

CPS Research Symposium
Charlotte Marriott City Center
June 19-20, 2018

Agenda

Tuesday, June 19, 2018

7:15 am – 8:15 am	Registration, Continental Breakfast, Poster Session
8:15 am – 8:30 am	Welcome Bonnie Fernandez-Fenaroli, Executive Director, CPS
8:30 am – 9:15 am	Getting up to speed and what to expect. <i>It has been a year since we last met to discuss the latest results from CPS-funded produce safety research programs. Since produce safety is a continuous improvement process, we will start by reviewing some of the key outcomes from the 2017 CPS Symposium and set the stage for the important learnings that will emerge from the 2018 Symposium. Learn what to listen for and how the lessons from this year's research builds upon previous findings.</i> Speaker: Bob Whitaker , Produce Marketing Association
9:15 am – 9:45 am	Lightning Session - Learn what lies ahead in CPS research The Lightning Learning Lab is an opportunity for CPS stakeholders to preview research programs that are in their initial stage of development. These programs were awarded in 2017; meaning they just got started on January 1, 2018. Hear about the research objectives, preliminary findings and where the research is headed next. <ul style="list-style-type: none"> • <i>Preservation of stone fruits by spray application of edible coatings with antimicrobial properties.</i> Kay Cooksey, Clemson University. • <i>Identifying optimal methods of recovering bacteria from food processing plants for downstream microbiome analyses.</i> Edward Dudley, Penn State University. • <i>Engineering and ecological approaches reduce Pacific tree frog intrusion into leafy green agriculture.</i> Michelle Green, University of Illinois. • <i>FSMA agricultural-water die-off compliance provisions benefit from condition-specific modifiers.</i> Renata Ivanek, Cornell. • <i>The effects of storage conditions and the microbiome of non-traditional salad ingredients on the fate of Listeria monocytogenes.</i> Amanda Lathrop, California Polytechnic State University, San Luis Obispo Moderator: Rusbelina Silva , 4Earth Farms
9:45 am – 10:15 am	Break
10:15 am – 11:45 am	Research Session - Agricultural water

	<p><i>The safety of agricultural water has long been a produce safety priority. This session will focus on four CPS funded research programs to help stakeholders better understand the various risk factors associated with open water sources, wash water and management practices that can be leveraged to minimize those risks.</i></p> <ul style="list-style-type: none"> • <i>Microbial food safety risks of reusing tail water for leafy green production. Michael Cahn, University of California, Davis</i> • <i>Cyclospora: Potential Reservoirs and Occurrence in Irrigation Waters. Gerardo Lopez, University of Arizona</i> • <i>Remotely-sensed and field-collected hydrological, landscape and weather data can predict the quality of surface water used for produce production. Martin Wiedmann, Cornell University.</i> • <i>Establishment of operating standards for produce wash systems through the identification of specific metrics and test methods. Ana Allende, CEBAS CSIC Spain</i> <p>Moderator: Suresh DeCosta, Lipman Produce Panelists: Samir Assar, U.S. Food and Drug Administration Sharan Lanini, Pacific International Marketing Bob Ziel, J&J Family of Farms</p>
11:45 pm – 1:15 pm	Lunch
1:15 pm – 2:00 pm	<p>Leafy Greens associated illness outbreaks: lessons for the future? - There have been a number of illness outbreaks associated with leafy greens over the last decade. Interestingly, these outbreaks have a number of similarities that may hold the key to preventing future illness outbreaks. This session will feature a compilation of data developed by CDC around these previous outbreaks and a discussion between CDC, FDA CORE and industry leaders targeted toward understanding the lessons previous outbreak investigations have yielded and how these lessons can be leveraged to prevent future outbreaks and identify novel research needs.</p> <p>Moderator: Bob Whitaker, Produce Marketing Association Panelists: Kari Irvin, U.S. Food and Drug Administration, CORE Kate Marshall, Centers for Disease Control and Prevention Jennifer McEntire, United Fresh Produce Association Gurmail Mudahar, Tanimura & Antle</p>
2:00 pm – 2:30 pm	<p>Lightning Session - Learn what lies ahead in CPS research</p> <ul style="list-style-type: none"> • <i>Rechargeable antimicrobial and antifouling plastics for improved cleaning and sanitation of plastic bins and totes. Nitin Nitin, University of</i>

	<p>California, Davis</p> <ul style="list-style-type: none"> • <i>UA Ag Water App-Language Expansion and Practical Grower-inspired improvements.</i> Channah Rock, University of Arizona. • <i>Establishment of Vegetative Buffer Zones to reduce the risk of STEC and Salmonella transmission from animal operations to fresh produce on co-managed farms.</i> Sid Thakur, North Carolina State University • <i>Metagenomics to identify viral indicators in the produce chain.</i> Gloria Sanchez-Moragas. IATA CSIC Spain. • <i>Listeria whole genome sequence data reference sets are needed to allow for improved persistence assessment and source tracking.</i> Martin Wiedmann. Cornell University <p>Moderator: Jill Dunlop, Florida Fruit and Vegetable Association</p>
2:30 pm – 3:00 pm	Break
3:00 pm – 4:30 pm	<p>Research Session - Tools for Validation <i>Over the last few years CPS has strategically funded research programs seeking to identify surrogates for human pathogens that can be used to validate the efficacy of preventive controls. This session will help stakeholders develop insight into the development of surrogate strains and how they can be used across the production spectrum.</i></p> <ul style="list-style-type: none"> • <i>Developing Cross-Assembly Phage as a Viral Indicator for Irrigation Waters.</i> Kyle Bibby, University of Notre Dame • <i>Identification of novel indicator organisms to determine the risks of fecal contamination of irrigation waters.</i> Kelly Bright, University of Arizona • <i>Validating a physically heat-treated process for poultry litter in industry settings using the avirulent Salmonella surrogates or indicator microorganisms.</i> Xiuping Jiang, Clemson University • <i>Comparative genomics analysis and physiological assessment of the avirulent Salmonella surrogate relevant to produce safety.</i> Julie Meyer, University of Florida. <p>Moderator: Jennifer McEntire, United Fresh Produce Association Panelists: Felice Arboisiere, Yum Brands Angela Valadez, Publix</p>
4:30 pm – 5:15 pm	<p>Revisiting CPS research lessons: Putting research findings to work - Over the last ten years, CPS has funded over 100 research projects that have been reported on during previous CPS symposia. Much of this work has been used to shape industry thoughts on produce safety, catalyze innovative research, inform regulatory guidance and rule, and guide individual and commodity-</p>

	<p>wide produce safety programs. However, despite this dedication by the produce industry to filling knowledge gaps, it is not surprising that periodic outbreaks still occur. While considering the facts of the evidence we are also left to speculate that attribution of root-cause may not be because of a lack of knowledge but a failure to systemically and properly implement what we already know. This session will explore this proposition and discuss research findings and practical observations that may provide momentum for change and science-based solutions for growers, packers, and processors.</p> <p>Moderator: Drew McDonald, Taylor Fresh Foods Panelists: Channah Rock, University of Arizona Trevor Suslow, University of California, Davis</p>
5:15 pm – 7:00 pm	Official Symposium Reception

Wednesday, June 20	
7:15 am – 8:00 am	Continental Breakfast, Poster Session
8:00 am – 8:15am	Welcome Back – Questions from the day before, what lies ahead in day 2 - Natalie Dyenson, Dole Food Company, Inc.
8:15 am – 9:30 am	<p>Research Session - Packinghouse and processing plant sanitation and wash water control are critical areas of produce safety research. <i>These issues have been amplified in recent years owing to the implementation of FSMA and sporadic, but ongoing recalls owing to Listeria monocytogenes (Lm) cross contamination. This session will focus on the latest research on Lm in fruit packinghouses and potential strategies for mitigating the risks.</i></p> <ul style="list-style-type: none"> • <i>Characterization and mitigation of bacteriological risks associated with packing fresh-market citrus.</i> Linda Harris, University of California, Davis • <i>Factors that influence the introduction, fate and mitigation of foodborne pathogens on mangoes throughout the production chain.</i> Michelle Danyluk, University of Florida. • <i>Listeria monocytogenes growth and survival on peaches and nectarines as influenced by stone fruit packinghouse operations, storage and transportation conditions.</i> Mary Anne Amalaradjou, University of Connecticut <p>Moderator: Joan Rosen, JC Rosen Resources Panelists: Fanny Au, Sunkist Kathleen O'Donnell, Wegmans George Nikolich, Gerawan Farming</p>
9:30 am – 10:00 am	Break, Poster Session
10:00 am– 11:00 am	<p>Research Session - Packinghouse and processing plant sanitation and wash water control are critical areas of produce safety research.</p> <ul style="list-style-type: none"> • <i>Control of Listeria monocytogenes on apple through spray manifold-applied antimicrobial intervention.</i> Meijun Zhu, Washington State University. • <i>Evaluation of the efficacy of antimicrobial agents to prevent the transfer of Listeria monocytogenes from existing biofilms to produce or processing surfaces.</i> Rolf Joerger, University of Delaware • <i>Resolving postharvest harborage sites of Listeria protects Zone 1 surfaces.</i> Trevor Suslow, University of California, Davis

	<p>Moderator: Joan Rosen, JC Rosen Resources</p> <p>Panelists:</p> <p>Fanny Au, Sunkist</p> <p>Kathleen O'Donnell, Wegmans</p> <p>George Nikolich, Gerawan Farming</p>
11:00 am– 11:20 am	<p>People you need to meet: CPS Travel Grant Recipients</p> <p>We want two things when it comes to talent in our industry: (1) researchers that are well trained and understand the challenges and opportunities of our industry and (2) well-trained scientists that can join our companies and help build effective, risk and science-based produce safety programs. This session will permit us to get to know the next generation of scientists that will enter our industry.</p> <p>Moderator: Doug Grant, The Oppenheimer Group</p>
11:20 am – 11:45 pm	<p>Lightning Session - Learn what lies ahead in CPS research.</p> <ul style="list-style-type: none"> • <i>Scientifically valid corrective actions for multiple harvest shade-house production systems.</i> Trevor Suslow, University of California, Davis • <i>Use of raptors to prevent wild bird and rodent intrusion into fresh produce fields.</i> Paula Rivadeneira, University of Arizona • <i>Mathematical modeling tools for practical chlorine control in produce wash process.</i> Daniel Munther, Cleveland State University • <i>Application of chitosan microparticles to eliminate foodborne pathogens in agricultural water that contacts fresh produce.</i> Anita Wright, University of Florida <p>Moderator: Lianna Kelly, Markon Cooperative</p>
11:45 am – 1:00 pm	<p>Lunch, Poster Sessions</p>
1:00 pm – 2:00 pm	<p><i>Listeria monocytogenes</i>: what can be learned from outside the produce industry?</p> <p>Lm is not just a produce issue; it is a food industry challenge. Beef, poultry, fish, frozen foods have all had their challenges. This session will focus on learnings that can be gleaned from other sectors of the food industry and how they can be applied to produce.</p> <p>Speaker: Martin Wiedmann, Cornell University</p>
2:00 pm – 2:30pm	<p>Break, Poster Session</p>
2:30 pm – 4:00 pm	<p>Research Session - Hot Topics</p> <p><i>This final research session is focused on research programs that examine produce safety throughout the supply chain; examining cross contamination</i></p>

	<p><i>right through to the retail store. We will also explore the importance of the physiological state of a pathogen and its importance to its potential to cause illness in humans. We will hear from two researchers about a phenomenon referred to Viable But Not Culturable or VBNC and lastly a caution relating to pathogen physiological states and carrying out validation studies</i></p> <ul style="list-style-type: none"> • <i>Detection, validation, and assessment of risks implied by the viable but non-culturable (VBNC) state of enteric bacterial pathogens in fresh produce. Xiaonan Lu, University of British Columbia</i> • <i>Significance of the dormant state in the persistence, interaction with growing plants and virulence of Shiga Toxin producing Escherichia coli, Keith Warriner, University of Guelph</i> • <i>Control of cross-contamination during field-pack and retail handling of cantaloupe. Laura Strawn, Virginia Polytechnic.</i> • <i>Pathogen physiological state has a greater effect on outcomes of challenge and validation studies than strain diversity. Martin Wiedmann, Cornell.</i> <p>Moderator: Stacy Stoltenberg, Hygiene Panelists: DeAnn Davis, Church Brothers Walter Ram, Giumarra Brian Zomorodi, APIO</p>
4:00 pm – 4:45 pm	<p>So, what did we learn over the last two days? <i>Join CPS Chairperson, Tim York and Board member Dave Corsi as they share their perspectives and enlists the audience to share theirs regarding the findings that really defined the 2018 CPS Symposium.</i></p>
4:45 pm – 5:00 pm	<p>Where do we go from here... Jimmy Bassetti, J&D Produce, Inc Bonnie Fernandez-Fenaroli, Center for Produce Safety</p>
5:00 pm – 6:00 pm	<p>Reception</p>