



# BC FOOD PROTECTION ASSOCIATION FOOD SAFETY WORKSHOP

October 18, 2018 Executive Plaza Hotel Metro  
Vancouver  
405 North Road, Coquitlam, BC

## Let's Get High On Food Safety

### KEYNOTE SPEAKER



#### Linda Harris

*Specialist in Cooperative Extension—Microbial Food Safety  
Chair of the Department of Food Science and Technology Western  
Center for Food Safety of University of California*

Linda Harris is a Specialist in Cooperative Extension in Microbial Food Safety, Chair of the Department of Food Science and Technology at the University of California Davis campus, and a collaborator for the Western Center for Food Safety. She oversees a research program on the pre- and postharvest microbial food safety of fresh and fresh-cut fruits and vegetables and tree nuts and provides expertise on food safety microbiology throughout the food chain. Linda is actively involved with the International Association of Food Protection (IAFP) and was awarded the IAFP Educator Award and Frozen Food Foundation Research Award in 2004 and 2010, respectively. In 2013 she was elected to the IAFP Executive Board as Secretary and was President of the association in 2016-2017. Linda has served two terms on the National Advisory Committee on the Microbiological Criteria for Foods. While on sabbatical leave in 2013-2014, Linda had the opportunity to work as a subject matter expert at the U.S. Food and Drug Administration Center for Food Safety and Applied Nutrition.

#### *Abstract:*

#### **Low-Moisture Foods: Food Safety Challenges and Opportunities**

Low moisture, also known as low water activity foods or ingredients, are usually defined by a water activity of 0.70 or less, and are incapable of supporting growth of most organisms of public health significance. However, outbreaks over the past several decades have clearly demonstrated that these foods can harbor foodborne pathogens that can subsequently cause foodborne illness if consumed. The long shelf life of low moisture foods often complicates outbreak investigations and effective implementation of recalls. Recent studies have also demonstrated that low moisture environments often confer enhanced resistance to traditional kill steps, such as thermal processing complicating validation of preventive controls that are used to mitigate the hazard.

# FEATURED SPEAKERS

## MAJOR MICROBIAL MENACES



### **Keith Warriner**

*Professor at Department of Food Science, University of Guelph, Guelph, Ontario*

Keith Warriner is currently a Professor within the Department of Food Science at University of Guelph, Canada. Keith received his BSc in Food Science from the University of Nottingham, UK and PhD in Microbial Physiology from the University College of Wales Aberystwyth, UK. He later went on to work on biosensors within the University of Manchester, UK and subsequently returned to the University of Nottingham to become a Research Fellow in Food Microbiology. He joined the Faculty of the University of Guelph in 2002. During the last 23 years in the field of microbiology and food safety research, Keith has published more than 100 papers, book chapters, patents, and conference abstracts. His research interests are focused on enhancing food safety within meat processing, fresh cut sectors and more recently, in the area of marijuana edibles. To this end, his research team have advanced knowledge in the area of emerging pathogens (*C. difficile*, toxigenic *E. coli*), intervention technologies, bacteriophages and development of biosensor devices to detection of foodborne hazards. He is frequently contacted by the media to provide commentary on food safety issues and is currently the director of the OMAFRA HQP Program.

#### *Abstract:*

#### **Food Safety of Partially Cooked Poultry Products: Risk Profile and Process Control Options**

Partially cooked poultry products have been implicated in several outbreaks and recalls over the last two years. The root cause of outbreaks has been linked to the carriage of highly virulent *Salmonella* strains coupled with consumer handling. In response to the outbreaks/recalls linked to partially cooked poultry products, a CFIA directive has been issued to advise that there will be zero tolerance for *Salmonella* meaning a fully cooked product needs to be produced or interventions in place that can eliminate the risk from the enteric pathogen. The presentation will describe the sources of *Salmonella* and potential intervention options to inactivate the pathogen or sensitize towards mild heat and/or freezing. A roadmap will be described on how the interventions can be brought to market and challenges that need to be overcome.

# FEATURED SPEAKERS

## MAJOR MICROBIAL MENACES



### **Martin Wiedmann**

*Gellert Family Professor of Food Safety at Department of Food Science, Cornell University, Ithaca, New York*

Martin received a veterinary degree and a doctorate in Veterinary Medicine from the Ludwig-Maximilians University in Munich, and a PhD in Food Science from Cornell, where he currently is the Gellert Family Professor of Food Safety. His research interests focus on farm-to-table microbial food quality and food safety and the application of molecular tools to study the transmission of foodborne pathogens and spoilage organisms. His team has published >300 peer reviewed publications, which have been cited >10,000 times. He and his team are regularly asked to help industry with a range of microbial food safety and quality challenges. He was a member of the Listeria Outbreak Working Group, which was honored by a USDA Secretary's Award for Superior Service in 2000. He also received the Young Scholars award from the American Dairy Science Association in 2002, the Samuel Cate Prescott Award from Institute of Food Technologists' in 2003, the International Life Science Institute North America Future Leaders Award in 2004, and the American Meat Institute Foundation Scientific Achievement Award in 2011. He is a fellow of the Institute of Food Technologists (IFT), a fellow of the American Academy of Microbiology (AAM), and a member of the International Academy of Food Science and Technology.

#### *Abstract:*

#### **How Genomics Tools are Changing the Food Safety Landscape: From Outbreak Detection to Environmental Pathogen Monitoring**

Whole genome sequencing (WGS) is rapidly transforming a number of aspects of food safety. In particular, use of WGS for routine characterization of human and food isolates of foodborne pathogens will lead to detection of an increased number of foodborne disease outbreaks. This will increase the pressure to improve food safety in all parts of the food system, from primary production to retail and restaurants. Widespread use of WGS in surveillance will also likely identify food sources and transmission pathways that may not have previously been recognized. Use of WGS by industry also provides an opportunity to improve food safety program and specifically environmental monitoring programs. However, high resolution subtyping methods such as WGS also have the potential to more sensitively detect persistence of pathogens, spoilage organisms, and other bacteria, which could be interpreted as indicating unhygienic conditions or failures of cleaning and sanitation programs with more sensitive approaches than previously available. Hence WGS is likely to have widespread implications that will lead to changes in day-to-day food safety practices that will be essential for industry in order to not be identified as being responsible for foodborne disease outbreaks or cases or as producing food under unhygienic conditions.

# FEATURED SPEAKERS

## MAJOR MICROBIAL MENACES



### **Lawrence Goodridge**

*Associate Professor at McGill University, Montreal, Quebec*

Lawrence Goodridge is an Associate Professor and currently holds the Ian and Jayne Munro Chair in Food Safety at McGill University in Montreal, Quebec, Canada. He also directs the Food Safety and Quality Program at McGill. Lawrence received his PhD from the University of Guelph with a major emphasis in Food Microbiology and Food Safety. He holds degrees in Microbiology (BSc) and Food Science (MSc) from the same university. Lawrence's primary research interests include the use of genomics to study foodborne and waterborne pathogens with an emphasis on bacterial pathogens including *Salmonella* spp, *Escherichia coli* O157:H7, and *Listeria monocytogenes*. Specifically, he employs genomic approaches to develop strain specific risk assessment approaches, more sensitive diagnostics, and natural control methods to increase the safety foods. Lawrence has a long history of international research and service. He served as the Academic co-chair of the Food Safety Technical Working Group of the World Bank's Global Food Safety Partnership, and on The National Academies: National Research Council Committee on the Use of Public Health Data in FSIS Food Safety Programs. He is a member of the International Standards Organization Technical Committee on Method Validation, The United States National Advisory Committee on Microbiological Criteria for Foods, and the Health Canada Food Expert Advisory Committee. He also serves as Chair of the Membership Committee of the International Association for Food Protection, and serves on the Editorial Boards of several scientific journals related to food safety and food production. Lawrence has authored more than 70 peer reviewed scientific publications and book chapters, has presented his research at numerous international conferences, and is regularly interviewed by the print and radio media on topics of food safety importance.

*Abstract:*

### **Bacteriophages: An Emerging Class of Antimicrobials for Control of Foodborne Pathogens**

Consumer demand for clean label products has prompted food manufacturers to rethink conventional ingredients that have long been in use to produce safe food. An alternative natural approach to eliminating pathogenic bacteria in foods is the employment of bacterial viruses, known as bacteriophages (phages). Several commercial phage products are available and approved for use to reduce the presence of foodborne pathogens in pre-harvest and post-harvest settings. When employing phages as antimicrobials several aspects must be considered, including the mode and temperature of application, and the physico-chemical characteristics of the food. Additionally, the development of bacteriophage insensitive mutants (bacteria that are resistant to phage-based antimicrobials) is a concern that must be addressed.



# FEATURED SPEAKERS

## SEAFOOD SAFETY AND SURVEILLANCE



### **Sarah Dudas**

Significant Areas Program, Fisheries and Oceans Canada & Adjunct Assistant Professor at University of Victoria, British Columbia

Sarah leads the Significant Areas Program at Fisheries and Oceans Canada and is also an Adjunct Assistant Professor at the University of Victoria. Her research focuses on human effects on coastal ecosystems; including the identification of ecologically and biologically significant species and habitats, investigating marine biodiversity across regional and local scales and the effects of historical and contemporary shellfish farming practices on surrounding ecological communities and the issue of microplastics in marine ecosystems.

*Abstract:*

### **Microplastics in Seafood and the Marine Environment**

This talk will provide an overview of the issue of microplastics including their sources, potential impacts, presence in wild and farmed seafood and in the surrounding marine environment.



### **Lorraine McIntyre**

*Food Safety Specialist with Environmental Health Services, BC Centre for Disease Control*

Lorraine McIntyre is a Food Safety Specialist with Environmental Health Services at the BC Centre for Disease Control. Lorraine has had a varied career, encompassing agriculture, medical diagnostics, education and food safety. Her first job was examining the pathogenesis of canola, and since then her activities have included *Cryptosporidium* and *Giardia* research, norovirus diagnostics, FOODSAFE evaluation, creating various guidelines and food issue notes, training courses and writing peer-reviewed publications on research and outbreaks (30+). She is currently chairing three working groups into local issues: death cap mushrooms, environmental transmission of norovirus into oysters and most recently a national working group on fermented food issues. Lorraine's hobbies include making apple cider, gardening, curling and canning.

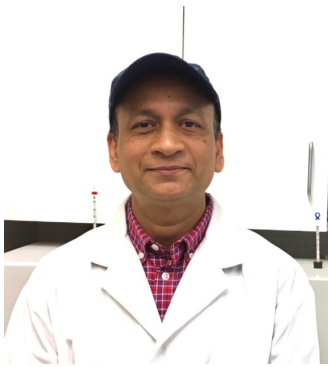
*Abstract:*

### **Climate Effects on Marine Food Sources Linked to BC Illness Investigations**

Since 2015, BC has experienced annual outbreaks involving locally sourced shellfish. Local, national and international illnesses have been linked to BC shellfish contaminated with naturally occurring *Vibrio parahaemolyticus* and anthropogenic norovirus. New illnesses linked to *Vibrio cholera* and *Pseudo-nitzschia* (domoic acid poisoning) have emerged while other shellfish toxins remain a concern year round. This talk will examine environmental factors impacting our marine food supply providing emphasis on our changing climate and why we should be concerned and vigilant.

# FEATURED SPEAKERS

## SEAFOOD SAFETY AND SURVEILLANCE



### **Musleh Uddin**

*Director, Corporate Quality Assurance of Albion Farms and Fisheries*

Musleh has over 16 years of professional experience in seafood industry within academic and research institutes as well as private and public sectors. He completed his BSc in Fisheries Science, MSc in Seafood Technology and Food Science, and PhD in Food Science at Tokyo University of Fisheries. He was a Post-Doctoral Fellow at the Tokyo University of Fisheries in Japan. He worked as a Research Scientist with the Department of Food Science at National Research Institute of Fisheries Science in Tokyo, Japan. He is currently the Director of Corporate Quality Assurance with Albion Farms and Fisheries in Richmond, BC. He is also the industry advisor for the Department of Food Science of University of British Columbia, BC.

*Abstract:*

### **Seafood Safety, Challenges and Hope**

Seafood is considered one of the most important food commodities consumed worldwide contains high quality and nutrient dense proteins, but low levels of saturated fat, sodium and calories as compared to other foods. It is packed with essential micronutrients and omega-3 fatty acids required for healthy human development. However, seafood, like other types of food stuff, can also be a source of pathogens, toxins, pollutants or adulteration could pose health risks. These risks could limit by proper handling, regulatory oversights, traceability exercise, and consumer awareness.



### **Katie Eloranta**

*Microbiology Section Head, Science Branch of Burnaby Laboratory of Canadian Food Inspection Agency*

Katie is the Microbiology Section Head for the Canadian Food Inspection Agency's Burnaby Laboratory. Katie has been with the Agency for 15 years and has been in her role as Section Head for the past 8 years. As the agency's West Coast laboratory, her team specializes in shellfish pathogens in addition to providing bacteriology and virology testing support for the full range of food commodities under CFIA's mandate.

*Abstract:*

### **Methods for Virology Analysis in Food**

Her talk on the food virology activities at the CFIA will explore the commodities of interest, principles of virology testing in food, and the unique challenges that food virology presents.

# FEATURED SPEAKERS

## FARM TO FORK SAFETY TRACEABILITY



### **Lis Vallaster**

*Environmental Health Officer of Vancouver Coastal Health*

Lis has worked as an Environmental Health Officer with Vancouver Coastal Health since 1991 inspecting food facilities including small and large food processors, fish plants, butchers, bakeries and of course restaurants. Lis is passionate about teaching pest control and food safety in the food industry. She works as a Senior EHO Specialist in Vancouver. Spare time is spent with family and friends. Lis enjoys outdoor activities, gardening, reading, mice and rats.

*Abstract:*

#### **Pest Control in the Food Industry**

Keeping pests under control is an integral part of food safety in the food industry. Rodents and other pests can bring disease into your establishment and contaminate food contact surfaces and food. Pests can enter from the outdoor environment or be delivered to you from infested warehouses. An active pest control program can identify pests quickly and prevent infestation from occurring. Learn the A, B, C's of Integrated Pest Management. It is the HACCP of pest control.



### **Pascal Delaquis**

*Research Scientist, Summerland Research Centre, Agriculture and Agri-Food Canada*

Pascal is a food microbiologist with the Science and Technology Branch of Agriculture and Agri-Food Canada at the Summerland Research Centre in British Columbia. He carries out research on the ecology of human pathogens (primarily Shiga toxin-producing *Escherichia coli* and *Salmonella enterica*) in fresh fruit and vegetable production systems, their fate during food processing and in food distribution chains to support the development of strategies to mitigate attendant risks to public health.

*Abstract:*

#### **Are We S.M.A.R.T. Enough about the Safety of Fresh Produce?**

Food safety programs are often based on S.M.A.R.T. strategies which require the setting of Specific, Measurable, Attainable, Realistic and Timely objectives to guide progress towards the ultimate goal of reducing the risk of contamination with pathogenic microorganisms. But do we know enough about the sources of pathogenic microorganisms and what happens to them after harvest to set strong, S.M.A.R.T. objectives for programs tailored to fresh fruit and vegetable products? The present will provide an overview of known factors and gaps in knowledge that influence the formulation of objectives in the development of food safety programs for fresh produce.

# FEATURED SPEAKERS

## FARM TO FORK SAFETY TRACEABILITY



### **Steve Burton**

*CEO and Founder, Icycle Technologies*

Steven is the creator of the award-winning food production management system, Icycle. Through the development of advanced food safety technology based on over a decade of sophisticated software development expertise, Burton has taken Icycle beyond document management and food safety to offer a complete solution for smart automation, improving quality standards, production efficiency, and expanding growth opportunities for all types of food businesses. Icycle moves food companies to an intelligent cloud system that simplifies operations. Their technology connects quality assurance, traceability, food safety, and vendor management into a single, unified digital platform. Through technological excellence, Icycle enables improved quality standards, production efficiency, and expands growth opportunities for all types of food businesses.

*Abstract:*

### **Blockchain: The Right Tool for Traceability?**

Blockchain is a trendy concept with lots of potential applications. When it comes to enhancing traceability and combating food fraud, is blockchain the next big step for the food industry? While the idea may seem great on paper, various factors, such as the limitations of blockchain, the complexity of the food industry, and the conflict of interest between food companies and authorities, all seem to indicate that blockchain, at the current stage, may not be the most practical solution to traceability and food fraud.



## FEATURED SPEAKERS

### FARM TO FORK SAFETY TRACEABILITY



#### **Thomas Burke**

*Food Traceability Scientist at IFT's Global Food Traceability Center*

Thomas Burke is the Food Traceability Scientist at IFT's Global Food Traceability Center (GFTC). Currently, he is a technical lead in interoperability piloting for the Global Dialogue on Seafood Traceability, an initiative funded by the Gordon and Betty Moore Foundation. The Global Dialogue is a business-to-business framework facilitating the creation of data and IT architecture standards addressing traceability use cases in the seafood sector, such as catch legality, food safety, and labor accountability. Burke also researches emerging technologies pertaining to food traceability systems, namely Blockchain, data capture integration, and AI. At GFTC, he has led the creation of a food traceability course entitled "Demystifying Traceability", an online introductory course for food professionals offered by IFT. He previously worked as a Food Safety Analyst at the Georgia Department of Agriculture, working on food outbreak investigations, emergency response, regulatory policy, and informatics. He has a BSc in microbiology from Kansas State University and is an MPH Graduate in Residence in epidemiology at Emory University.

*Abstract:*

#### **Globalized Food Traceability Systems for Efficient Recall Management in Foodborne Disease Outbreaks**

Food Traceability is a rapidly evolving interdisciplinary food science devoted to the information technology, operations, and regulatory compliance of accounting for food ingredients and products as they flow from source to retailer/consumer. This talk will describe the horizon of traceability technologies, industry data standardization efforts, and how whole-chain traceability will change foodborne disease outbreak investigations and food safety risk management.