Tolerance of Pseudomonas aeruginosa and Listeria monocytogenes in Co-culture Biofilms after Successive Quaternary Ammonium Compound Exposure — ERIC MOORMAN, Lee-Ann Jaykus, North Carolina State University, Raleigh, NC, USA

P3-164 Development of Dual Functional Superhydrophobic Coatings with Bacterial Antimicrobial and Anticontact Characteristics — Shuhao Liu, YAGMUR YEGIN, Jun Kyun Oh, Mustafa Akbulut, Texas A&M University, College Station, TX, USA

P3-165 A Scalable and Rechargeable Antimicrobial Coating for Food Equipment — MINGYU QIAO, Halomine, Inc., Ithaca, NY, USA

P3-166 Combined Effects of Essential Oil Vapors in Inactivating Shigella flexneri and Staphylococcus aureus — JIWON OH, Yurim Cho, Jee-Hoon Ryu, Korea University, Seoul, South Korea

P3-167 A Comprehensive Approach to Evaluating Product Performance of Dry Wiper Systems Used for Electronic Touch Screens — MARY CZAPLICKI, Shorook Attar, Taylor Niehaus, Chris Fricker, Gojo Industries, Akron, OH, USA

P3-168 Performance Evaluation of Commercially Available Dry Wiper Systems Used in Foodservice and Implications for Long-term Use — MARY CZAPLICKI, Travis Neal, Jessica Williams, Chris Fricker, Gojo Industries, Akron, OH, USA

P3-169 Validation of Sanitizer Effectiveness Against Staphylococcus and Pseudomonas Biofilms, Natural Biofilms from Worker’s Boots, and Selective Correlation of Biofilm Bacteria to Sanitizer Chemistry — KUNDAN SHAH, Peter Muriana, Oklahoma State University, Stillwater, OK, USA

P3-170 Systematic Evaluation of Commercial Disinfectants against Human Norovirus Surrogates and Clostridium difficile in Suspension Test — JINGE HUANG, Geun Woo Park, Walter Randazzo, Angela Fraser, Jan Vinjé, Rachael Jones, Xiuping Jiang, Clemson University, Clemson, SC, USA

P3-171 Implementation of Targeted Cleaning and Sanitation Directed by ATP Swabbing to Improve the Quality of Finished Food Products — JONATHAN SOGIN, Mario Cobo, Burcu Yordem, John David, Cari Lingle, Randy Worobo, Cornell University, Ithaca, NY, USA
Viruses and Parasites

P3-172 Determination of the Perceived Threshold for Dirtiness of Food-soiled Surfaces by Panelist Visual Detection — DEVIN DAESCHHEL, Robin Dando, Abigail Snyder, Cornell University, Ithaca, NY, USA

P3-173 Evaluation of Food Delivery Bag/Box Cleanability — AMANI BABEKIR, Anna Starobin, Ecolab Inc., Greensboro, NC, USA

P3-174 Microbial Contamination Levels in Disposable Tableware in Korea — JOOHYN KANG, Miseon Sung, Minji Nam, Yohan Yoon, Sookmyung Women’s University, Seoul, Korea, Republiq of Korea

P3-175 Environmental Conditions Impact the Recovery of Microorganisms from Non-porous Surfaces — SARAH JONES, Kristen Gibson, University of Arkansas, Fayetteville, AR, USA


Viruses and Parasites


P3-178 Evaluation of BAM Chapter 19b Method for Detection of Cyclospora cayetanensis in Mixed Bagged Pre-cut Salads — ALICIA SHIPLEY, Sonia Almeria, U.S. Food and Drug Administration, CFSAN, Office of Applied Research and Safety Assessment, Laurel, MD, USA

P3-179 Assessment of Commercial DNA Clean-up Kits for Elimination of PCR Inhibitors in the Detection of Cyclospora cayetanensis in Cilantro — Angela Assurian, Helen Murphy, Alicia Shipley, Hediyeh Nese Cinar, Alexandre da Silva, M. ALMERIA, U.S. Food and Drug Administration, CFSAN, Office of Applied Research and Safety Assessment, Laurel, MD, USA

P3-180 Independent Laboratory Validation Study of Detecting Cyclospora cayetanensis in Agricultural Water — KAIPING DENG, Robert Newkirk, Jodie Ulaszek, Vishnu Patel, Mauricio Durigan, Helen Murphy, Matthew Kmet, Ravinder Reddy, Alexandre da Silva, IFSH/Illinois Institute of Technology, Bedford Park, IL, USA

P3-181 The Relationship between Season, Weather, Physicochemical Properties and the Presence of Cryptosporidium spp., Toxoplasma gondii, and Giardia intestinalis in Potential Alternative Sources of Agricultural Water: A Conserve Project — SHANI CRAIGHHEAD, Brienna Anderson-Coughlin, Samantha Gartley, Alyssa Kelly, Alexis Omar, Adam Vanore, Chengsheng Jiang, Joseph Haymaker, Derek Foust, Rico Duncan, Chanelle White, Cheryl East, Eric Handy, Sarah Allard, Rianna Murray, Mary Theresa Callahan, Sultana Solaiman, Walter Betancourt, Charles Gerba, Sarah Allard, Salina Parveen, Fawzy Hashem, Shirley A. Micallef, Amir Sapkota, Amy R. Sapkota, Manan Sharma, Kalmia Kniel, University of Delaware, Newark, DE, USA

P3-182 Verification and Implementation of the US-FDA BAM Chapter 19b Method for Routine Detection of Cyclospora cayetanensis in Leafy Greens and Berries by a Canadian Food Inspection Agency Laboratory — LAURA LALONDE, Jenna Oakley, Patrick Fries, Vincent Xie, Centre for Foodborne and Animal Parasitology, Canadian Food Inspection Agency, Saskatoon, SK, Canada

P3-183 Validation of Loop-mediated Isothermal Amplification (LAMP) Assay for Rapid and Reliable Detection of Giardia duodenalis Cysts in Leafy Greens — LAURA LALONDE, Jenna Oakley, Vincent Xie, Centre for Foodborne and Animal Parasitology, Canadian Food Inspection Agency, Saskatoon, SK, Canada

P3-184 Inactivation of Encysted Muscle Larvae of Trichinella spiralis in Pigs after Anthelmintic Drug Treatment — JORRELL FREDERICKS, Dolores Hill, Dante Zarlanga, Valsin Fournet, Diane Hawkins-Cooper, Joseph Urban Jr., United States Department of Agriculture, Beltsville, MD, USA

P3-185 Imported Raspberries Linked to Norovirus Cruise Ship Outbreak — JACQUELINA WOODS, Khamphef Nabe, Elizabeth Sachs, Kristopher Stanya, FDA Gulf Coast, Dauphin Island, AL, USA

P3-186 Ultra-Low Temperature High-pressure Processing Inactivation of Foodborne Viruses — CHRISTINA DEWITT, Kevin Nelson, David Kingsley, Oregon State University, Astoria, OR, USA

P3-187 Enhanced Inactivation of Foodborne Viruses by Cinna-maldehyde Nanoemulsions Require a Lipid Envelope — PRAGATHI KAMARASU, Matthew Moore, University of Massachusetts Amherst, Amherst, MA, USA

P3-188 Evaluation of Non-traditional Irrigation Water Sources for Atmospheric, Physicochemical, and Viral Indicators of Viral Enteric Pathogens: A Conserve Study — BRIENNA ANDERSON-COUGHLIN, Shani Craighhead, Alyssa Kelly, Samantha Gartley, Adam Vanore, Chengsheng Jiang, Joseph Haymaker, Chanelle White, Derek Foust, Rico Duncan, Cheryl East, Eric Handy, Rhodel Bradshaw, Rianna Murray, Prachi Kulkarni, Mary Theresa Callahan, Sultana Solaiman, Walter Betancourt, Charles Gerba, Sarah Allard, Salina Parveen, Fawzy Hashem, Shirley A. Micallef, Amir Sapkota, Amy R. Sapkota, Manan Sharma, Kalmia Kniel, University of Delaware, Newark, DE, USA

P3-189 Evaluation of Concentrating Methods for Enteric Viral Detection in Water — JUSTIN TANNER, Angela Nguyen, Mérieux NutriSciences, Crete, IL, USA

P3-190 Comparing the Efficacies of Alcohol-based Hand Sanitizers against Human Norovirus Using Two American Society for Testing and Materials (ASTM) Finger Pad Methods (E1838-10 and E1838-17) — BLANCA ESCUDERO-ABARCA, Rebecca Goulter, Rachel Leslie, Kristen Green, James Arbogast, Lee-Ann Jaykus, Department of Food, Bioprocessing, and Nutrition Sciences, North Carolina State University, Raleigh, NC, USA

P3-191 Investigating the Role of Lettuce Leaf Surface Exudates on the Persistence of Human Norovirus Surrogates — WENJUN DENG, Kristen Gibson, University of Arkansas, Fayetteville, AR, USA

P3-192 Effects of Pasteurization, Freezing and Preserving Agents on Survival of Bacteriophage MS2, a Norovirus Surrogate, in AceroLD-Cherry Pulp — Maria Mayara de Souza Grilo, Geany Targino de Souza Pedroso, Rutchevy Tavares, MATTHEW IGO, Donald W. Schaffner, Marciane Magnani, Rutgers, The State University of New Jersey, New Brunswick, NJ, USA

P3-193 Investigation of Novelty and Practicability of Pathogenic Salmonella-specific Phage — SU-HYEON KIM, Yeon Soo Kim, Ji Min Han, Mi-Kyung Park, Kyungpook National University, Daegu, South Korea

P3-194 Withdrawn

P3-195 Withdrawn
P3-196 Validation of Bench and Commercial-scale Dry Roasting Process to Reduce *Salmonella* on Hazelnuts — Joy Waite-Cusic, SAMANTHA BURROUGHS, Oregon State University, Corvallis, OR, USA

P3-197 Impact of Air Velocity on the Reduction of *Salmonella* and *Enterococcus faecium* during the Dehydration of Sugar-infused Apples — Joy Waite-Cusic, SAMANTHA BURROUGHS, Oregon State University, Corvallis, OR, USA

P3-198 Comparative Genomic Analysis of *Salmonella enterica* Subsp. *enterica* Serovars Montevideo and Senftenberg Isolates Associated with Pistachios — Julie Haendiges, Gordon Davidson, Tyann Blessington, Jie Zheng, Jesse Miller, MARIA HOFFMANN, U.S. Food and Drug Administration – Center for Food Safety and Applied Nutrition, College Park, MD, USA

P3-199 The Use of a Novel Selective Supplement for the Rapid Recovery and Detection of Pathogenic Gram-Negative Organisms from Challenging Food Matrices — Simon Illingworth, NEVIN PERERA, Solus Scientific Solutions Ltd., Mansfield, United Kingdom

P3-200 Evaluation of Oxygen Availability and Different Structured Dairy Model Systems on Growth and Inter-Strain Interactions of *L. monocytogenes* — MARIA GKEREKOU, Lamprini Adam, Georgios Papakostas, Eleftherios Drosinos, Panagiotis Skandamis, Laboratory of Food Quality Control and Hygiene, Department of Food Science and Human Nutrition, Agricultural University of Athens, Athens, Greece

P3-201 Novel Assay for *Staphylococcus aureus* in Nutraceuticals Using Rapid Automated Detection System — Tina Caskey, James Hlawaceu, Carolyn Montei, Lei Zhang, Robert Donofrio, PREETHA BISWAS, Neogen Corporation, Lansing, MI, USA
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ABOUT THE AWARD RECIPIENTS

BLACK PEARL AWARD
AJINOMOTO FOODS NORTH AMERICA, INC.
ONTARIO, CALIFORNIA

As a leading manufacturer in the frozen food industry, Ajinomoto Foods North America is dedicated to contributing to a healthier lifestyle through nutritious and balanced foods. With a commitment to excellence and innovation, all of our products are produced with our customers in mind, providing healthy and delicious meals for the entire family.

We currently operate nine factories and one corporate office domestically in the United States. With more than 3,000 employees working with a high standard of food safety and quality, we serve as a brand leader across all categories of frozen foods.

Ajinomoto products span across the largest categories of ethnic frozen foods, ranging from Mexican to Italian to Asian across every distribution channel including foodservice, grocery, warehouse club, and custom manufacturing. Our brands include Tai Pei, Ling Ling, Ajinomoto, José Olé, Posada, and Fred’s for Starters.

Our focus is on economic, cultural and educational development of each community where we do business. As members of local communities, Ajinomoto’s employees are encouraged as individuals to participate in social contribution activities. Together, the company can improve the health and wellness of our customers and help create a sustainable environment so everyone can continue to “Eat Well and Live Well.”

Sponsored by
Dr. Robert Buchanan is a recipient of the 2020 IAFP Fellow Award. Dr. Buchanan is a Professor of Nutrition and Food Science at the University of Maryland in College Park. He has 45 years of experience teaching and conducting research in food safety, starting out in academia before joining the U.S. Department of Agriculture’s Agricultural Research Service (USDA ARS) and the U.S. Food and Drug Administration (FDA). He then returned to academia in 2008 to serve as Professor for Food Safety.

Dr. Buchanan served as the director of the Center for Food Safety and Security Systems from 2008–2016. His scientific interests are diverse and include extensive experience in predictive microbiology, quantitative microbial risk assessment, microbial physiology, mycotoxicology, and food safety systems. He has published extensively and given numerous invited presentations worldwide. He is also the co-developer of USDA Pathogen Modeling Program.

With an ongoing interest in science-based public health policy, Dr. Buchanan has served as the FDA’s Center for Food Safety and Applied Nutrition (CFSAN) Senior Science Advisor; Director of the CFSAN Office of Science; and Deputy Administrator for Science with the USDA’s Food Safety and Inspection Service (FSIS).

Dr. Buchanan has served on numerous national and international advisory bodies including as the U.S. Delegate to the Codex Alimentarius Committee on Food Hygiene and International Commission on Microbiological Specification for Foods. He has also served as a member of the National Academy of Science’s Institute of Medicine Committee on Emerging Microbial Threats, the National Advisory Committee on Microbiological Criteria for Foods, and numerous international expert consultations for the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). Dr. Buchanan is also a Fellow of the American Academy for Microbiology and the Institute of Food Technologists.

A 15-year Member of IAFP, Dr. Buchanan currently serves on the Editorial Boards for both Food Protection Trends and the Journal of Food Protection. He is a member of numerous PDGs and of the IAFP Affiliate, the Capital Area Food Protection Association. He received the President’s Lifetime Achievement Award in 2012 and presented the John H. Silliker Lecture at that year’s Annual Meeting.

Dr. Buchanan received his B.S., M.S., Master’s of Philosophy, and Ph.D. in Food Science from Rutgers University, with post-doctoral training in Mycotoxicology at the University of Georgia.

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Dr. Mickey Parish is a recipient of the 2020 IAFP Fellow Award. Dr. Parish recently retired as the Senior Science Advisor at the U.S. Food and Drug Administration’s (FDA’s) Center for Food Safety and Applied Nutrition (CFSAN) in College Park, Maryland. In this role, he oversaw the overall CFSAN research portfolio and addresses issues related to science and research policy.

Prior to joining the FDA, Dr. Parish was a career academician. From 2005–2010, he was Chair of the Department of Nutrition and Food Science at the University of Maryland in College Park. Between 1986–2005, Dr. Parish was on the faculty at the University of Florida’s (UFL) Citrus Research and Education Center as a food microbiologist with tenure in the Food Science and Human Nutrition Department. At UFL, he developed an internationally known research program on juice and beverage microbiology with notable accomplishments in juice processing technology.

Dr. Parish joined IAFP in 1984 and served as President in 2018. Throughout his membership, he has served on numerous committees, including the European Symposium Organizing Committee, the Nominating Committee, the Developing Scientist Competition Committee, and numerous Award Selection Committees. He has served on the Editorial Board for the Journal of Food Protection since 2003.

Dr. Parish is a Fellow of the Institute of Food Technologists and received the 2015 IFT Myron Solberg Award for leadership in developing industry/government/academic cooperative organizations. He received a Ph.D. in Food Science from North Carolina State University; a Master’s in Food Science from the University of Florida; and a B.S. in Biology from Florida State University.
Dr. Dallas Hoover is the recipient of the 2020 IAFP President’s Lifetime Achievement Award. This award is given at the discretion of the Association’s President to recognize an individual who has made a lasting impact on “Advancing Food Safety Worldwide” through a lifetime of professional achievement in food protection.

Dr. Hoover is Professor of Food Microbiology in the Department of Animal & Food Sciences at the University of Delaware in Newark, where he has served on the faculty for 36 years. His research interests in food process microbiology have involved development and implementation of high-pressure processing as an effective and approved food preservation process by the food industry, primarily focusing on the response of bacteria, fungi, and viruses to high hydrostatic pressure in various foods and beverages to evaluate food safety risks. Additional research interests have included adaptation and optimization of bifidobacteria as viable probiotic cultures in foods and more recently in the area of fermentations with efforts to establish brewing technology at the University of Delaware for both teaching and research applications. Dr. Hoover’s core area of teaching has been courses and projects in food microbiology, general food science and technology, and fermentation sciences.

Dr. Hoover has been an IAFP member since 1985 and has served on the Editorial Board of the Journal of Food Protection since 2001. He has also served on several other journal editorial boards, and is currently an associate editor for Innovative Food Science & Emerging Technologies, as well as an associate editor for the Journal of Food Science.

Dr. Hoover obtained his B.S. in Biology from Elizabethtown College in Pennsylvania, his M.S. in Biological Sciences from the University of Delaware, and his Ph.D. in Food Science from the University of Minnesota, specializing in food microbiology. His postdoctoral work was at Drexel University and Cornell University.
HONORARY LIFE MEMBERSHIP AWARD

Dr. Patrice Arbault is a recipient (posthumously) of the 2020 IAFP Honorary Life Membership Award. Dr. Arbault, who passed away in March 2020, was President of and International Food Safety Consultant for BioAdvantage Consulting in Lyon, France.

Dr. Arbault joined IAFP in 1999 and served for several years on the European Symposium Organizing Committee, including as Chair. He was a member of several IAFP Professional Development Groups (PDGs) and attended IAFP’s European Symposium on Food Safety for many consecutive years, as well as each IAFP Annual Meeting from 1999–2017, regularly presenting, organizing, and convening several symposia at both meetings.

Dr. Arbault’s career from 1994–2004 included joining the Diffchamb Group in Gotthenburg, Sweden and becoming Vice President of Technical Affairs, Site Manager for Diffchamb SA in Lyon, France. In 2005, he founded BioAdvantage Consulting, a global consulting service for food and environmental diagnostic companies, including those serving the meat industry. In 2007, he founded and remained as President of Nexidia, located in Dijon, France, and since 2012, he served as an Adjunct Professor on the graduate faculty at Texas Tech University in Lubbock.

Food safety and methods validation were passions for Dr. Arbault. His notably published work was carried out on methods for the analysis of pathogenic bacteria, bacterial toxins, mycotoxins, and allergens. He was an active member of and leader on several boards and committees including AOAC INTERNATIONAL; Chair of the AOAC Research Institute Board; a member of the AOAC Microbiology Expert Review Panel; a member of the MicroVal Technical Committee; Chair of the AFNOR Microbiology Technical Committee; and President/Consultant of Novolyze, a food safety company based in Dijon. Novolyze received the IAFP Food Safety Innovation Award in 2017.

Dr. Arbault held an Engineering degree in Biotechnologies and a Master’s in Cellular and Molecular Biology from the University of Clermont-Ferrand, France, and a Ph.D. in Human Biology from Claude Bernard University in Lyon, France.

Dr. Jeffrey Farber is a recipient of the 2020 IAFP Honorary Life Membership Award. Dr. Farber is a Professor in the Department of Food Science at the University of Guelph in Ontario, Canada, where he oversees several graduate students, as well as M.Sc. Food Safety and Quality students. He is also the current President of a global food safety consulting company. He received his Ph.D. in Food Microbiology at McGill University in Montreal, Canada.

Dr. Farber previously worked at Health Canada as Director of the Bureau of Microbial Hazards in the Food Directorate of Health Canada, where he led a group of approximately 60 people working in various areas of microbial food safety. He has published more than 150 publications and numerous book chapters and has edited four books. He was Associate Editor of the International Journal of Food Microbiology for several years. Dr. Farber is also a consulting member and past Treasurer of the International Commission on Microbiological Specifications for Foods (ICMSF) and has extensive experience working at the international level with organizations such as Codex Alimentarius, the World Health Organization (WHO), and the Food and Agriculture Organization of the United Nations (FAO).

An IAFP Member since 1992, Dr. Farber served many years on the Editorial Board of the Journal of Food Protection (JFP); published numerous research papers in JFP and Food Protection Trends; and has presented his research results frequently at IAFP meetings in North America and globally. He was a member of the IAFP Program Committee for six years and a founding member of both the Produce and International Professional Development Groups (PDGs). He has also served on many Award Selection Committees and is currently the Contents Editor for IAFP Report. Dr. Farber served as IAFP President in 2006 and received the Association’s Fellow Award in 2014, the Harry Haverland Citation Award in 2009, and the President’s Recognition Award in 2009.

Dr. Farber most recently received the Prime Minister’s Outstanding Achievement Award for his work as the lead scientist for Health Canada on the deli-meat listeriosis outbreak.
Dr. Judy Harrison is a recipient of the 2020 IAFP Honorary Life Membership Award. Dr. Harrison recently retired from the University of Georgia in Athens as a Professor in the Department of Foods and Nutrition and is a Walter B. Hill Distinguished Fellow in Public Service and Outreach. She has worked to protect the health of consumers and families through food safety education from farm to table. In addition, she has developed, implemented, and evaluated food safety education for child care providers; school nutrition and restaurant personnel; food business personnel; farmers, farmers’ market managers; adult consumers; and youth audiences. Her educational materials have been used with audiences in eight countries, 27 states, and the District of Columbia.

Dr. Harrison has been an IAFP Member since 1992. Her service has included: Secretary for the IAFP Affiliate, the Georgia Association for Food Protection; Local Arrangements Co-Chair for IAFP 2000 in Atlanta; Chair of the IAFP Audiovisual Library Committee; member of the Food Safety Education Professional Development Group (PDG), Editorial Boards for both *Food Protection Trends* and *Journal of Food Protection*; and as a member of the Elmer Marth Educator Award Selection Committee. Dr. Harrison received the Elmer Marth Educator Award in 2017. She has also served on the Board of Directors for the Partnership for Food Safety Education, providing her with the opportunity to be involved in helping to develop food safety education initiatives for audiences nationwide.

Dr. Harrison has been recognized with awards from the media industry; three food safety awards from the National Extension Association for Family and Consumer Sciences; and the 2016 NSF International Food Safety Leadership Award for Training and Education. In 2018, she was recognized by the Association of Public and Land-grant Universities Board on Human Sciences with the Outstanding Engagement Award, recognizing faculty with exceptional creativity and scholarship in the development, application, and evaluation of outreach, extension, and public service programs.

Mr. Allen Sayler is a recipient of the 2020 Honorary Life Membership Award. Mr. Sayler has spent his entire 37-year career as a state, the U.S. Food and Drug Administration (FDA), the U.S. Department of Agriculture (USDA), and food industry regulator, industry advisor, and consultant, concentrating on improving food safety programs in the manufacturing, warehousing, and distribution sectors through training; publication of articles in food industry publications; and conducting troubleshooting, root-cause analyses inspections, audits, and assessments. While better known for his dairy background, his expertise spans food processing and engineering; food safety; hygiene and standards regulations; food additives; and food defense. He also has more than 20 years of international experience, representing the U.S. food industry at Codex Alimentarius meetings on food standards, additives, hygiene, labeling, and contaminant. While at the FDA and USDA, he received two group awards for his team contributions in the areas of dairy product safety and international relations.

Mr. Sayler has been an IAFP Member since joining IAMFES in 1984 while working for the North Dakota Department of Agriculture. Throughout his membership, he has served on several Award Selection Committees and on the IAFP Nominating Committee. He was Vice President, President, and Delegate of the Association’s (then) North Dakota Affiliate. In 2007, he was elected Vice Chair of the Dairy Quality and Safety PDG, serving as Chair from 2009–2011. He received the Harold Barnum Industry Award in 2009.

Mr. Sayler has presented or organized symposia and workshops at nine national meetings involving national and international IAFP Members.
Dr. Peter Slade is a recipient of the 2020 IAFP Honorary Life Membership Award. Dr. Slade has more than 35 years’ experience as a food scientist and is now enjoying an active semi-retirement. He has worked in industry, most recently with Maple Leaf Foods in Mississauga, Ontario, as Senior Director, Regulatory Affairs (Food Safety and QA), and in the U.S. in corporate roles with McDonald’s Corporation and the Campbell Soup Company. Dr. Slade worked in academia for several years at the National Center for Food Safety and Technology (NCFST); now the Institute for Food Safety and Health (IFSH), part of Illinois Institute of Technology (IIT) in Chicago. He has extensive experience in Europe, the Middle East, and Southeast Asia.

Dr. Slade’s expertise is in food safety, quality, and microbiology, with working knowledge of traditional and novel processing technologies and controls. Active in HACCP design and application since its early years, he holds an interest in (emerging) food safety risk assessment, and has proficient knowledge of the Global Food Safety Initiative (GFSI); is trained in FSSC 22000 and SQF; and has a strong working knowledge of BRC. Recent interests include economically motivated fraud (food fraud) and “One Health” initiatives.

An IAFP Member since 1985, Dr. Slade is a member of several Professional Development Groups (PDGs) and served on the IAFP Nominating Committee, the IAFP Program Committee, and the Food Protection Trends Editorial Board. He has also participated on numerous scientific and technical panels and committees, and has often presented at meetings and symposia, contributing several dozen presentations, posters, and invited talks. He is an author or co-author of dozens of peer-reviewed and non-peer-reviewed papers.

Dr. Slade has been a member of the Institute of Food Technologists (IFT) for more than 20 years. He holds a Ph.D. in Food Science from the University of Guelph and a B.Sc. in Food Science/Microbiology from the University of Leeds (UK).

Dr. Mary Lou Tortorello is a recipient of the 2020 IAFP Honorary Life Membership Award. Dr. Tortorello is retired from a 38-year career in microbiology, 27 of which were in food safety research for the U.S. Food and Drug Administration (FDA). Dr. Tortorello was Supervisory Research Microbiologist and Chief of the Food Technology Branch, Division of Food Processing Science and Technology at the Moffett Center, in Bedford Park, Illinois, in collaboration between the FDA and Illinois Institute of Technology’s Institute for Food Safety and Health. Her research interests included microbiological methods, particularly food sample preparation and sampling, and the behavior and control of foodborne pathogens and bioterror agents in foods and food processing environments.

An IAFP Member since 1996, Dr. Tortorello has been a member of four Professional Development Groups and served on several Award Selection Committees and the Nominating Committee. She has also served on the IAFP Program Committee, including terms as Vice Chair and Chair, as well as on the Editorial Board of the Journal of Food Protection from 2002–2019.

Dr. Tortorello was Chair of the Food Microbiology Division of the American Society for Microbiology, Councilor for the Illinois Society for Microbiology, and a member of expert panels for the Institute of Food Technologists. She is Co-Editor of the Compendium of Methods for the Microbiological Examination of Foods, 5th Edition; and of the Encyclopedia of Food Microbiology. She has been Chief Editor of Food Microbiology since 2000.

Dr. Tortorello grew up in Chicago, Illinois and received her B.S. in Biological Sciences from Northern Illinois University; her M.S. in Biological Sciences from Loyola University of Chicago; and her Ph.D. in Microbiology from Cornell University. She did post-doctoral research at the Cornell College of Veterinary Medicine, where she also maintained collaborations with the Department of Food Science. After her post-doctoral appointment and before joining the FDA, she taught General Microbiology at Cornell College and was a Product Manager in the Diagnostics Division of Abbott Laboratories.
Dr. Gary Acuff is this year’s recipient of the Harry Haverland Citation Award. This award honors Dr. Acuff for his many years of dedication and devotion to the Association’s ideals and objectives. He is the President of Acuff Consulting, LLC, founded in 2018 to provide food microbiology expertise in commercial food production systems. Previously, Dr. Acuff was a Professor of Food Microbiology at Texas A&M University in College Station and served on the faculty for 39 years. He was Director of the Texas A&M Center for Food Safety and also served as Head of the Department of Animal Science at Texas A&M.

Dr. Acuff’s research has focused on improving the microbiological quality and safety of red meat and poultry in all areas of production and utilization, and most recent activities have centered on the effective use of surrogate bacteria for validation of process control in HACCP and Food Safety systems. Additional research interests have included characterizing the presence of *Campylobacter jejuni* in turkey processing and survival of pathogenic bacteria in low-moisture foods. He has authored or co-authored more than 100 peer-reviewed research publications in scientific journals and numerous chapters in various references and textbooks.

An IAFP Member since 1982, Dr. Acuff was the Association’s President from 2007–2008. Throughout his Membership, he has served on numerous committees, including the Foundation Committee, the Nominating Committee, several Award Selection Committees, and on both the IAFP Program Committee and the European Symposium Organizing Committee. Dr. Acuff also served on both the *Journal of Food Protection* Editorial Board and Management Committee and on the *Food Protection Trends* Management Committee, and is a member of several of IAFP’s Professional Development Groups (PDGs). He received the IAFP Fellow Award in 2013, the President’s Lifetime Achievement Award in 2019, and presented the IAFP 2018 Ivan Parkin Lecture.

Dr. Acuff is a Fellow in the American Academy of Microbiology and received his B.S. in Biology from Abilene Christian University and his M.S. and Ph.D. in Food Science and Technology, specializing in Food Microbiology, from Texas A&M University.

Clear Labs is the recipient of the 2020 Food Safety Innovation Award for its Clear Safety platform, the only automated, intelligent next-generation sequencing (NGS) platform that’s purpose-built for food safety testing. The company is based in San Carlos, California.

Leveraging the latest technology in genomics testing, bioinformatics, and robotics, the AOAC-approved Clear Safety platform helps food safety professionals reduce risk with pathogen screening which integrates further characterization. *Salmonella* serotypes and *Listeria* patterns are identified faster than ever and seamlessly mapped to virtual floorplans. These real-time insights enable a more rapid response to events.

The platform utilizes targeted sequencing, which looks only at specific locations of the genome that are useful for identifying distinct pathogens. Hundreds of millions of data points per analysis are generated, which can be used to learn far more than legacy screening platforms allow, and at significantly higher accuracy. By using Clear Safety, manufacturers can find advantage through the modernization of food safety management systems.

Clear Labs was founded in 2014 to aid food brands ushering in a new era of food safety with the most accurate and advanced testing capabilities. “In its mission to bring next-generation sequencing technology out of the clinical space and into food, Clear Labs truly represents the future of the industry,” said Mike Robach (former Vice President, Corporate Food Safety, Quality and Regulatory Affairs at Cargill and former Chairman of the Board of Directors of the Global Food Safety Initiative).
The 2020 International Leadership Award goes to Dr. Norma Heredia for her dedication to the high ideals and objectives of IAFP and her promotion of the mission of the Association in countries outside the U.S. and Canada. Dr. Heredia is Professor and the Chief of Laboratory at the Universidad Autónoma de Nuevo León in San Nicolas, Nuevo León, Mexico.

For the past two decades, Dr. Heredia has been one of the leaders in the advancement of Food Safety in Mexico. She is a member of the Mexican Academy of Science, where she was president of the Northeast Region. She served as President and is the current Delegate of the IAFP Affiliate, the Mexican Association for Food Protection.

More recently, Dr. Heredia has worked in the characterization of the ecology of pathogenic microorganisms associated with the fresh produce environment, producing more than 104 scientific documents, including the book, *Microbiologically Safe Foods*, published by John Wiley & Sons.

Dr. Heredia actively collaborates with the industry in training and problem-solving aspects through extension services and has also developed an extensive network of international collaborators, including with the University of Massachusetts, the U.S. Department of Agriculture (USDA), Cornell University, Emory University, North Carolina State University, North Dakota State University, the U.S. FDA, and Kagoshima University in Japan. She has also been involved in organizing many annual food safety conferences, including IAFP’s Latin American Symposium on Food Safety in 2016 and other IAFP Affiliate Meetings. For more than 20 years, Dr. Heredia organized a Rapid Methods Workshop in Mexico which attracted industry representatives from numerous countries.

Dr. Heredia has promoted food safety through presentations in more than 13 countries, some of which were sponsored by scientific organizations or industry, such as the FOHIS in the U.S., Japan, China and Poland, as well as bioMérieux at the ALAM Congress in Uruguay. She has also extended her expertise in microbiology of 3M Mexico.

Dr. Heredia has collaborated with organizations such as 3M, bioMérieux, GoJo Industries, and other international and Mexican companies in the validation, research, and innovation of various processes, with the participation of 88 undergraduate and graduate students, resulting in the joint publication of articles.

The recipient of the 2020 Food Safety Award (formerly the GMA Food Safety Award) is Mr. Joseph Stout. Mr. Stout began his career in 1982 with positions at Nabisco Brands in sanitation and quality. He subsequently continued working in these areas for Kraft Foods and subsidiaries until his retirement in 2010 as Global Director of Product Protection Sanitation and Hygienic Design. In this role, he was responsible for sanitation and hygienic design for approximately 250 plants worldwide.

While working in industry, Mr. Stout was actively engaged with trade organizations and served as the lead for the AMI team, which created the 10 principles of Sanitary Design. He also led the Dairy Management Inc. Food Safety Training, development, and execution. Within this process, Mr. Stout was engaged in creating the Dairy Management Inc. guidance document for control of *Listeria monocytogenes*. Created in 1999, the *Listeria* equation crystallizes core principles needed for *Listeria* control procedures in a holistic manner, is easy to understand, and was used as the backbone of the Dairy *Listeria* guidance document for training and in plant application.

Upon his retirement in 2010, Mr. Stout stayed involved with the food industry by founding and building the Commercial Food Sanitation (CFS) Company, where his extensive knowledge base could be shared. Founded in 2010, the company has 36 full-time food safety experts working with global and local companies. CFS also provides a three-day Sanitation Essentials Class and a separate Hygienic Design Class offered in the U.S., Amsterdam, and China. In 2019, CFS trained more than 700 people. Recognizing the challenges associated with cleaning machinery used in fresh-cut produce, Mr. Stout initiated a hygienic design summit, bringing together the right blend of fresh-cut processors, equipment manufacturers, and a handful of buyers who often drove change within the industry. After organizing this successful event, his question was ‘what’s next and how do we maintain momentum?’

Since then, Mr. Stout has rallied fresh-cut processors, leafy greens, and other diverse commodities to begin a systematic exploration, evaluation, and partnership in continuous improvement of equipment design with manufacturers. This effort expanded to include harvest equipment. His years of expertise have brought practical experience to the food industry, and his firm is recognized globally in the field of environmental controls.

An IAFP Member since 2013, Mr. Stout received the IAFP Sanitarian Award in 2015.
Dr. Claire Zoellner is the recipient of the 2020 Frozen Food Foundation Freezing Research Award. This award honors an individual, group, or organization for pre-eminence and outstanding contributions to research that impacts food safety attributes of freezing.

Dr. Zoellner is a Food Safety Scientist at iFoodDecisionSciences, Inc. (iFoodDS), where she manages research on developing and delivering pragmatic, science-based software tools for the food industry. She also leads the iFoodDS Listeria services and solutions program, focused on improving environmental monitoring programs in food processing facilities. Dr. Zoellner uses her expertise in microbial contamination, simulation models, and risk assessment to generate actionable information for managing food safety risks across the supply chain.

Prior to iFoodDS, Dr. Zoellner completed a postdoctoral research appointment at Cornell University aimed at developing modeling tools to address the risk of Listeria contamination in frozen foods. As a postdoc, she led the creation of an interactive database of Listeria research and guidance documents and development of two modeling tools for industry to design risk-based environmental monitoring programs (EnABLE) and quantify the public health impact from low-level contamination in non-ready-to-eat frozen foods (FFLLoRA). Through publications, industry workshops, and invited talks, as well as current commercialization efforts, she continues collaborating on the advancement of more digital and risk-based food safety programs in the frozen food sector. She was recognized as an emerging leader in food science with the Institute of Food Technologists’ (IFT’s) 2019 Emerging Leaders Network Award.

Dr. Zoellner received a B.S. in Food Science and Human Nutrition from the University of Illinois Urbana-Champaign and a Ph.D. in Food Science and Technology with minors in Epidemiology and Systems Engineering from Cornell University. Her foray into food safety began with a doctoral USDA National Needs Fellowship in International Food Safety, which she used to study microbial dynamics in an international supply chain of fresh tomatoes. For the impact and practicality of this research, she was awarded the Phi Tau Sigma Founders’ Award.

Dr. Zoellner joined IAFP in 2016 and received the IAFP Student Travel Scholarship that year.

Dr. Shivaramu Keelara is the recipient of the 2020 Institut Mérieux Young Investigator Award in Antimicrobial Resistance. The award recognizes an active IAFP Member who has shown outstanding ability and professional promise as a researcher in food microbiology/food safety, focusing on antimicrobial resistance.

Dr. Keelara is a Research Assistant Professor in the Department of Population Health and Pathobiology in the College of Veterinary Medicine in North Carolina State University in Raleigh, where he has made substantial contributions to the field of food microbiology and food safety. His research specifically focuses on the study of antimicrobial resistance (AMR) of major foodborne pathogens (Salmonella and ESBL E. coli and commensal bacteria (generic Escherichia coli and Enterococcus spp.).

Dr. Keelara uses rapid identification methods such as MALDI-TOF to identify different foodborne pathogens and commensal bacteria from food animals, humans, and the environment using a “One Health” approach. His research also explores genotyping methods such as whole genome sequencing to characterize the resistance determinants. In partnership with IBM, Dr. Keelara is using an artificial intelligence tool (IBM-WATSON) to develop an interactive, artificial intelligent enabled, user-friendly surveillance platform to analyze various factors associated with foodborne illness outbreaks and AMR burden, both retroactively and in real-time. Dr. Keelara also works extensively with the World Health Organization (WHO) as a collaborator and laboratory trainer/facilitator while implementing the Global Tricycle Project, which aims to establish global surveillance of ESBL E. coli in animals, humans, and the environment using a “One Health” approach in low- and middle-income countries.

Dr. Keelara’s passion for research continues with a strong commitment to exploring emerging technologies to address some of the most pressing global health issues related to antimicrobial resistance and food safety. He is actively involved in establishing collaborations with national and international partners from academia and government agencies who are active in these areas of research.

Dr. Keelara received his BVSc. & AH (DVM equivalent) from Bengaluru Veterinary College and hold a Master’s in Veterinary Public Health from the Indian Veterinary Research Institute (IVRI) in India. He received his Ph.D. from North Carolina State University with a focus on antimicrobial resistance of foodborne pathogens. Prior to his current position at the university, he was a research associate at the U.S. Department of Agriculture (USDA) in Beltsville, Maryland.

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Dr. Donald Schaffner is the recipient of the 2020 Maurice Weber Laboratorian Award. This award recognizes an IAFP Member for dedicated and exceptional contributions in the laboratory, and commitment to the development and/or application of innovative and practical analytical approaches in support of food safety.

Dr. Schaffner is Extension Specialist in Food Science and Distinguished Professor at Rutgers University, The State University of New Jersey in New Brunswick. His research interests include quantitative microbial risk assessment, predictive food microbiology, handwashing, and cross-contamination. He has educated thousands of food industry professionals through numerous short courses and workshops in the U.S. and dozens of countries around the world.

He has authored more than 180 peer-reviewed publications and numerous book chapters and abstracts, and has been the recipient of more than $8 million in grants and contracts, largely in the form of competitive national grants.

Dr. Schaffner has served on a variety of expert committees, including service to the U.S. National Academy of Sciences; the World Health Organization (WHO); the Food and Agriculture Organization (FAO) of the United Nations; the Institute of Food Technologists (IFT); and the U.S. National Advisory Committee on Microbial Criteria for Foods (NACMCF).

An active IAFP Member since 1989, Dr. Schaffner became the Association’s President in 2014. He has served on numerous IAFP committees, including several Award Selection Committees, the Nominating Committee, the European Symposium Organizing Committee, the IAFP Program Committee, and the Journal of Food Protection Management Committee, and is a current Editorial Board Member of both the Journal of Food Protection and Food Protection Trends. He received the Frozen Food Foundation Freezing Research Award in 2018, the IAFP Fellow Award in 2017, and the IAFP Elmer Marth Educator Award in 2009.

Dr. Schaffner was elected a Fellow of IFT in 2010 and of the American Academy for Microbiology in 2014. He holds a B.S. in Food Science from Cornell University and an M.S. and Ph.D. in Food Science and Technology from the University of Georgia. He is the co-host of the Food Safety Talk podcast on microbial food safety and the Risky or Not short podcast.

Si Hong Park
Corvallis, Oregon

in 2018. He has presented his research achievements at IAFP Annual Meetings since 2011 and served as a session organizer and convenor at IAFP 2018.

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BIOFRONTEC

Dr. Si Hong Park is the recipient of the 2020 Larry Beuchat Young Researcher Award, which recognizes a young researcher who has shown outstanding ability and professional promise in the early years of their career.

Dr. Park joined the Department of Food Science and Technology as an Assistant Professor at Oregon State University (OSU) in Corvallis in August 2017. He received both his B.S. and M.S. in Food Science and Biotechnology at Kyung Hee University in South Korea and completed his Ph.D. in the Cellular and Molecular Biology Program and postdoctoral training in the Department of Food Science at the University of Arkansas in 2013 and 2017, respectively.

Dr. Park’s research emphasis is on the food and human microbiome supplemented with food additives (prebiotics/probiotics) to understand the interaction between the host and microbes related to the food safety and quality using metagenomics and bioinformatics approaches. He integrated his wide range of research and teaching experiences to resolve fundamental questions related to the food microbiology and safety, as well as mentoring future prospective food microbiologists. To date, Dr. Park has published 75 peer-reviewed research papers, 11 review papers, nine book chapters, and two books as an editor. He is becoming a recognized food safety microbiologist nationally and internationally as evidenced by 17 invited talks since joining OSU.

Dr. Park was a recipient of the “Distinguished New Professor of the Year Award, 2019,” awarded by the students of the College of Agricultural Sciences at OSU, and received the Young Investigator Grant provided by the Korean American Scientists and Engineers Association (KSEA) in 2018. He has presented his research achievements at IAFP Annual Meetings since 2011 and served as a session organizer and convenor at IAFP 2018.
Dr. Jeffrey Farber is a recipient of the 2020 Ewen C.D. Todd Control of Foodborne Illness Award. This award recognizes an individual for dedicated and exceptional contributions to the reduction of risks of foodborne illness.

Dr. Farber is a Professor in the Department of Food Science at the University of Guelph in Ontario, Canada, where he oversees several graduate students, as well as M.Sc. Food Safety and Quality students. He is also the current President of a global food safety consulting company.

Dr. Farber previously worked at Health Canada as Director of the Bureau of Microbial Hazards in the Food Directorate of Health Canada, where he led a group of approximately 60 people working in various areas of microbial food safety. He has published more than 150 publications and numerous book chapters and has edited four books. He was Associate Editor of the *International Journal of Food Microbiology* for several years. Dr. Farber is also a consulting member and past Treasurer of the International Commission on Microbiological Specifications for Foods (ICMSF) and has extensive experience working at the international level with organizations such as Codex Alimentarius, WHO, and FAO.

An IAFP Member since 1992, Dr. Farber served many years on the Editorial Board of the *Journal for Food Protection (JFP)*; published numerous research papers in *JFP* and *Food Protection Trends*; and has presented his research results frequently at IAFP meetings in North America and globally. He was a member of the IAFP Program Committee for six years and a founding member of both the Produce and International Professional Development Groups (PDGs). He has also served on many Award Selection Committees and is the IAFP Report Contents Editor. Dr. Farber served as IAFP President in 2006 and received the Association’s Fellow Award in 2014, the Harry Haverland Citation Award in 2009, and the President’s Recognition Award in 2009.

Dr. Farber received his Ph.D. in Food Microbiology from McGill University in Montreal, Canada.

The 2020 Sanitarian Award goes to Mr. Rick Heiman. The Sanitarian Award honors an IAFP Member for dedicated and exceptional service to the profession of the sanitarian serving the public and the food industry. Mr. Heiman is Director of Corporate Hygiene for the Dairy Farmers of America in Kansas City, Kansas, where he leads a team of corporate sanitarians delivering leadership for hygienic design, hygienic practice, and food safety systems.

As a former Director of Global Hygiene, Director of Quality, and Corporate Sanitarian, Mr. Heiman has reduced food safety risk and increased the hygienic reliability of systems that are compliant with local regulations globally. He serves on committees and develops standards for GFSI, IAFP, 3-A SSI, EHEDG, IDFA, and the Innovation Center for U.S. Dairy. He is a frequent speaker on the topic of Hygienic Design for various organizations, including the University of Nebraska, FARRP, and the 3-A educational program.

Mr. Heiman earned a B.S. in Food Science and Nutrition from the University of Missouri and has completed post graduate education in low-acid canned foods, aseptic processing, and advanced statistics from North Carolina State University and the University of Arkansas. He is an American National Standards Institute Developer.

As a food manufacturing hygiene thought leader, Mr. Heiman was appointed to the GFSI hygienic design working group for global benchmarking standards; serves on the Board of Directors for 3-A Sanitary Standards, Inc. (SSI); and is an appointed liaison between 3-A SSI and the European Hygiene Engineering Design Group (EHEDG). Mr. Heiman joined IAFP in 1995.
ELMER MARTH EDUCATOR AWARD

Dr. Lynn McMullen is the recipient of the 2020 IAFP Elmer Marth Educator Award, which recognizes an IAFP Member for dedicated and exceptional contributions to the profession of education. Dr. McMullen is a Professor at the University of Alberta in Edmonton, Alberta, Canada, where she currently instructs students in B.Sc., M.Sc., and Ph.D. programs.

After obtaining her M.Sc. in 1998, and her Ph.D. in 1994 from the University of Alberta, Dr. McMullen began her academic career at the University where she became a full professor in 2006. She teaches undergraduate and graduate courses in food microbiology, food safety, and food fermentations. She also contributes to courses on science communication and animal health. She has graduated more than 50 M.Sc. and Ph.D. students who now work in academia, government, and industry positions.

Dr. McMullen is co-founder of CanBiocin Inc., a biotechnology company that commercialized research on use of bacteriocins to control foodborne pathogens. She was also responsible for the establishment of a biosafety level 2 meat processing facility at Agri-Food Discovery Place. She conceived the idea for the Meat Safety and Processing Research Unit, and secured national and provincial government and industry funding to build and equip the facility, which allows research with foodborne pathogens in conditions that simulate industrial practice.

Dr. McMullen joined IAFP in 1992, was the Co-Chair of the IAFP 2006 Local Arrangements Committee, and chaired the Program Committee for IAFP 2003 in New Orleans. For more than 20 years, she has served as Delegate for the IAFP Affiliate, the Alberta Association for Food Protection. Dr. McMullen currently serves on the Editorial Board for Food Protection Trends.

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HAROLD BARNUM INDUSTRY AWARD

As the recipient of the 2020 IAFP Harold Barnum Industry Award, Andrew Clarke is being honored for his dedication and exceptional service to IAFP, the public, and the food industry.

Mr. Clarke is the Senior Director Quality Assurance at Loblaw Companies Limited in Toronto, Canada, where he heads a dedicated team responsible for managing product safety and quality and supporting a diverse global supplier network. Throughout his career, Mr. Clarke has worked in a variety of roles associated with food safety and quality management in the manufacturing, food service, and retail sectors, and in food law enforcement for the UK Food Standards Agency.

While attending his first IAFP Annual Meeting in 2010 in Anaheim, California, Mr. Clarke saw a posting for a Director of Auditing at Maple Leaf Foods (Toronto), and joined its team in early 2011. In 2016, he moved to Subway Restaurants where he managed the team responsible for the Global Supplier Approval Program before joining Loblaw Companies Limited in 2019.

A 10-year IAFP Member, Mr. Clarke is also a member of several Professional Development Groups (PDGs). He is the current Vice Chair for the Audit and Inspection PDG and has judged the Developing Scientist Competition, is a Mentor for the IAFP Student PDG, and has presented in several symposia since 2010.

A Fellow of the Institute of Food Science and Technology, Mr. Clarke has participated for many years on several GFSI technical working groups, and has been an active participant on the BRC Global Standards North America Advisory Board, receiving the BRCGS CEO’s Award in 2019 for his work supporting small businesses and those in developing regions in raising food safety compliance standards.

Mr. Clarke completed his bachelor’s degree in Food Technology at the University of Wales Institute (Cardiff) and his master’s degree in Food Safety Management from the University of Central Lancashire.

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TRAVEL AWARD FOR A FOOD SAFETY PROFESSIONAL IN A COUNTRY WITH A DEVELOPING ECONOMY

Dr. Kolawole Banwo is a recipient of the 2020 Travel Award. Dr. Banwo is a lecturer and researcher in the Food Microbiology, Biotechnology and Safety Unit of the Department of Microbiology at the University of Ibadan in Nigeria, where he teaches undergraduate and postgraduate courses on food microbiology, safety assessment, quality control, and usefulness of food grade microorganisms, and mentors students in the areas of food safety and quality assurance. His current area of research is on the detoxification of mycotoxin and metabolites profile from traditional fermented foods in Nigeria using lactic acid bacteria and yeasts in collaboration with the Atlasafe Unit of the International Institute of Tropical Agriculture (IITA) in Ibadan.

Dr. Banwo received the University of Ibadan’s Teaching and Research Assistantship Award from 2009–2011 for his Ph.D. program, and received a postgraduate fellowship from the Institute of Microbiology at the Chinese Academy of Sciences in Beijing, China from 2008–2009 for part of his Ph.D. studies. He was awarded a travel grant from the Society for Applied Microbiology in the United Kingdom in 2018, and conducted a brief collaborative research visit in 2019 to the Department of Plant Sciences at North Dakota State University. He is a member of several microbiology professional organizations.

Dr. Banwo holds a B.Sc. and an M.Sc. in General Microbiology, and earned his Ph.D. in Food Microbiology from the University of Ibadan.

Chathudina Janitha Liyanage is a recipient of the 2020 Travel Award. Mr. Liyanage is a Senior Lecturer in the Department of Food Science and Technology at Sabaragamuwa University of Sri Lanka in Sri Lanka. He served as the Department Head from 2016–2019. Mr. Liyanage’s teaching focuses on food safety and risk analysis and, with more than 14 years as a lecturer, his expertise is in areas such as food process engineering and product development, dairy processing technology, process control and automation in food industry, and food quality management. His research interests cover several aspects of food technology, including valorization of food waste streams and food processing by-products; biobased polymers for food packaging; bacterial cellulose-based hydrogels and nanocomposites; bioconversion of organic wastes by black soldier fly larvae; and food safety issues of street-vendor food.

Mr. Liyanage obtained his B.Sc. with Honors in Food Science and Technology from Sabaragamuwa University of Sri Lanka and his M.Sc. in Food Technology and Nutrition from the Faculty of Engineering (LTH) at Lund University in Sweden. He also holds an M.Sc. in Entrepreneurship from the School of Economics and Management at Lund University.

Mr. Liyanage is an alumnus of the International Training Program in Food Safety, Quality Assurance and Risk Analysis at Ghent University in Belgium, for which he received a scholarship from the Flemish Interuniversity Council-University Development Cooperation (VLIR-UOS) in 2014. He is the National Representative of the ISEKI Food Association (IFA) and a member of the Global Harmonization Initiative (GHI) and of the National Codex Committee in Sri Lanka.
Dr. Muhammad Bilal Sadiq is a recipient of the 2020 Travel Award. Dr. Sadiq is Assistant Professor in the School of Life Sciences at Forman Christian College, a Chartered University in Lahore, Pakistan, where he teaches and supervises the research of graduate students enrolled in the food safety and quality management program. Prior to his current position, Dr. Sadiq worked as food safety consultant at NSF, Asia Pacific in Bangkok, Thailand. He also worked as a course instructor and was adjunct faculty at the Asian Institute of Technology in Thailand, where he supervised graduate students’ food science research projects. His research interests are in the field of food safety and quality management, including food preservation, food processing, food microbiology, food packaging, food safety data analysis, and food formulations.

Dr. Sadiq holds an M.S. and Ph.D. in Food and Bioprocess Technology from the Asian Institute of Technology in Thailand. He has published various research articles, book chapters, and reviews in international peer-reviewed journals in the field of food safety and quality. In 2017, Dr. Sadiq was selected by the European Union Erasmus+ Program as its young scientist to train in food safety-food quality and lab analysis at Montpellier SupAgro in France and Pisa University in Italy.
TRAVEL AWARD FOR STATE OR PROVINCIAL HEALTH OR AGRICULTURAL DEPARTMENT EMPLOYEES

Dietrich Blum is a recipient of the 2020 IAFP Travel Award. Mr. Blum is an Environmental Health Specialist with the New Hanover County Public Health Department in Wilmington, North Carolina, and works primarily in food protection conducting inspections of retail food establishments. He also works in several other areas of Environmental Health including Lodging and Institution Sanitation; Childhood Lead Poisoning Prevention; Child Care and School Sanitation; Public Swimming Pools; and Body Art.

Mr. Blum’s career has included decades of work in food service and food production, including kitchens, bakeries, farms, and food production facilities. He is a formally trained applied mycologist. His work and research experience in fermentation science includes cultivation/production of mushrooms, fungal mycelium, tempeh, and other fermented foods. He has worked in fungal breeding, mushroom spawn production, and researched the use of secondary fungal metabolites to inhibit pathogenic organisms. His experience and interests are in reduced oxygen packaging, pasteurization, propagation and farming of non-timber forest products, and collection of foraged foods.

Mr. Blum holds a B.S. in Biology from Warren Wilson College, an M.S. in Plant, Soil, and Environmental Science from North Carolina A&T State University, and an Advanced Graduate Certificate in Waste Management from North Carolina A&T State University.

Veronica Bryant is a recipient of the 2020 Travel Award. Ms. Bryant is the Environmental Health (EH) Preparedness and Outbreak Coordinator for the North Carolina Environmental Health Section within the NC Division of Public Health, with more than 13 years of experience in state and local public health. She holds a bachelor’s degree in Chemistry from Appalachian State University. In her current role with NC Public Health, she is responsible for providing training and technical assistance for local environmental health specialists regarding special events, outbreak investigations, and emergencies.

Ms. Bryant is an active member of the North Carolina Variance Committee, the Conference for Food Protection, and the North Carolina Food Safety and Defense Task Force, where she has served as the Chair for 2019–2020. She also served as the Chair of the Product Assessment Committee for CFP from 2018–2020 and was chosen as a member of CFP Council III for the 2018 and 2020 biennial meetings. Since 2017, she has been a lead instructor for the NC State Validation and Verification of HACCP Plans at Retail.

Since receiving the 2016 Travel Award and attending her first IAFP Annual Meeting that year in St. Louis, Missouri, Ms. Bryant has been an active member of the Retail Food Safety PDG and currently serves as Vice Chair of the Webinar Committee. She also served on several panels at IAFP 2019 and has delivered four technical presentations.
TRAVEL AWARD FOR STATE OR PROVINCIAL HEALTH OR AGRICULTURAL DEPARTMENT EMPLOYEES

Leslie Cobb is a recipient of the 2020 Travel Award. Ms. Cobb is an Environmental Health Program Administrator and a duly Registered Sanitarian in the Commonwealth of Kentucky at the Kentucky Department for Public Health’s Food Safety Branch. She is the Coordinator of the Kentucky Rapid Response Team, the Environmental Strike Team, and the Produce Safety Cooperative Agreement Program.

Prior to her current position, Ms. Cobb served as the State Food Labeling Compliance Specialist with oversight of the Statewide Food & Cosmetic Product Labeling Compliance Review Program. In this role, she reviewed food and cosmetic product labels of products manufactured in the state for compliance with the state and federal code of regulations while coordinating the work of field staff in Food & Cosmetic Product Labeling Compliance per the Food and Drug Administration Code of Federal Regulations.

From 2007–2017, Ms. Cobb served as an Environmental Health Inspection Program Evaluator for the Kentucky Food Safety Branch’s Retail Food Program and as an FDA Certified Food Program Inspection Training Officer providing food code standardizations, technical assistance, consultation, and trainings for the Kentucky Local Health Departments’ Environmental Health staff, including food safety trainings for industry and Food Core trainings for new Health Inspectors. Ms. Cobb also served as a Conference Officer conducting Administrative Conferences for local health departments for food code enforcement in Kentucky. She started her Public Health career in 2003 at the Lexington–Fayette County Health Department as an Environmental Health Specialist, a Food Manager Certification Course Instructor, and a Swimming Pool Operators Certification Course Instructor.

Ms. Cobb received her bachelor’s degree from the University of Kentucky and currently resides in Frankfort, Kentucky near the beautiful State Capitol.

Taryn Hurley is a recipient of the 2020 Travel Award. Ms. Hurley is the Laboratory Quality Manager for the Oklahoma Department of Agriculture, Food, and Forestry (ODAFF). In 2015, shortly after graduating from the University of Central Oklahoma with her B.S. in Chemistry–Sciences, Ms. Hurley began her career as an Environmental/Chemical Laboratory Scientist I for ODAFF analyzing environmental water samples from around the state.

In early 2018, Ms. Hurley transitioned to the quality manager position which oversees the quality assurance program and quality systems of five different laboratories within ODAFF. Among these laboratories, there are three quality systems, two Quality Assurance Project Plans (QAPPs), two accrediting bodies, and agreements with the Environmental Protection Agency (EPA), the U.S. Food and Drug Administration (FDA), the U.S. Department of Agriculture (USDA), and other local agencies and organizations. Her duties include ensuring staff receives regular safety and ethics training as well as quality system training when needed. The experience of shifting from performing regular environmental chemical analysis to managing quality systems, internal and external audits, and required standards for chemistry, microbiology, and metrology has been a considerable and thrilling challenge. She continually seeks to grow within her position and her career to better serve her colleagues and Oklahomans as a whole.

Ms. Hurley is incredibly honored to be selected as a recipient of this year’s Travel Award.
Temesgen Jemaneh is a recipient of the 2020 Travel Award. Dr. Jemaneh is a Sanitarian for the Food Safety and Hygiene Inspection Services Division for the District of Columbia Department of Health in Washington, D.C., where he has been employed since 2013. He currently works as a food safety inspector and is a member of the Food Protection Task Force and FSHISD Rapid Response Team, where members play a vital role as first responders to all confirmed foodborne illness complaints.

Dr. Jemaneh has several years of experience in public health as an instructor, regulator, and consultant. His public health expertise is accurately reflected in his written reports, published research, and interaction with the public and stakeholders served by the Department of Health.

Dr. Jemaneh previously worked as an Environmental Health Specialist for Prince George’s County Health Department in Maryland. He began his career as an Environmental Health Specialist in Metema Hospital and has expertise in investigating, inspecting, and monitoring environmental impacts, foodborne illnesses, and Occupational Health and Safety supervision of institutions. Dr. Jemaneh received his undergraduate degree in Environmental Health from Jimma University; his M.Sc. from the University of Salford in Occupational Health and Safety; and his doctorate in Public Health Specialization in Epidemiology from Capella University.

Kendra Kilawee is a recipient of the 2020 Travel Award. Ms. Kilawee is a Bacteriologist for the Minnesota Department of Agriculture in St. Paul. After earning her undergraduate degree in Applied Science from the University of Wisconsin – Stout, she began work as a Microbiologist in a small satellite lab for the Institute for Environmental Health in South St. Paul, Minnesota. From there, Ms. Kilawee transitioned to the State of Minnesota, where she has spent the last three years in the microbiology unit testing food, feed, and dairy samples. Seven years into her microbiology career, she is near completion of her master’s in Food Safety from Michigan State University, with an expected graduation date of December 2020.

Ms. Kilawee’s enthusiasm in food safety is a combination of her interest in microbiology and her observations made while working in the service industry as a cook, dietary aide, and serving. Throughout the years, she witnessed patterns of ignorance and disrespect for food safety, creating an innate passion toward helping keep our food supply safe. She deeply cares about the safety and health of our communities and is constantly curious about the reasons people become sick from food and the precautions that can be taken.

As a continuous learner of food safety, Ms. Kilawee is excited to take part in her first IAFP Annual Meeting.
Cameron Bardsley is a Ph.D. student in the Department of Food Science and Technology at Virginia Tech in Blacksburg and at the Eastern Shore Agricultural Research and Extension Center in Painter. He is earning his degree under the direction of his advisor, Dr. Laura Strawn, and his committee members, Drs. Renee Boyer, Steven Rideout, Gregory Welbaum, and Robert Williams. He earned a B.S. in Food Science at Brigham Young University where he gained a passion for food safety research.

Mr. Bardsley’s current area of research is in produce safety, more specifically his dissertation focuses on factors that influence the survival of *Salmonella* in agricultural soils and internalization in Solanaceous crops, such as tomatoes and bell peppers during preharvest production. This research is very poignant due to outbreaks of *Salmonella* linked to tomatoes on the Eastern Shore of Virginia. He hopes his research will benefit growers in order to implement practices that could prevent potential internalization events from occurring. Along with this research, Mr. Bardsley has been working with a fresh produce packinghouse identifying potential *Listeria* persistence in packinghouse environments and performing a root cause analysis to eliminate *Listeria* persistence. This research aims to assist produce packinghouses to properly identify potential *Listeria* persistence and determine mitigation strategies to evaluate the root cause of persistence. He looks forward to presenting this research at the upcoming IAFP 2020 Annual Meeting.

Since joining IAFP in 2015, Mr. Bardsley has been involved in numerous PDGs and has presented his research at several IAFP Annual Meetings. He received second place in the 2019 J. Mac Goepfert Developing Scientist Competition for his poster presentation. Mr. Bardsley is appreciative of everything IAFP has done for him and the opportunities this wonderful organization has provided him, and is honored to receive the Student Travel Scholarship to take part in this year’s Annual Meeting.

Brianna Britton is a Ph.D. candidate in the Department of Food Science at Purdue University in West Lafayette, Indiana, under the direction of Dr. Haley Oliver. Ms. Britton earned her B.S. and M.S. in Animal Science from Colorado State University in 2015 and 2018, respectively. Her M.S. research predominately focused on the efficacy of various antimicrobials applied to beef and poultry products, but also included experience with many other aspects of meat safety and quality.

Ms. Britton is currently managing two very diverse projects that have allowed her to further develop her skills in molecular microbiology while gaining exposure to international food safety and security. Her primary dissertation project is aimed at developing a predictive risk model to assist retailers in identifying stores with high risk of *Listeria monocytogenes* contamination. The goal of this project is to provide retailers with a novel approach to assessing *L. monocytogenes* risk through a combination of predictive modeling and minimal in-store sampling. Ms. Britton’s other research focus is assessing microbial contamination of groundnuts in Senegal, including evaluation for aflatoxins, *Enterobacteriaceae*, coliforms, and yeast and molds. This analysis will be conducted in conjunction with a large survey to understand producer knowledge of potential foodborne illness and to determine their willingness to pay for antimicrobial products to reduce this contamination. Ultimately, these data will be utilized to inform future development and capacity-building endeavors in Senegal.

Ms. Britton is honored to receive the IAFP Student Travel Scholarship to take part in IAFP 2020. She intends to utilize this experience to expand her network among academics, industry, and government personnel, while improving her knowledge base of both domestic and international food safety and security. She is excited to utilize the knowledge gained during this year’s Annual Meeting in her future research endeavors.
Alessia Delbrück is a doctoral candidate in the Laboratory of Sustainable Food Processing at ETH Zurich in Zurich, Switzerland. Ms. Delbrück obtained both her B.Sc. and M.Sc. in Food Science from ETH Zurich, with an exchange semester at the University of Copenhagen in Denmark. She conducted her undergraduate thesis under the supervision of Professor Martin Loessner and investigated synergistic effects of bacteriophage endolysins and other antimicrobial agents for effective control of Listeria.

Ms. Delbrück majored in food quality and safety and received the ETH medal for her Master’s thesis on bioprotective lactic acid bacteria cultures under the supervision of Professor Leo Meile. After graduation, she worked for two years in the leading Swiss food company, Migros, before returning to ETH Zurich for her doctoral studies in the group of Professor Alexander Mathys. In her doctoral research, she investigates high-pressure super dormant bacterial spores in order to contribute to the development of a mild and effective non-thermal, pressure-based control strategy for bacterial spores.

Ms. Delbrück received the 2020 European Student Travel Scholarship and will be honored with this award at the 2021 European Symposium on Food Safety in Munich, Germany.

Erika Estrada is a Ph.D. candidate in Dr. Linda Harris’ lab at the University of California – Davis. Ms. Estrada’s research focuses on understanding cross-contamination routes, transfer rates, and investigating the genetic differences of foodborne pathogens causing safety problems to the tree nut industry. Her ultimate career goal is to become a researcher and extension faculty member to collaborate with other scientists in developing and implementing food safety workshops and/or educational materials to improve food safety issues in developing countries.

Born and raised in Tangancicuaro, a small town in southwest Mexico, Ms. Estrada moved to the U.S. in 2010 to pursue a college education, attending community college and, after learning English, transferring to UC-Davis. During her senior year, she had the opportunity to work for Dr. Trevor Suslow and discovered her passion for food safety. In 2017, she began her journey as a graduate student at Virginia Tech, working under the supervision of Dr. Laura Strawn. Ms. Estrada’s research thesis aimed to study the prevalence, persistence, and diversity of Listeria in produce packing houses. During this time, she also presented numerous workshops to bring food safety awareness to consumers and stakeholders at different local and regional food and agricultural conferences.

Ms. Estrada has a passion for teaching, becoming a microbiology professor while finishing her Master’s at the Virginia Eastern Shore Community College. As an instructor, she found it extremely rewarding to encourage and mentor students through their academic path.

Ms. Estrada received first place in the J. Mac Goepfert Developing Scientist Competition at IAFP 2019 for her technical presentation. She is extremely honored to be awarded one of the 2020 IAFP Student Travel Scholarships and hopes this meeting will allow her to obtain cutting-edge knowledge about food safety research, expand her professional network, and contribute to the conference by sharing her research projects and personal experiences.
Emily Forauer is an M.S. student in the Department of Nutrition and Food Sciences at the University of Vermont in Burlington, studying under the direction of Dr. Andrea Etter. Ms. Forauer earned a B.S. in both Food Science and Animal Science and an M.S. in Food Science from North Carolina State University. Her undergraduate research focused on mitigating food safety risks at agritourism venues, while her M.S. research focused on food safety culture surrounding the implementation of novel temperature monitoring technologies in university dining halls.

Ms. Forauer currently researches the prevalence of antimicrobial resistance as it relates to pre-harvest food safety, specifically in beef cattle. She also serves as a teaching assistant for an undergraduate food microbiology lab. She greatly enjoys introducing food microbiology and laboratory techniques to a plethora of science majors.

For the past two years, Ms. Everhart has been the Student Liaison for the Pre Harvest Food Safety Professional Development Group (PDG). She has enjoyed the connections made within this PDG and looks forward to continuing discussing new research and ideas within this field. She has also been able to present her B.S. and M.S. research at various IAFP Annual Meetings.

Ms. Forauer is very honored to have been selected as a recipient of the IAFP Student Travel Scholarship. She owes many of her professional connections to IAFP Annual Meetings and is excited to continue learning about various aspects of food safety.

Savana Everhart is a Ph.D. student in the Department of Animal & Food Sciences at Texas Tech University in Lubbock under the direction of Dr. Guy Loneragan. Ms. Everhart received a B.S. in both Food Science and Animal Science and an M.S. in Food Science from North Carolina State University. Her undergraduate research focused on mitigating food safety risks at agritourism venues, while her M.S. research focused on food safety culture surrounding the implementation of novel temperature monitoring technologies in university dining halls.

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For the past two years, Ms. Everhart has been the Student Liaison for the Pre Harvest Food Safety Professional Development Group (PDG). She has enjoyed the connections made within this PDG and looks forward to continuing discussing new research and ideas within this field. She has also been able to present her B.S. and M.S. research at various IAFP Annual Meetings.

Ms. Everhart is very honored to have been selected as a recipient of the IAFP Student Travel Scholarship. She owes many of her professional connections to IAFP Annual Meetings and is excited to continue learning about various aspects of food safety.
Ahmed Gomaa is a Ph.D. candidate in Food Science at Alabama A&M University in Huntsville. A native of Alexandria in northern Egypt, Mr. Gomaa received his B.S. in Food Science from Alexandria University in Egypt and his M.S. in Nutrition Science from Brooklyn College in New York. His research is in food microbiology and nutritional biochemistry, with the overall goals being to assess the effects of synbiotics on inflammation and its antimicrobial effects as an alternative to antibiotics on the growth of antibiotic-resistant *Salmonella heidelberg*. Results from this research will benefit the livestock industry by inclusion of probiotics in the animal diet to reduce pathogens without using antibiotics. Furthermore, results will also emphasize the importance of synbiotics as a supportive treatment for metabolic syndrome with aims of developing functional foods that can cost less while providing the adequate number of phytochemicals, prebiotics, and probiotics.

Since childhood, Mr. Gomaa has harbored a curiosity for human bodies, food, vitamins, and everything from lunch boxes to food factories. He is a member of several professional organizations, including the Institute of Food Technologists Student Association (IFTSA), where he has served on the executive board of his local chapter’s organization (AAMU Food Science Club); Minorities in Agriculture; Natural Resources and Related Science (MANRRS); and Phi Tau Sigma AAMU Chapter. In 2019, Mr. Gomaa’s research abstract was selected as a finalist in the IFT Muscle Foods graduate research competition. He also presented a poster that same year in the Food Microbiology division.

Mr. Gomaa is looking forward to participating in IAFP 2020 and is extremely honored to be one of the recipients of the IAFP 2020 Student Travel Scholarship, which he believes will bring him closer to his career goals and interest working in the food safety industry.

Marti Hua began his Ph.D. in January 2020 in the Faculty of Land and Food Systems at the University of British Columbia (UBC) in Vancouver, British Columbia, Canada, where he earned both his B.S. and M.S. in Food Science. Under the supervision of Dr. Xiaonan Lu, Mr. Hua has focused on the development of novel sensors to detect chemical hazards in foods, including a pesticide sensor involving molecularly imprinted polymers coupled with surface-enhanced Raman scattering for his undergraduate degree, and a microfluidic paper-based device to detect food allergens for his Master’s. His doctoral research work will touch on developing smart sensors for natural toxin analysis (e.g., mycotoxins, marine toxins) in response to the urgent needs of hazard monitoring by the regulatory agencies and the food industry.

Mr. Hua also helps instruct the Food Analysis course at UBC as a teaching assistant and manages the chemistry laboratory for the research group to which he belongs. Since joining in 2016, he volunteers and helps organize student networking and many other events for the IAFP Affiliate, the British Columbia Food Protection Association.

Mr. Hua is extremely honored to receive the Student Travel Scholarship and very grateful for IAFP’s support that offers him the opportunity to present his M.S. work and to learn from great researchers and professionals from around the world.
Xingyi Jiang is a third-year Ph.D. candidate in the Department of Nutrition, Food and Exercise Sciences at Florida State University in Tallahassee, where she also obtained her M.S. She earned a B.S. in Food Quality and Safety at Nanjing Agriculture University in China.

Ms. Jiang’s research interest is utilizing immunochemical techniques to develop assays for food adulterant detection. Food adulterants may induce economic fraud, food recalls, and pose negative health impacts such as food allergy. She has identified animal meat marker proteins such as hemoglobin and skeletal troponin complex and established several immunoassays to detect them. It is expected that these assays can be utilized by the government and the food industry for surveillance in food safety. One of her current research projects focuses on the assay development for the major fish allergen.

As a teaching assistant, Ms. Jiang has taught Foods Laboratory and Food Science Laboratory. She also actively took the lead in undergraduate research projects, enjoying this experience with the undergraduates.

Ms. Jiang is extremely honored to receive the IAFP Student Travel Scholarship. She hopes to share her research findings, communicate with other students majoring in food science, and learn from other food safety professionals.

Xinyu Liao is a Ph.D. candidate in the College of Biosystems Engineering and Food Science of Zhejiang University in Hangzhou, China, where she also obtained her undergraduate degree in Food Safety and Nutrition in 2016. During her undergraduate studies, Ms. Liao worked on the hurdle treatment of ultrasound and slightly acidic electrolyzed water for tackling the foodborne pathogen \textit{Staphylococcus aureus}.

Ms. Liao’s current research centers on non-thermal plasma (NTP), an emerging decontamination technology to assure food safety which has gained increasingly global attention in recent years. She has completed work on the microbial inactivation mechanisms of NTP, along with the application of NTP for food decontamination and environmental hazard degradation. These works have yielded her more than ten first-authored publications in high-impact journals during the last four years. Her recent focus is on the potential risks for the induction of the microbial stress responses, especially the viable but non-culturable (VBNC) state, during NTP process.

Ms. Liao feels greatly honored to receive the IAFP Student Travel Scholarship to participate in IAFP 2020, where she has the invaluable opportunity to share her current research work about the molecular mechanisms of VBNC \textit{S. aureus} induced during NTP treatment. She also hopes to communicate with experts in food safety and science and learn more constructive knowledge about advanced topics in the field of food safety and quality.
Claire Marik completed her M.S. in Food Science in May 2020 from Virginia Tech in Blacksburg, Virginia under the direction of Dr. Laura Strawn. Ms. Marik also earned her B.S. in Food Science with minors in Chemistry and Public Health from the University of Delaware in 2018.

Throughout her undergraduate and graduate career, Ms. Marik’s research focused on pre- and post-harvest food safety. She conducted research focused on enhancing produce safety and benefiting stakeholders by allowing industry professionals to evaluate the risk associated with different practices used throughout the produce farm-to-fork continuum. Ms. Marik’s master’s research focused on examining the impact and risks associated with the use of anaerobic soil disinfestation (ASD), a non-chemical soil fumigation alternative, and the soil amendments used during the ASD process on Salmonella soil populations and serovar specific survival.

Ms. Marik attended her first Annual Meeting in 2017 in Tampa, Florida and hasn’t missed a meeting since! Since joining IAFP, she has participated in numerous PDGs and IAFP activities and presented her research at several Annual Meetings. She is extremely honored to receive the IAFP 2020 Student Travel Scholarship from such an exceptional association and is excited to share her research, connect with other students, and network with experts in the field.

Francis Muchaamba is a Ph.D. candidate at the Institute for Food Safety and Hygiene, University of Zurich in Zurich, Switzerland, under the direction of Dr. Taurai Tasara and Professor Roger Stephan. Mr. Muchaamba earned a Bachelor’s of Veterinary Science at the University of Zimbabwe and a DVM at the University of Zurich. In his Ph.D. studies, he is investigating how cold-shock domain family proteins contribute to regulation of virulence and stress resistance mechanisms in the foodborne pathogen, Listeria monocytogenes, as well as the potential use of potassium lactate as a sodium chloride replacer to reduced salt levels used in salami production. The overall goals of his research are to improve understanding of virulence factors and molecular mechanisms underpinning the impact of foodborne pathogenic microorganisms on public health. An author/co-author of five articles to date, Mr. Muchaamba hopes the knowledge gained through his work will aid in developing strategies for enhancing food safety.

A native of Zimbabwe, Mr. Muchaamba is highly motivated by the lack of in-depth analysis of food safety hazards in his home country and believes that addressing these issues paves the way for improving food safety and the development of potential lifesaving interventions. During his studies, he intends to acquire knowledge and skills to improve global food safety. He aims to use his education in giving back to underserved populations worldwide by improving food safety through research and training of upcoming scientists in the developing world where skills are limited.

Mr. Muchaamba is greatly honored to receive the Student Travel Scholarship to participate in IAFP 2020, where he intends to share his work and network with experts in the field, possibly generating collaborations and new insights and ideas to improve his research.
Kizito Nishimwe
Iowa State University
Ames, Iowa

Kizito Nishimwe is a Ph.D. candidate in the Department of Food Science and Human Nutrition at Iowa State University in Ames under the supervision of Dr. Dirk E. Maier. Mr. Nishimwe received his Doctorate in Veterinary Medicine (DVM) from Inter-State School of Sciences and Veterinary Medicine (known as EISMV [Ecole Inter Etat des Sciences et Medicine Veterinaire]) in Dakar, Senegal and his M.Sc. from the University of Liege in Belgium. His Ph.D. research focuses on mitigation of aflatoxins and fungal toxin metabolites in commodities, especially exploring the potential of High Voltage Atmospheric Cold Plasma (HVACP) technology to degrade aflatoxins.

Mr. Nishimwe is extremely grateful to receive the IAFP 2020 Student Travel Scholarship and take part in IAFP 2020. This honor will not only be an excellent opportunity for building his capacity in food safety, especially in food contaminants, but also a unique occasion to establish professional networks with research partners to efficiently handle food safety concerns in his home country of Rwanda.

Duke Gekonge Omayio
University of Nairobi
Nairobi, Kenya

Duke Gekonge Omayio is currently a Ph.D. student in the Department of Food Science, Nutrition and Technology at the University of Nairobi in Kenya, where he also obtained his B.Sc. in Food Science and Technology and his M.Sc. in Food Safety and Quality.

Mr. Gekonge’s current research is on natural guava processing, focusing on developing affordable fruit processing techniques that can be adopted at the household levels to produce commercially viable, safe, and nutritious biofortified natural guava nectars to tackle malnutrition, as well as improve guava farmers’ households. Guavas in Kenya grow naturally and are neglected crops despite their nutritional and economic potential. Natural guava processing is non-existent, resulting in annual losses of as much as 11,000 tons.

Through his work, Mr. Gekonge has developed, patented, and market-tested nutritious and safe natural guava nectars. He intends to develop training manuals for SMEs on guava processing at the end of his study and hopes to establish processing facilities within the study areas to promote sustainable guava value chains within Kenya, his native country.

Mr. Gekonge is also involved in promoting food safety education through the Food Science and Technology Platform of Kenya (FoSTeP–K), currently serving as Director of Communications. He is privileged to be a recipient of the IAFP 2020 Student Travel Scholarship and looks forward to interacting and advancing his food science, safety and technology and professional skills with other global and emerging food science leaders.
Katie Overbey is a Ph.D. candidate in Environmental Health and Engineering at Johns Hopkins University’s Bloomberg School of Public Health in Baltimore, Maryland, under the direction of Dr. Kellogg Schwab. Ms. Overbey received a B.S. in Environmental Science from the University of North Carolina at Chapel Hill and an M.S in Food Science from North Carolina State University. Her past research includes studying antimicrobial-resistant bacteria on the beaches of the Galápagos Islands, directing citizen scientists in airplane surface swabbing, and combing through Twitter to better understand food safety knowledge gaps.

Ms. Overbey’s dissertation work focuses on norovirus, the leading cause of foodborne illness. Specifically, she uses the novel norovirus cell culture model, developed in 2014 at Baylor University, to grow norovirus and to improve environmental detection of the virus. Ms. Overbey is passionate about translating bench science to real world applications and communicating science to broader audiences. In addition to her bench work, she works as an assistant for the public relations team at the Center for a Livable Future and is the communications lead for the Johns Hopkins Surveillance and Outbreak Response Team.

Ms. Overbey is thrilled to receive the Student Travel Scholarship to participate in IAFP 2020, where she will present her work on applying the norovirus cell culture model to environmental swabbing. After completion of her doctorate, Ms. Overbey hopes to take a government position that will allow her to use both her love of research and communication.

Angélica Godínez Oviedo is currently a Ph.D. student in the Food Science Program at the Universidad Autónoma de Querétaro, and recently enrolled in a double doctoral degree program at the University of Tasmania in Hobart, Australia, under the direction of Dr. Montserrat Hernández Iturriaga and Dr. John P. Bowman, respectively. Ms. Godínez holds a B.S. in Food Chemistry from the Universidad Autónoma del Estado de Hidalgo, where her research focused on the evaluation of natural disinfectant against foodborne pathogens, resulting in an issued patent. She earned her M.S. in Food Science and Technology at the Universidad Autónoma de Querétaro, working on contamination and distribution patterns of Listeria monocytogenes in a food processing plant.

In 2017 and 2019, Ms. Godínez received the Research Paper Award from the International Committee on Food Microbiology and Hygiene of the International Union of Microbiological Societies at the 19th and 21st International Food Safety Conferences. Her doctoral thesis research focuses on a quantitative risk assessment of Salmonella on foods in the central region of Mexico. The project’s aim is to investigate the genotypic and phenotypic intraspecies variability of Salmonella and to evaluate how they could be related to the risk of contracting a foodborne illness.

Ms. Godínez is a member of a divulgator collective with the mission to make scientific information regarding food safety and quality available for people using everyday language. She is tremendously honored to receive the IAFP Student Travel Scholarship to take part in IAFP 2020, allowing her to share her proposed risk ranking of food items associated with Salmonella spp. in central Mexico, as well as to develop relationships with experts in the field and initiate new research projects. Her goal after completing her doctorate is to work in the academy as a research professor and interact with the food industry, health department, and society to develop strategies to control foodborne diseases.
Dácil Rivera is a Ph.D. candidate in the interdepartmental of Nutrition and Food Science Program at the Universidad de Chile in Santiago under the supervision of Dr. Andrea Moreno-Switt from the Universidad Andres Bello and Dr. Paola Navarrete from the Institute of Nutrition and Food Technology (INTA). Ms. Rivera completed her M.S. in Veterinary and Animal Science at the Universidad de Chile. Her master’s thesis research focused on patterns of antimicrobial resistance in *Listeria monocytogenes* obtained from food and human samples. She is currently concluding her doctoral thesis, "*Felixounavirus* phages to control *Salmonella* Infantis in chicken matrices.”

Early in her professional career, Ms. Rivera completed an internship at the Istituto Zooprofilattico Sperimentale del Lazio e della Toscana in Rome, Italy. She returned to Chile to complete her master’s at the university and joined the Universidad Andres Bello academic team. Ms. Rivera has been working in food safety for more than seven years with her research focused on foodborne pathogens and using phages as biocontrol, participating in different research projects, including the FONDECYT grant 11140108 project, “Genetic Diversity of *Salmonella* Phage and CRISPR Spacer Arrays.” She also participated as a co-researcher of the UNAB-regular grant, DI130016/RG: “Immobilization of *Salmonella* Enteritidis phages on chitosan film, in vitro and in food.”

Ms. Rivera currently participates as a research assistant in the FONDECYT grant 1181167 “*Salmonella*-bacteriophage co-evolution and their genetic modifications during lifestyle cycles of *Salmonella* on non-host and host environments,” as well as the FONDEF-grant-2018 “FageCapsuleS, micro-encapsulated *Salmonella* phages.”

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Thiago Sugizaki dos Santos is completing his undergraduate degree in Food Science at the Luiz de Queiroz College of Agriculture of the University of São Paulo (Esalq/USP) in Brazil. Mr. Santos is currently developing a research project on the microbiological quality and safety of organic and conventional fresh produce. In this project, the occurrence of *Salmonella* has been investigated by using conventional and molecular (qPCR) methods, while bacteria belonging to the *Enterobacteriaceae* family have been identified by MALDI-TOF. The results will be used as input data in a risk model to be constructed, aiming to estimate the health impacts associated with the consumption of leafy vegetables produced by both farming systems. The project is supervised by Dr. Daniele Maffei, developed in the frame of the Food Research Center (FoRC), and supported by the National Council for Scientific and Technological Development (CNPq, Brazil).

Mr. Santos is very pleased to receive the Student Travel Scholarship Award. He plans to apply for a master’s in Food Science in 2021, and hopes the IAFP Annual Meeting will be an excellent opportunity for him to learn from academic and industry experts, as well as contribute to this area with the presentation of his current findings.
Mathilde Trudel-Ferland is a first-year Ph.D. candidate in the Department of Food Science at Laval University in Quebec City, Quebec, Canada. Her work is supervised by Professor Julie Jean and Dr. Fabienne Hamon. Ms. Trudel-Ferland obtained her B.Sc. in Food Science and Technology at Laval University and undertook an accelerated transition for her master’s in Food Science toward her doctoral studies.

Ms. Trudel-Ferland’s current research focuses on the development of routine concentration and detection methods to control viral foodborne illnesses. She aims to develop two new viral concentration approaches into a research project involving industrial partners, working on the steps of food sample preparation that allows the concentration and the purification of viruses for a simple and fast molecular detection.

Ms. Trudel-Ferland’s thesis is in line with her well-defined career ambitions to become a research professor and to innovate in the field of diagnostics in food safety. She is dedicated to contributing to the advancement of detection methods that will facilitate the establishment of enteric virus surveillance programs and allow for better control and prevention of foodborne viral outbreaks.

As a teaching assistant, Ms. Trudel-Ferland assists undergraduate students and helps develop teaching material for Food Microbiology courses. She also participates in various student initiatives promoting food science to the general public, as she sees the popularization of science essential to the transfer of scientific knowledge.

Ms. Trudel-Ferland is extremely honored to receive the Student Travel Scholarship award and take part in IAFP 2020, when she will present results from her recent works on the development of an ultrafiltration method for virus concentration in fresh produce. She is eager to learn about the different trends in food safety research and to discuss with experts and students from her research field.

Ingrid Zamora is a Ph.D. candidate in the Australian Research Council (ARC) Industrial Transformational Training Centre (ITTC) for Food Safety in Fresh Produce at The University of Sydney in New South Wales, Australia, under the supervision of Dr. Floris Van Ogtrop, and post-doctorates Dr. Hayriye Bozkurt and Dr. Mark Bradbury. Ms. Zamora received First Class Honors when she earned her B.S. in Agriculture from the university in 2017.

Ms. Zamora’s current research investigates the risks associated with *Listeria monocytogenes* contaminating fresh produce after primary production, a rising concern to the Australian fresh produce industry. She collaborates closely with retail partners in Australia to ensure her research projects are commercially relevant. Her work aims to understand the precise behavior of *L. monocytogenes* during post-harvest storage and transport conditions to assist building models to predict *Listeria* behavior, and to develop effective risk mitigation strategies such as produce-specific QMRA suitable for use by industry in Australia.

Ms. Zamora is also a teaching demonstrator for Food Quality and Processing and Food Microbiology classes at the university. She is passionate working with undergraduate students, especially when they are in a food-grade laboratory classroom, as this reinforces students that positive food safety culture and practice is paramount in a commercial setting.

Ms. Zamora is extremely honored to receive the Student Travel Scholarship and take part in IAFP 2020. She is excited to share her research and network with other food safety professionals around the world, and to learn innovative ways at approaching fresh produce safety. After completion of her Ph.D., she hopes to have a career in managing and or implementing food safety systems and culture within the fresh produce industry.
The Peanut Proud Student Scholarship Award provides a $2,000 academic scholarship and travel funding for a U.S. student in the field of food microbiology – specifically in the area of peanuts and peanut butter food safety – to attend the Annual Meeting. Peanut Proud is a nonprofit industry organization based in Georgia.

Hyeon Woo Park is pursuing his doctoral studies in Food Science and Technology at The Ohio State University in Columbus, Ohio. His research interests are focused on the application of engineering principles in the development and evaluation of food processing to improve food safety and quality. Prior to his doctoral studies, Mr. Park conducted research in multiple labs, including the Residue Chemistry and Predictive Microbiology Research Lab at the USDA Eastern Regional Research Center, the Seafood Lab at Oregon State University, and the Food Process Engineering Lab at Kangwon National University in South Korea. He has 13 first-author publications in various peer-reviewed journals.

Under the guidance of Dr. V. M. Balasubramaniam, Mr. Park’s current research focuses on evaluating food safety efficacy of superheated steam in dry sanitation environments by integrating process engineering and microbiological principles. He also plans to scale up the technology for food industry applications that will improve food product safety and quality by increasing sanitation efficacy and control over environmental cross-contamination.

Mr. Park is extremely honored to be the recipient of the 2020 Peanut Proud Student Scholarship Award and looks forward to sharing his efforts during IAFP 2020 to improve the safety of food including peanut butter.
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mental testing, with special attention to FDA and regulatory agency
requirements and microbiological reduction validation services. We
use specialized analytical equipment including LC/MS-MS, GC/MS,
GC/MS-MS, AA and ICP/MS. Certified Laboratories employs only
recognized methods and procedures.

Charm Sciences Inc.
659 Andover St.
Lawrence, MA 01843, USA
Phone: +1 978.687.9200
www.charm.com

Charm Sciences is a world leader in food safety diagnostics.
Charm’s two-pronged Sanitation Monitoring Program ensures the
highest level of food safety, quality control, and audit compliance
using the novaLUM® II-X System and Charm Peel Plate® Microbial
Tests with Colony Counter. Charm offers simplified diagnostics and
data management solutions to track and trend results with integration
to LIMS system. Rely on Charm Sciences for excellence in quality,
innovation, and sensitivity to protect your brand!

ClorDiSys Solutions, Inc.
50 Tannery Road, Suite 1
Branchburg, NJ 08876, USA
Phone: +1 908.236.4100
www.clordesys.com

ClorDiSys Solutions, Inc. is a worldwide leader in contamination
control and decontamination. ClorDiSys provides decontamination
services for contamination mitigation as well as preventive control,
utilizing chlorine dioxide gas to leave your facility cleaner and safer
than ever before by eliminating the persistent pathogens from the
hardest-to-reach areas. Portable CD gas generators are also available
for the in-house decontamination of rooms, tanks, chambers,
and processing areas of all sizes.

Decon7 Systems LLC
8541 E Anderson Drive, Suite 106
Scottsdale, AZ 85255, USA
Phone: +1 816.832.6349
www.decon7.com

D7 is a proprietary blend of ordinary household substances that
aggressively hunts and destroys bacteria and viruses in agricultural,
live harvest, and food processing facilities. Validated by multiple third-
party organizations, including USDA, D7 is a proven antimicrobial
disinfectant that will enhance and maximize the effectiveness of your
food safety program.

D7 is a patented, EPA-registered formula for use in a multitude of
applications including, but not limited to, deep cleans, drain main-
tenance, and entryway sanitizing for controlling cross-contamination.
Once blended, the three-part D7 solution becomes an unrivaled
antimicrobial disinfectant. Our focus markets include, but are not lim-
ited to, red meat, poultry, seafood, dairy, and fruits and vegetables.
Visit us at www.decon7.com and follow the “Contact Us” link to learn
more about our solutions and hear from some of the most notable
industry references.

Deibel Laboratories, Inc.
P.O. Box 1056
Osprey, FL 34229, USA
Phone: +1 224.465.5515
www.deibellabs.com

Deibel Laboratories was founded by Dr. Robert H. Deibel, a
former Dean of the Bacteriology Department at the University of
Wisconsin and published author of over 80 scientific publications,
over fifty years ago. Since its inception, Deibel Labs has continually
grown with the ever-changing scientific community and has become
an integral part of the global food safety industry. With a network of
ISO 17025 Laboratories throughout the United States and Canada,
Deibel Labs is able to provide exceptional service while controlling
test prices in order to create the perfect combination of value and
quality for any sized clientele.

Diversey, Inc.
1300 Altura Road, Suite 125
Fort Mill, SC 29708, USA
Phone: +1 803.746.2200
www.diversey.com

Diversey is a global partner for Food Safety and Hygiene
Programs for retail, food service, hospitality, and manufacturing sec-
tors. We produce high performing hygiene solutions, utilize industry
leading dosing & dispensing platforms, and we offer client technical
consultation services to help manage your programs, reduce cost,
and improve compliance.
We utilize over one hundred years of experience with modern tools and data analytics to drive value for sanitation, auditing services, manager certification programs, hygiene management, and field support.

EAS Consulting Group, LLC
1700 Diagonal Road, Suite 750
Alexandria, VA 22314, USA
Phone: +1 571.447.5500
www.easconsultinggroup.com

EAS Consulting Group, a member of the Certified family of companies, is a global leader in regulatory solutions for industries regulated by FDA, USDA, and other federal and state agencies. Our network of over 150 independent advisors and consultants enables EAS to provide comprehensive consulting, training and auditing services, ensuring proactive regulatory compliance for all FDA regulated industries. From strategic product development, toxicology and microbiology assistance, including preparation of technical submissions such as GRAS and Food Additive Petitions to FSMA compliance, EAS offers the detailed knowledge and experience your company requires to ensure accurate and timely assistance. easconsulting-group.com.

Ecolab
1 Ecolab Place
St. Paul, MN 55102, USA
Phone: +1 800.352.5326
www.ecolab.com

A trusted partner at nearly three million customer locations, Ecolab (ECL) is the global leader in water, hygiene and energy technologies and services that protect people and vital resources. Ecolab supports customers across the food and beverage supply chain, offering customized cleaning and sanitation solutions, pest elimination services, and industry leading technical support to help ensure food safety and brand consistency for foodservice and food and beverage processing facilities. We partner with you to help control costs and keep your operations running smoothly.

Emport LLC
P.O. Box 40188
Pittsburgh, PA 15201, USA
Phone: +1 412.447.1888
www.emportllc.com

More Safe Food, More Happy People: Emport LLC specializes in allergens and gluten, food safety and QA test kits since 2011. Our tests combine user-friendly design with rigorous scientific standards. Alongside the AOAC-approved GlutenTox Pro, we carry AlerTox rapid allergen test kits. FlowThrough Meat Speciation rapid kits, a variety of sampling and swabbing supplies, and sophisticated ELISA allergen kits for lab use. Through our partner labs we also offer SARS-Cov-2 surface and personnel screening, and ISO17025-certified analysis for allergens, pathogens, and more.

Eurofins
2200 Rittenhouse St., Suite 175
Des Moines, IA 50321, USA
Phone: +1 515.265.1461
https://www.eurofinsus.com/food-testing/

Eurofins is testing for life – the world leader in the provision of clinical diagnostics, food, environmental, forensic and pharmaceutical laboratory testing. With a portfolio of over 200,000 analytical methods, 800 laboratories operating in 47 countries, Eurofins is your local food safety, quality and innovation partner. We are dedicated to providing prestigious scientific excellence, outstanding service, and dependable quality. Learn to limit the impact of COVID-19 in your workplace with the new Eurofins SAFER@WORK™ program.

FDA/CFSAN
5001 Campus Drive
College Park, MD 20740, USA
Phone: +1 888.723.3366
www.fda.gov

The U.S. Food and Drug Administration’s Center for Food Safety and Applied Nutrition is responsible for promoting and protecting the public’s health by ensuring that the nation’s food supply is safe, sanitary, wholesome, and honestly labeled, and that cosmetic products are safe and properly labeled.

Food Safety Magazine
1945 W Mountain St.
Glendale, CA 91201, USA
Phone: +1 818.842.4777
www.foodsafetymagazine.com

Food Safety Magazine is a bimonthly publication serving food safety/quality professionals worldwide. Issues feature contributions from food and beverage industry leaders discussing: regulations, technologies, trends, and management strategies essential when applying science-based solutions to assure food safety and quality. Also, the popular podcast “Food Safety Matters” offering twice monthly episodes that feature news and trends, or another surprise segments, followed by a conversation with a food safety professional sharing their experiences and insights. Visit our website www.foodsafetymagazine.com to begin your free subscription and learn more about Food Safety Matters.

Food Safety Net Services
199 W Rhapsody Drive
San Antonio, TX 78216, USA
Phone: +1 888.525.9788
www.fsns.com

Food Safety Net Services (FSNS), headquartered in San Antonio, Texas, is a national network of ISO 17025 accredited testing laboratories open 24/7, 365 days a year. FSNS provides expert technical resources that assist companies with implementing food safety and quality programs that deliver critical information needed to continually improve process controls. Additional services include GFSI, SQF and PAACO, approved auditing and certification capabilities.

Food Safety News
1012 First Ave., Fifth Floor
Seattle, WA 98104-1008, USA
Phone: +1 913.205.3791
http://www.foodsafetynews.com

Food Safety News is the only daily publication that reports exclusively on food safety issues. We are the first to talk with the most important people behind breaking news. We bring our readers the kind of old-fashioned, in-depth journalism that many people thought didn’t exist anymore.

As a result, our readers trust our reporting and actively respond to the marketing messages they see in our publication. Our advertisers tell us that we are their #1 source of solid sales leads, month after month. Talk with us now about how an ad schedule can help you increase your sales and your brand recognition.

Food Safety Summit
5001 Campus Drive
College Park, MD 20740, USA
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www.fds.gov

The U.S. Food and Drug Administration’s Center for Food Safety and Applied Nutrition is responsible for promoting and protecting the public’s health by ensuring that the nation’s food supply is safe, sanitary, wholesome, and honestly labeled, and that cosmetic products are safe and properly labeled.

Food Safety News
1012 First Ave., Fifth Floor
Seattle, WA 98104-1008, USA
Phone: +1 913.205.3791
http://www.foodsafetynews.com
Food Safety News is the only daily publication that reports exclusively on food safety issues. We are the first to talk with the most important people behind breaking news. We bring our readers the kind of old-fashioned, in-depth journalism that many people thought didn’t exist anymore. As a result, our readers trust our reporting and actively respond to the marketing messages they see in our publication. Our advertisers tell us that we are their #1 source of solid sales leads, month after month. Talk with us now about how an ad schedule can help you increase your sales and your brand recognition.
FoodLogiQ® is a leading SaaS provider of food safety compliance, traceability, recall management and supply chain transparency solutions.

Our mission is to map the world’s food chain, make it as safe as possible, and empower people to make informed decisions about the food they eat. We track millions of data points every day and connect thousands of food companies around the world.

Our technology enables supplier management, food safety compliance, quality incident management, recall management and whole chain traceability— all on a single platform built exclusively for the food industry.

FSS, Inc.
16950 Westfield Park Road
Westfield, IN 46074, USA
Phone: +1 317.896.9300
https://www.fumigationzone.com

FSS, Inc. is a progressive pest management company specializing in food safety pest management strategies, fumigation, decontamination and product sales. We employ the latest in remote monitoring technology and the best in class customer service and satisfaction. Our 100% digital platform exceeds expectations for quality and transparency.

FSS uses VeriCuda, a software solution that makes affordable GMP site inspections a reality. The software trends and tracks your GMP observations visually with image capture and follow up recommendations.

We are one provider with many solutions for your IPM, Fumigation and Decontamination problems. Inquire with us today!

GFSI – The Consumer Goods Forum
47-53 rue Raspail
Levallois-Perret, 92300, France
Phone: +33.1.82.00.95.95
www.mygfsi.com

The Global Food Safety Initiative (GFSI) brings together key actors of the food ecosystem to collaboratively drive continuous improvement in food safety management systems around the world. With a vision of safe food for consumers everywhere, food industry leaders created GFSI in 2000 to reduce food safety risks and inefficiencies while building trust throughout the supply chain. The GFSI community is composed of experts from the full stakeholder spectrum, across industry and international organizations to governments and academia. GFSI is powered by The Consumer Goods Forum (CGF), a global industry network working to support Better Lives Through Better Business.

Hamiton Company
4970 Energy Way
Reno, NV 89502, USA
Phone: +1 775.858.3000
www.hamiltoncompany.com

Hamilton Company specializes in the development, manufacturing and customization of precision measurement devices, automated liquid handling workstations and sample management systems. Our products provide fully automated workflows that offer reliability, performance, and the flexibility to automate your assays, all with industry-leading quality and service. Hamilton offers fully automated solutions for sample prep in food safety, etc. Hamilton Company has been a leading global manufacturer for more than 60 years, with headquarters in Reno, Nevada; Franklin, Massachusetts; and Bonaduz, Switzerland; and subsidiary offices throughout the world.

Hydrite
300 N Patrick Blvd.
Brookfield, WI 53045, USA
Phone: +1 262.792.1450
www.hydrite.com

For 90 years, Hydrite has been providing creative solutions and creating unique formulations for the food industry. Learn how we can help improve the quality in applications including food processing aids, ingredients, foam control, sanitation, wastewater treatment, and intervention chemistry. Hydrite is a single-source provider with an extensive R&D facility, ability to bundle products for cost improvements, strong raw material purchasing power, privately-owned fleet for on-time delivery, products manufactured under cGMPs and quality management systems.

Hygiena
941 Avenida Acaso
Camarillo, CA 93012, USA
Phone: +1 888.494.4362
www.hygiena.com

Hygiena™ provides rapid microbial detection, monitoring, and identification systems to improve food safety globally. Hygiena’s EnSURE Touch™ Monitoring and SureTrend Cloud System collects, analyzes, and reports data from multiple quality indicators, including ATP, and indicator organisms including TVC, Coliform, and E. coli. GlutenTox® and AlerTox® products are trusted by food manufacturers and consumers to identify allergens in food products and environmental surfaces. Hygiena’s BAX® System, uses PCR technology to identify pathogens in food ingredients, finished products and the environment. The Innovate System provides product quality control data for UHT processed and aseptically filled products, ensuring long shelf life. The RiboPrinter® System is an automated genetic-based system that identifies and characterizes bacteria which helps food processors monitor microbial trends in their facility and trace contamination back to its source. Hygiena is committed to the mission of providing customers with high-quality innovative technologies that are easy-to-use, reliable and backed by excellent customer service and support. Headquartered in Camarillo, California with offices in the UK, Canada, Mexico, Spain and China, Hygiena has products in more than 100 countries. For more information, visit hygiena.com/foodsafety.

IEH Laboratories & Consulting Group
15300 Bothell Way NE
Lake Forest Park, WA 98155, USA
Phone: +1 206.522.5432
www.iehinc.com

IEH delivers comprehensive support services, encompassing all aspects of microbiology and chemistry analysis, process validation, food safety plans, and recall/outbreak assistance. Our network of over 100 ISO/IEC-17025-accredited laboratories provide expedited services to address quality and safety concerns. Our consulting team provides technical support to all sectors of the food industry, from regulatory and legal support to risk assessment, crisis management, and outbreak investigations. In addition, our team of experts can assist you with food safety, sanitation and environmental program evaluation and design.

In addition, through our family of brands; Microbiologique, ELISA Systems, Bio-Check UK, Roka Bio and Sample6, IEH provides options for pathogen testing, microbial indicators, allergens, mycotoxins, meat speciation, spoilage organisms, sampling supplies, laboratory disposables, media and laboratory instruments. Come learn about how we assist with risk management and service clients with internationally recognized experts in food safety.

IFC
13420 West 99th St.
Lenexa, KS 66215, USA
Phone: +1 913.782.7600
www.indfumco.com

IFC is a national provider of pest management and sanitation solutions exclusive to the food industry. The knowledge and expertise we have gained comes from working directly with the food and commodity industries since 1937. IFC has developed a market-leading reputation for providing consistent, reliable and high-quality service to our clients. We maintain this reputation by focusing our efforts on sustaining the highest standards of quality, safety, honesty and integrity in all areas of our business.
INFICON
2 Technology Place
East Syracuse, NY 13057, USA
Phone: +1 315.434.1100
www.inficon.com

INFICON is one of the world’s leading developers, producers and suppliers of instruments and devices for leak detection. With a dominate market position within the Air Conditioning, Automotive, Semiconductor and Research industries, INFICON is now taking its many years of experience in leak testing and has created the Contura S400 Leak Detector; providing the food and packaging industry with a unique solution for ensuring package seal and integrity by detecting leaks in MAP and other flexible packages.

International Association for Food Protection
2900 100th St., Suite 309
Des Moines, IA 50322-3855, USA
Phone: +1 .515.276.3344
www.foodprotection.org

IAFP provides food safety professionals worldwide with a forum to exchange information on protecting the food supply. This is achieved through two monthly journals; the Journal of Food Protection and Food Protection Trends, an online newsletter titled the IAFP Report and through an Annual Meeting in North America where research topics on food safety issues are presented. IAFP also holds a three-day symposium in Europe each year and a separate, annual international symposium in addition to supporting food safety events in Dubai and China. Membership information can be obtained at our booth or visit our website at www.foodprotection.org.

International Association for Food Protection — Student PDG
2900 100th St., Suite 309
Des Moines, IA 50322-3855, USA
Phone: +1 515.276.3344
www.foodprotection.org

Welcome, students, to IAFP 2020, a Virtual Meeting! If you wish to take control of your career and enrich your IAFP experience by interacting with other students and networking with professionals, get involved with the IAFP Student Group. We are an organization of undergraduate and graduate students who wish to enhance food safety through active participation in IAFP. Stop by our booth to meet your colleagues, exchange ideas, and become involved in future student group activities.

International Food & Meat Topics
P.O. Box 4
Driffield, East Yorkshire YO25 9DJ, United Kingdom
Phone: +44.01377.241724
www.positiveaction.co.uk

International Food & Meat Topics is a global magazine that focuses on all aspects of food and meat safety in production and processing. It carries regular features on laboratory testing and relevant research. Its editorial covers subjects as diverse as Campylobacter, HACCP, food safety, labelling and shelf life, and foreign body detection. Its targeted readership is QA/QC managers in food and meat production and processing plants, food testing laboratories, and responsible food safety professionals.

KLEANZ Food Safety Technologies
4305 South Lee St., Suite 100
Buford, GA 30518, USA
Phone: +1 770.831.9191
www.kLEANZ.com

KLEANZ Food Safety Technologies is proud to be the leader in software and services for the Food, Beverage, Packaging, and Pharma industries. For over 30 years, we have ensured that our clients’ Food Safety and Sanitation Management needs are satisfied and streamlined. The KLEANZ Team is comprised of food manufacturing experts with over 300 years of combined experience in the industry. Our KLEANZ solution focuses on risk mitigation, driving continuous improvement, and adhering to all compliance requirements while managing resources. Our clients include the largest food and beverage companies worldwide, as well as many regional operations.

MÉRIEUX NutriSciences
111 E Wacker Drive, Suite 2300
Chicago, IL 60601, USA
Phone: +1 312.938.5151
www.merieuxnursticsiences.com/us

MÉRIEUX NutriSciences is a leading global food safety and quality partner — offering chemistry and microbiology testing, labeling, auditing, consulting, sensory testing, customized training, research services, and digital solutions to the food and nutrition industry. Focused on customer excellence, we protect consumers’ health through nutritional research, scientific excellence, and innovation. We customize our services to meet the needs of individual manufacturers, food processors, caterers, restaurants, and retailers. Headquartered in Chicago, MÉRIEUX NutriSciences has grown from a single laboratory to have a global presence. Present in 26 countries, MÉRIEUX NutriSciences employs 7,000 people worldwide working in over 100 laboratories.

Micro Essential Laboratory
4224 Ave. H
Brooklyn, NY 11210, USA
Phone: +1 718.928.2913
www.microessentiallab.com

Our company has been a market leader in pH and sanitizer testing technologies, serving the food service industry since 1934. Customer service and product quality are the company focus, and critical factors for success. Our goal is to develop lasting relationships.

Microbiologics
200 Cooper Ave. N
Saint Cloud, MN 56303, USA
Phone: +1 320.229.7057
www.microbiologics.com

Microbiologics is the leading provider of ready-to-use QC microorganisms for quality control testing in food laboratories. With over 900 strains available, we offer the largest and most diverse line of QC microorganisms including qualitative, quantitative, CRM, inactivated pathogens, synthetic molecular standards, and more. Visit our virtual booth to learn how our QC microorganism products can save your laboratory time and money.

MilliporeSigma
400 Summit Road
Burlington, MA 01803, USA
Phone: +1 800.645.5476
www.milliporesigma.com

MilliporeSigma, the U.S. life science business of Merck KGaA, Darmstadt, Germany, is here to partner with food safety teams enabling you to improve lab testing efficiencies with reliable products and services that meet ever changing regulations. It is through our collaborations that we can advance the safety and analysis of foods and beverages using trusted brands like Millipore® with microbiology solutions for hygiene, environmental monitoring & pathogen detection, Supelco® analytical solutions for analysis of food contamination and authenticity, Milli-Q® lab water solutions and Sigma Aldrich lab & production materials, including chemicals, inorganics & solvents throughout the supply chain, manufacturing and distribution.

Nelson-Jameson, Inc.
2300 S. Central Ave., P.O. Box 647
Marshfield, WI 54449, USA
Phone: +1 800.826.8302
www.nelsonjameson.com

Since 1947, Nelson-Jameson has been a trusted source of food processing supplies. We represent over 850 vendors and distribute over 55,000 products in the broad categories of: Processing & Flow
Control, Safety, Sanitation & Janitorial, Production & Material Handling, Building & Facility Maintenance, Laboratory & QA/QC, and Packaging & Ingredients.

Through our comprehensive product offerings, industry expertise, and expertly curated food safety programs, Nelson-Jameson can help lower your transaction costs while providing the products and services you need to produce safe, quality food.

NEOGEN
620 Lesher Place
Lansing, MI 48912, USA
Phone: +1 517.372.9200
www.NEOGEN.com

At NEOGEN, we partner with our customers to protect and enhance the world’s level of food and animal safety. By offering a diverse suite of solutions for the food, beverage, animal protein and agriculture industries, NEOGEN empowers our customers to safeguard their brands and create better products.

Novālent Biotech
2319 Joe Brown Drive
Greensboro, NC 27405, USA
Phone: +1 843.302.6168
www.novalent.com

Novālent technology is a patented, bacteriostatic, fungistic, EPA-registered food contact surface treatment that inhibits the growth of a wide range of bacteria and fungi. It covalently bonds to Food Safety relies on the utilization of cutting-edge microbiology solutions, combined with the latest developments in digital, IoT and machine learning.

Our solutions: SurroNov®, the first range of ready-to-use surrogate organisms, used directly at the factory to test the efficacy of processing systems. FoodSafetyGuardian®, a unified platform to help quality teams streamline FSQA procedures, including product testing, environmental monitoring and process control.

OpenTrons
20 Jay St., Suite 528
Brooklyn, NY 11201, USA
Phone: +1 847.772.3439
www.opentrons.com

We make robots for biologists. Automate time consuming pipetting work like NGS Library Prep, PCR/qPCR, plate filling, or anything else you can dream of with our open-source OT-2, starting at only $5,000 (no joke!). Get more accurate results, better repeatability, and save time, plus your wrists (or your students) will thank you! Come meet your personal pipetting robot with an on-deck thermocycler today!

Pall Corporation
25 Harbor Park Drive
Port Washington, NY 11050, USA
Phone: +1 866.905.7255
www.pall.com/foodandbev

Pall Corporation is a global filtration, separation and purification leader providing solutions to meet the critical fluid management needs of customers across the broad spectrum of life sciences and industry. We work with our customers to advance health, safety and environmentally responsible technologies.

Pall Food and Beverage provides products and services to ensure product quality and maintain process reliability in beverage and food production. Our solutions also assist in consumer protection, the reduction of operating costs and waste minimization.

Partnership for Food Safety Education
2345 Crystal Drive, Suite 800
Arlington, VA 22202, USA
Phone: +1 202.688.3260
www.fightbac.org

The non-profit Partnership for Food Safety Education works to reduce foodborne illness risk through consumer food safety education and by supporting health and food safety educators nationwide with the tools and educational programs they need to be effective at changing food handling behaviors in the home. www.fightbac.org.

PathogenDx
9375 E Shea Blvd., Suite 100
Scottsdale, AZ 85260, USA
Phone: +1 262.720.3231
www.pathogenedx.com

PathogenDx is a biotechnology company based in Arizona. As companies face an unprecedented era of threats to food, we deliver testing to identify pathogens faster and easier. PathogenDx testing can identify Salmonella, Listeria and Listeria monocytogenes in a single test, without the need for sample enrichment and with no loss of certainty. This provides highly reliable results to food companies in an eight-hour shift—driving greater safety and efficiencies through your operations.

PerkinElmer is our partner in food.

PerkinElmer is a global leader committed to innovating for a healthier world. Our food diagnostic testing helps ensure the safety of food products and production environments. Our testing solutions enable huge volumes of exports and imports to be screened for pesticides, mycotoxins and adulterants. With proven immunoassay technology we can test for contaminants such as Salmonella, Listeria & E. coli and provide the tools to achieve accurate and rapid results within the food industry. And our data analytics provide agribusinesses and world food organizations with insights needed to develop better protocols. PerkinElmer is your partner in food.

Perry Johnson Registrars Food Safety, Inc.
755 West Big Beaver Road, Suite 1390
Troy, MI 48084, USA
Phone: +1 248.519.2523
www.pjrfsi.com

Perry Johnson Registrars Food Safety, Inc. is a Global Assurance Certification Body who provides audit, training and risk management services to virtually every industry. PJRFSI services clients around the world managing risk within their organization and that of their supply chain. We are a fully accredited body, offering services for globally recognized accredited 3rd party standards such as GFSI & ISO as well as 2nd party programs including GMP, GDP, Cannabis, Organic and Global Gap to name a few. We also offer customer specific audit programs to mitigate risk within your supply chain such as food safety, quality and brand protection. With over 11,000 clients globally across 50 countries, we are well suited to meet your needs.
As a world leader in applying molecular biology expertise to develop high value products for food testing applications, Promega Corporation understands that today’s food quality, safety, GMO and authenticity testing challenges require creative solutions. We have developed systems that simplify plant and food DNA extraction and seamlessly integrate into food testing workflows. Visit our booth to learn more about successful approaches and tools for enabling GMO and food pathogen testing.

Rheonix's portfolio of multiplexed testing solutions also includes the Beer SpoilerAlert™ assay, the most comprehensive beer spoilage panel available. With Rheonix, getting more information from your sample has never been easier.

Romer Labs® is a leading provider of diagnostic test solutions for the food industry. We specialize in analytical services and rapid test kits for the detection of food pathogens, food allergens, mycotoxins, drug residues, and GMOs. Our broad range of innovative tests and services play a pivotal role in integrated food safety management programs. Our fundamental objective at Romer Labs® is to provide cost-effective, validated products and services for “Making the World’s Food Safer.”

SGS offers a wide range of solutions covering the entire food supply chain from primary production and manufacturing, to retail and foodservice. With a comprehensive range of independent inspection, testing, training, certification, and technical services specific for the food sector, we help companies worldwide to monitor and validate safety, quality, and sustainability.

Sterilex develops proprietary, sanitation technologies designed to remove biofilm, provide high level disinfection, and enhance sanitation. Sterilex award-winning products are considered a best practice for the control of harmful organisms such as Listeria, E. coli and Salmonella on a wide variety of food contact and environmental surfaces. Sterilex products are used in a variety of sanitation applications including foaming and soaking programs, drain treatment, spiral freezer sanitation, and microbial threat detection. Sterilex technologies have proven to eliminate environmental sanitation challenges and increase shelf life, resulting in an enhanced sanitation program. Visit us to learn more about innovative solutions for microbial control.
The mission of Stop Foodborne Illness is to support and engage people directly impacted by foodborne illness and mobilize them to help prevent illness and death by driving change through advocacy, collaboration and innovation.

Thermo Fisher Scientific
12150 Santa Fe Trail Drive
Lenexa, KS 66215, USA
Phone: 800.255.6730
www.thermofisher.com/microbiology

Thermo Fisher Scientific is the world leader in serving science. Our mission is to enable our customers to make the world healthier, cleaner and safer. We believe we are uniquely positioned to help the food industry effectively protect consumers, brand and reputation by delivering simpler, faster and smarter solutions. Positioned to meet your changing needs, we can help you to remain adaptive, responsive, and competitive. To find out more visit thermofisher.com/foodandbeverage or join our blog at www.thermofisher.com/examiningfood, a forum for information, discussion and analysis of some of the issues faced in the food industry today.

USDA – National Agricultural Library
10301 Baltimore Ave.
Beltsville, MD 20705, USA
Phone: +1 240.351.1165
www.nal.usda.gov/fsrio

The USDA ARS NAL Food Safety Research Information Office (FSRIO) was established by the AREERA legislation in 1998 and was formally launched in 2001. Our mission is to provide the food safety research community and the general public with information on publicly and privately funded food safety research. FSRIO works to assist the federal government and private research entities in the assessment of food safety research needs and priorities, and to prevent the unintended duplication of food safety research.

Food Quality & Safety Magazine, a Wiley publication, is the food/beverage industry’s go-to resource for expert-contributed, must-read content. Its award-winning editorial covers the latest news, technologies, trends, and issues happening from farm to fork to ensure a safe food supply. For over 25 years, its print and digital content has been delivering practical information to all levels of quality and safety decision makers in food processing, agriculture, distribution, food service/retail, and regulatory and research institutions.

XENON
37 Upton Drive
Wilmington, MA 01887, USA
Phone: +1 978.661.9033
www.xenoncorp.com

XENON is the world leader in Pulsed Light technology for a wide variety of food safety and enhancement, medical, pharmaceutical, manufacturing and research applications.

With over 50 years of Pulsed Light experience, XENON’s revolutionary technology has the ability to sanitize conveyors, sterilize food packaging and decontaminate foods; improving the safety of foods and even extending their shelf life. It’s effective, clean, involves no chemicals, and is FDA-approved.

XENON is an active partner in the research and development of new and emerging applications of Pulsed Light in various industries and has thousands of systems operating on production lines around the world.
1. **INTRODUCTION**

No printed media, technical sessions, symposia, posters, seminars, short courses, and/or other related types of forums and discussions offered under the auspices of the International Association for Food Protection (hereafter referred to as Association forums) are to be used as platforms for commercial sales or presentations by authors and/or presenters (hereafter referred to as authors) without the express permission of the staff or Executive Board. The Association enforces this policy in order to restrict commercialism in technical manuscripts, graphics, oral presentations, poster presentations, panel discussions, symposia papers, and all other type submissions and presentations (hereafter referred to as submissions and presentations), so that scientific merit is not diluted by proprietary secrecy.

Excessive use of brand names, product names or logos, failure to substantiate performance claims, and failure to objectively discuss alternative methods, processes, and equipment are indicators of sales pitches. Restricting commercialism benefits both the authors and recipients of submissions and presentations.

This policy has been written to serve as the basis for identifying commercialism in submissions and presentations prepared for the Association forums.

2. **TECHNICAL CONTENT OF SUBMISSIONS AND PRESENTATIONS**

2.1 **Original Work**

The presentation of new technical information is to be encouraged. In addition to the commercialism evaluation, all submissions and presentations will be individually evaluated by the Program Committee chairperson, technical reviewers selected by the Program Committee chairperson, session convenor, and/or staff on the basis of originality before inclusion in the program.

2.2 **Substantiating Data**

Submissions and presentations should present technical conclusions derived from technical data. If products or services are described, all reported capabilities, features or benefits, and performance parameters must be substantiated by data or by an acceptable explanation as to why the data are unavailable (e.g., incomplete, not collected, etc.) and, if it will become available, when. The explanation for unavailable data will be considered by the Program Committee chairperson and/or technical reviewers selected by the Program Committee chairperson to ascertain if the presentation is acceptable without the data. Serious consideration should be given to withholding submissions and presentations until the data are available, as only those conclusions that might be reasonably drawn from the data may be presented. Claims of benefit and/or technical conclusions not supported by the presented data are prohibited.

2.3 **Trade Names**

Excessive use of brand names, product names, trade names, and/or trademarks is forbidden. A general guideline is to use proprietary names once and thereafter to use generic descriptors or neutral designations. Where this would make the submission or presentation significantly more difficult to understand, the Program Committee chairperson, technical reviewers selected by the Program Committee chairperson, session convenor, and/or staff, will judge whether the use of trade names, etc., is necessary and acceptable.

2.4 **“Industry Practice” Statements**

It may be useful to report the extent of application of technologies, products, or services; however, such statements should review the extent of application of all generically similar technologies, products, or services in the field. Specific commercial installations may be cited to the extent that their data are discussed in the submission or presentation.

2.5 **Ranking**

Although general comparisons of products and services are prohibited, specific generic comparisons that are substantiated by the reported data are allowed.

2.6 **Proprietary Information (See also 2.2.)**

Some information about products or services may not be publishable because it is proprietary to the author’s agency or company or to the user. However, the scientific principles and validation of performance parameters must be described for such products or services. Conclusions and/or comparisons may be made only on the basis of reported data.

2.7 **Capabilities**

Discussion of corporate capabilities or experiences are prohibited unless they pertain to the specific presented data.
3. GRAPHICS

3.1 Purpose

Slides, photographs, videos, illustrations, art work, and any other type visual aids appearing with the printed text in submissions or used in presentations (hereafter referred to as graphics) should be included only to clarify technical points. Graphics which primarily promote a product or service will not be allowed. (See also 4.6.)

3.2 Source

Graphics should relate specifically to the technical presentation. General graphics regularly shown in, or intended for, sales presentations cannot be used.

3.3 Company Identification

Names or logos of agencies or companies supplying goods or services must not be the focal point of the slide. Names or logos may be shown on each slide so long as they are not distracting from the overall presentation.

3.4 Copies

Graphics that are not included in the preprint may be shown during the presentation only if they have been reviewed in advance by the Program Committee chairperson, session convenor, and/or staff, and have been determined to comply with this policy. Copies of these additional graphics must be available from the author on request by individual attendees.

It is the responsibility of the session convenor to verify that all graphics to be shown have been cleared by Program Committee chairperson, session convenor, staff, or other reviewers designated by the Program Committee chairperson.

4. INTERPRETATION AND ENFORCEMENT

4.1 Distribution

This policy will be sent to all authors of submissions and presentations in the Association forums.

4.2 Assessment Process

Reviewers of submissions and presentations will accept only those that comply with this policy. Drafts of submissions and presentations will be reviewed for commercialism concurrently by both staff and technical reviewers selected by the Program Committee chairperson. All reviewer comments shall be sent to and coordinated by either the Program Committee chairperson or the designated staff. If any submissions are found to violate this policy, authors will be informed and invited to resubmit their materials in revised form before the designated deadline.

4.3 Author Awareness

In addition to receiving a printed copy of this policy, all authors presenting in a forum will be reminded of this policy by the Program Committee chairperson, their session convenor, or the staff, whichever is appropriate.

4.4 Monitoring

Session convenors are responsible for ensuring that presentations comply with this policy. If it is determined by the session convenor that a violation or violations have occurred or are occurring, he or she will publicly request that the author immediately discontinue any and all presentations (oral, visual, audio, etc.) and will notify the Program Committee chairperson and staff of the action taken.

4.5 Enforcement

While technical reviewers, session convenors, and/or staff may all check submissions and presentations for commercialism, ultimately it is the responsibility of the Program Committee chairperson to enforce this policy through the session convenors and staff.

4.6 Penalties

If the author of a submission or presentation violates this policy, the Program Committee chairperson will notify the author and the author’s agency or company of the violation in writing. If an additional violation or violations occur after a written warning has been issued to an author and his agency or company, the Association reserves the right to ban the author and the author’s agency or company from making presentations in the Association forums for a period of up to two (2) years following the violation or violations.
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Published January 2015

2nd Place
Consumer-Reported Handling of Raw Poultry Products at Home: Results from a National Survey
Katherine M. Kosa, Sheryl C. Cates, Samantha Bradley, Edgar Chambers, and Sandria Godwin
Published January 2015

3rd Place
Methicillin-Resistant Staphylococcus aureus in Raw Milk: Prevalence, SCCmec Typing, Enterotoxin Characterization, and Antimicrobial Resistance Patterns
Alessandra Riva, Elisa Borghi, Daniela Cirasola, Silvia Colmegna, Francesca Borgo, Ettore Amato, Mirella Maria Pontello, and Giulia Morace
Published June 2015

Most-cited Review Publication Award

1st Place
Prevalence and Risk Factors for Toxoplasma gondii Infection in Meat Animals and Meat Products Destined for Human Consumption
Miao Guo, Jitender P. Dubey, Dolores Hill, Robert L. Buchanan, H. Ray Gamble, Jeffrey L. Jones, and Abani K. Pradhan
Published February 2015

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Published March 2013
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**Direct Observational Study of the Risk of Cross-contamination during Raw Poultry Handling: Practices in Private Homes**

E. Mazengia, C. Fisk, G. Liao, H. Huang, and J. Meschke

* Published January–February 2015

**Most-viewed Peer-reviewed Research Publication Award**

This award was established to recognize highly viewed peer-reviewed research and review papers in addition to general interest papers which are significantly contributing to the impact of *FPT* and global food safety. The award is based upon the number of times a publication that was published over the last two calendar years was viewed.

**Knowledge and Implementation of Good Agricultural Practices among Kentucky Fresh Produce Farmers**

Daniel Sinkel, Hanna Khouryieh, Jerry K. Daday, Martin Stone, and Cangliang Shen

* Published March–April 2018

**Most-viewed General Interest Publication Award**

**Microbiological Detection Methods – Assuring the Right Fit**

Patrick M. Bird, Megan S. Brown, Joy E. Dell’Aringa, LeeAnne A. Hahn, J. David Legan, Ryan D. Maus, and Stephanie Pollard

* Published September–October 2019*
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2014 Indianapolis, IN
2015 Portland, OR
2016 St. Louis, MO
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July 31–August 3, 2022
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Pittsburgh, Pennsylvania

July 16–19, 2023
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