

Symposium Abstracts

S1 Microbiological Environmental Testing and Validation: Leading-edge Issues for Low-moisture Foods

JEAN-LOUIS CORDIER, Nestlé Nutrition, Operations/Quality Management, Vevey, Switzerland
DONALD L. ZINK, Food and Drug Administration, Center for Food Safety and Applied Nutrition, College Park, MD, USA
STEVEN J. GOODFELLOW, Deibel Laboratories, Inc., Gainesville, FL, USA
MARK A. MOORMAN, Kellogg Company, Battle Creek, MI, USA
ROBERT L. BUCHANAN, University of Maryland, Center for Food Safety and Security Systems, College Park, MD, USA

Recent outbreaks of foodborne illness in several low-moisture foods (i.e., peanuts, peanut butter, cookie dough, etc.) have brought a growing public awareness of the complexities involved with the processing of this category of foods where traditional sanitation practices may not be applied or practical. As a result, the food industry and FDA have rallied to bring together best available thinking and practices necessary to assure control over foodborne hazards in such processes. However, one leading edge area that still remains a subject that offers opportunities for improvement is how control measures are verified in these processing environments through microbiological testing. This symposium will “zero in” on the challenges that face both food processors and food regulators in the area of environmental monitoring for these low moisture continuous processes.

S2 Data Deluge, Interacting Players and Complex Networks in Food Sciences – Computational Tools to Tackle Food-related Complexities

RÉKA ALBERT, Pennsylvania State University, University Park, PA, USA
MARK TAMPLIN, Food Safety Centre, Hobart, TAS, Australia
GARY BARKER, Institute of Food Research, Norwich, United Kingdom
JÓZSEF BARANYI, Institute of Food Research, Norwich, United Kingdom

Food Science is one of the most multi-disciplinary sciences, consequently a holistic approach is not only desirable but rather a necessity, in order to integrate various food-related complex systems. The systems approach appears at every level of food science from Systems Biology to Food Safety and Security, from Risk Assessment to HACCP and from Food Chains and Networks to the whole Agri-Food Economy. Food Science is unique in terms of dealing with increasing complexity: “By contrast to other prominent industrial sectors such as the car industry or pharmaceuticals, Food Industry is per se characterized by a complex value chain. This chain links the procurement of agricultural raw materials, through their processing up to their presentation for final human consumption and includes their economic distribution. As a result, this industry involves multiple players such as farmers, input suppliers, manufacturers, packagers, transporters, exporters, wholesalers, retailers and final customers with different and changing interests, cultural attitudes and dimensions.” - see: Wijnands et al.: Competitiveness of the European Food Industry. EU Commission report, 2007. Tackling such issues, such as involving interacting players in a multidimensional space, and spreading through broad spectra and scales, requires the future food scientist to receive training in: (i) Multi-disciplinary approaches to food science. (ii) Skills in using mathematical models, especially describing complex systems. (iii) Skills to handle databases and data processing.

S3 Converging Industry Initiatives on Traceability

DENNIS HELDMAN, Heldman Associates, Mason, OH, USA
DAVID GOMBAS, United Fresh, Washington, D.C., USA
FAYE FELDSTEIN, FDA, Severna Park, MD, USA

Recall events in the food industry in 2009 caused regulatory, industry and retail groups to see the need for change in the current system in order to better protect and inform the consumers, protect the industry and give the regulatory agencies more control over the process. New legislation, new methodology and new enforcement have occurred in 2009 and into 2010. It is important that these changes are effectively communicated to all segments of the food industry, including the regulatory agencies. This symposium will bring together the different avenues of programs and investigations. It will look at effectiveness and efficiency of these different processes and will introduce commonality needed to improve the speed and completeness of recalls, so as to protect the public, sectors of the food industry and the organizations that distribute and retail the merchandise. Finding the source of contamination and finding it quickly is important. Finding where the source lot was used and distributed is important, finding the retail locations and the customers who purchased the products is important. The need for a uniform approach has never been more obvious. Identifying plant-based products to their source field, grove or farm is essential. Identifying livestock to the producer, pasture and feedlot may be important. Where do we begin and end? What can we afford and what can we not afford? What do our consumers expect and can we deliver on those expectations?

S4 Human Pathogens Associated with Edible Plants

DONALD L. ZINK, FDA-CFSAN, College Park, MD, USA

JACQUELINE FLETCHER, Oklahoma State University, National Institute for Microbial Forensics and Food and Agricultural Biosecurity, Stillwater, OK, USA

JERI BARAK, University of Wisconsin, Plant Pathology Dept., Madison, WI, USA

MARIA BRANDL, USDA - ARS - WRRRC, Produce Safety and Microbiology Research Unit, Albany, CA, USA

MELANIE IVEY, The Ohio State University, Plant Pathology Dept., Wooster, OH, USA

STEVEN KOIKE, University of California, Cooperative Extension Service, Salinas, CA, USA

The past decade has seen a significant increase in the frequency of produce-associated outbreaks of human diseases, negating the paradigm that foodborne human pathogens are associated primarily with animal products. Scientists recognize that crop plants can be contaminated with human bacterial pathogens in the field. For example, preliminary research on *Salmonella enterica* in association with plants shows (1) preferential bacterial colonization in the rhizoplane; (2) bacterial growth on root surfaces; (3) extended survival in soil and population increases when crops are planted subsequently; and (4) complex surfaces, such as the cantaloupe rind, harbor and protect cells from decontamination methods. Despite these indications, most efforts have focused on potential postharvest solutions rather than addressing microbial-plant interactions in the field. Effective risk reduction and prevention strategies require knowledge of the interactions of food borne pathogens with one another, with plants, and with nonpathogenic microflora. Plant pathologists have extensive expertise on the complex relationships between microbes and plants and can be a valuable scientific resource to enhance fundamental knowledge of, and design effective solutions to, microbial contamination of food plants. The training and experience routinely applied by plant pathologists to understand the mechanisms of pathogen colonization and translocation within hosts, mechanisms of environmental dispersal, plant responses and strategies to defend themselves, and possible intervention strategies will be critical elements of a balanced program to minimize foodborne illnesses. Plant pathologists are contributing to needed research on human pathogen-plant interactions by applying modern plant pathology strategies for understanding host-pathogen interactions. Effective solutions will require the application of emerging research tools and strategies, as well as creative cross-disciplinary research efforts focused on the food production chain. This symposium will provide a view from the FDA on the need for multi-disciplinary approaches to ensure food safety, an overview of recent and proposed contributions of plant pathology to our understanding of fundamental plant-human pathogen interactions, attitudes of growers on proposed production guidances/regulatory requirements, and the role of extension and education in implementing safe production practices. The proposed symposium is unique in that it will combine the fundamental science of plant-pathogen interactions with extension and education targeted to growers. It will be focused on the increasing need to implement multidisciplinary solutions to food safety – from plant pathologists with expertise in host-pathogen interactions to educators and extension professionals to regulators to the broad range of food safety professionals.

S5 Global Water Shortages – Their Impact on Water Safety and Quality

JIM THEBAUT, The Chronicles Group, Inc., Los Angeles, CA, USA

OCTAVIA CONERLY, USEPA, Science and Technology, Washington, D.C., USA

RICHARD W. ATWATER, Inland Empire Utilities Agency, Fontana, CA, USA

Water Shortages: Their impact on Water Safety and Quality: What is being done about this problem? Water shortages and their impact on ingredient water quality is a growing concern for many countries globally. As traditional water supplies become depleted obtaining ingredient water that is free from microbiological, chemical and heavy metal contamination makes water quality more difficult to manage in the food chain from farm to table. Today one of the leading causes of water shortage is the rising demand for fresh water for industries and agriculture. There is no more fresh water on Earth today than there was 2,000 years ago, when the population was about 3% of what it is today. This short symposium session will have a speaker from the Chronicles Group who produced the documentary “Running Dry” that can bring us up-to-date information on the global water shortage and where it impacts the food chain. Water re-use is a reality and being used in agriculture and food processing. A speaker from the Water Reuse Association will discuss new sources and provide insight of high quality water for consumption in Agriculture and industry. Lastly, a speaker will discuss the intrusion of pharmaceuticals into our water supply and how that may impact the food chain. The impacts of global water shortages have not been discussed before at the IAFP or in 2008 or 2009.

S6 Ripple or Tsunami? Riding the Regulatory Wave to Safer Bottled Water and Water Beverages

HENRY KIM, U.S. Food and Drug Administration, College Park, MD, USA

BOB HIRST, International Bottled Water Association (IBWA), Alexandria, VA, USA

WILFREDO OCASIO, The National Food Laboratory, Inc., Livermore, CA, USA

Bottled water and water beverages constitute one of the fastest-growing segments of the global beverage market. Ensuring the safety of these products – amid concerns about *E. coli*, DEHP, heavy metals, pesticides, disinfection by-products, and other contaminants – is an on-going challenge for bottlers and regulators alike. This short symposium will address the who, what, when, where, and how of water regulation, labeling, testing, and inspection; explore the technical, logistical, and economic impact of newly-promulgated FDA water regulations on the bottled water and water beverage industry; and provide guidance on formulation and processing strategies to ensure the safety and stability of flavored and nutritionally-enhanced water beverages.

S7 Government, Academic and Industry Collaborations to Advance the Development and Use of Microbiological Risk Assessments

RÈGIS POUILLLOT, Food and Drug Administration, College Park, MD, USA
 DAVID ORYANG, Food and Drug Administration, College Park, MD, USA
 STEVEN M. GENDEL, Food and Drug Administration, College Park, MD, USA
 JULIANA M. RUZANTE, Joint Institute for Food Safety and Applied Nutrition, College Park, MD, USA
 DENISE EBLEN, USDA, Food Safety and Inspection Service, Washington, D.C., USA
 RICHARD WHITING, Exponent, Inc., Bowie, MD, USA

Collaborations among U.S. federal agencies, international regulatory agencies, industry, and academic institutions are critical to advance the development and use of microbiological risk assessment. Risk assessment is a useful tool for analyzing the complexities of a food supply system. It provides an objective interpretation of scientific knowledge to support decision-making, including the evaluation of options for risk mitigation and control and for resource allocation. A risk assessment can help to focus future research and other activities to answer public health questions. The complexity of risk assessments often necessitate a need to obtain input from a variety of sources including experts from regulatory institutions, industry, academic, and consumer groups. This symposium will highlight successful government, academic, and industry collaborations in the development of microbiological risk assessment.

S8 Less Recognized and Presumptive Pathogens: What Now, What Next?

PURNENDU VASAVADA, University of Wisconsin, River Falls, River Falls, WI, USA
 KALMIA KNIEL, University of Delaware, College of Agriculture and Natural Resources, Newark, DE, USA
 YNES ORTEGA, University of Georgia, Center for Food Safety, Griffin, GA, USA
 MARY TRUCKSESS, FDA, College Park, MD, USA
 SCOTT WELLS, University of Minnesota, St. Paul, MN, USA
 ROBERT DICKEY, FDA, Division of Seafood Science, and Technology/Chemical Hazards Branch, Dauphin Island, AL, USA

This symposium is being submitted with support of the IAFP Applied Lab Methods Professional Development Group. The food industry is constantly vigilant against established foodborne pathogens such as *Salmonella*, enterohemorrhagic *E. coli* and *Listeria monocytogenes*. Periodically, however, we face challenges from heretofore unheard of or less recognized microbiological threats. Some of these organisms may already be on the horizon and suspected as possible threats to public health, (e.g., *Mycobacterium paratuberculosis*, and avian influenza). Others, such as rare viruses, parasites, or cancer-inducing microorganisms, have the potential to erupt as the next major pathogenic player, given the right set of conditions. This symposium will elucidate a number of proposed, potential, or presumptive foodborne and waterborne pathogens or their toxins. The speakers are highly credentialed and qualified individuals; experts on their assigned topic. From bacteria to viruses to molds to parasites to toxigenic microorganisms, this series of lectures will benefit the food industry, researchers, regulators and students in expanding their knowledge of “Less Recognized and Presumptive Pathogens.”

S9 Buy Local? Addressing the Safety Issues Behind Green Food Trends

BENJAMIN CHAPMAN, North Carolina State University, Dept. of 4-H Youth Development and Family and Consumer Sciences, Raleigh, NC, USA
 PATRICIA MILLNER, USDA-ARS, Beltsville, MD, USA
 JOAN MENKE-SCHAENZER, ConAgra Foods, Inc., Omaha, NE, USA

In December 1998, Dennis Avery printed in the Wall Street Journal that the consumption of “organic” and “natural” foods resulted in an eight-fold higher risk of infection by *Escherichia coli* O157:H7. The CDC responded that studies comparing the risk of infection with *E. coli* O157:H7 through organic/natural foods as compared to conventionally grown have not been conducted. Over a decade later, buying local, the slow food movement and purchasing organic/natural foods have become a few of the new purchasing patterns of consumers. With the increasing incidents of foodborne outbreaks in commodities such as fresh produce, the question of food safety in these popular food trends still remains a question. Often consumers automatically assume that these local, slow and organic foods are also safer. This symposium addresses what these buzzwords mean to the food industry in regards to safety and in procurement strategies. Topics include consumer and media perspectives on the safety of these food trends, current research conducted on microbiology of local/slow/organic produce as compared to conventional produce and a comparison of local/slow/organic food safety versus commercial food manufacturing food safety.

S10 Good Agricultural Practices and the Small Scale Producer: What's Really Going on out There?

ELIZABETH A. BIHN, Cornell University, New York State Agricultural Experiment Station, Dept. of Food Science and Technology, Geneva, NY, USA
 MELISSA MUNDO, Duda Farm Fresh Foods, Food Safety Coordinator, Oxnard, CA, USA
 MARTHA ROBERTS, University of Florida, North Florida Research and Education Center, Quincy, FL, USA

In 1998, the Food and Drug Administration (FDA) published the Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables which outlined good agricultural practices (GAPs). GAPs aim to prevent contamination of fresh produce during production and packing on the farm. Since the 1998 guide, many educational programs have been put into place to assist growers with understanding and implementing GAPs. However, foodborne illness associated with the consumption of fresh produce continues to occur. Most large scale producers have detailed GAPs plans in place because of purchaser requirements. Alternatively, small scale producers are less likely to have any implemented food safety plan because their buyers have never made this a requirement. With increased consumer demand for locally grown products, many retailers are now sourcing product from small, local producers. It is clear that extension programs throughout the U.S. are reaching growers of all sizes that sell in diverse markets including retail stores, farmers markets, community sponsored agriculture, and direct farm markets. With all the produce associated outbreaks, buyer requirements, and federal discussions, why are some small growers still not developing and implementing food safety plans on the farm? This symposium proposes to address questions about GAPs implementation with particular focus on the small scale producer. GAPs implementation has not been a symposium topic covered at IAFP in 2008 or 2009, and with the new trend toward sourcing product from small, local producers it is felt this is an area needing attention. With the upcoming general meeting being held in California, it is felt that small growers from the area may find this

symposium of particular interest and thus attract new members to IAFF. Symposium attendees will have a better understanding of challenges to GAPs implementation by smaller producers, the likely impact new marketing and regulations will have on growers who direct market their crops, how much their production is likely to impact consumption, and if this represents a significant risk.

S11 What's Been Keeping You up at Night – Selected Unanswered Food Safety Questions

RONALD H. SCHMIDT, University of Florida, Gainesville, FL, USA

LEE-ANN JAYKUS, North Carolina State University, Food, BioProcessing, and Nutrition Sciences, Raleigh, NC, USA

JOSEPH D. MEYER, Food Safety, Kellogg Company, Battle Creek, MI, USA

LORALYN LEDENBACH, Kraft Foods, Food Safety and Microbiology, Glenview, IL, USA

ROBERT V. TAUXE, CDC, Atlanta, GA, USA

ANDREW BENSON, University of Nebraska, Applied Genomics and Ecology, Lincoln, NE, USA

The symposium is a potpourri of food safety issues currently under debate in the food industry, plus some discussions on potential ways to discover solutions to emerging food safety issues before they happen. It is not intended to be another emerging pathogen symposium, but is intended to highlight several “burning” questions presently on the minds of food safety professionals.

S12 Flour Food Safety: The Changing Landscape – *Escherichia coli* O157:H7

JOE SHEBUSKI, Cargill, Plymouth, MN, USA

TIM JACKSON, Nestle, Glendale, CA, USA

BEN WARREN, ConAgra Foods, Omaha, NE, USA

Flour has been viewed as a raw agricultural product for years; but with a recent outbreak involving consumption of an uncooked product containing flour, regulators and industry are re-examining whether flour should be treated as a RTE ingredient in some foods that may be consumed uncooked by the consumer. This mini-symposium will examine the history of flour and what industry knows about the microbiology of this product during production, harvesting and milling; the regulatory perceptions of flour as a potential vehicle of pathogens; the transformation of microbiological criteria associated with flour and the verification testing required to gauge compliance with the new criteria; and one solution available to deliver RTE flour as an ingredient.

S13 “Ingredient” is a Ten-letter Word for Financial Disaster

BILL MARLER, Marler Clark LLP PS, Seattle, WA, USA

ALAN MAXWELL, Weinberg Wheeler Hudgins Gunn and Dial LLC, Atlanta, GA, USA

D. ALAN RUDLIN, Hunton and Williams, Richmond, VA, USA

MADELEINE MCDONOUGH, Shook Hardy and Bacon LLP, Washington, D.C., USA

PAUL KASSIRER, Lester Schwab Katz and Dwyer, LLP, New York, NY, USA

DAVID HERMAN, Grocery Manufacturers Association, Washington, D.C., USA

This symposium will address the liability of foodborne illnesses and product recalls when ingredients are used from other companies, some of which may be from other countries. One ingredient may pass through numerous hands, contaminate thousands of pounds of product, be responsible for illnesses or deaths and even cause a company to close its doors forever. This symposium will look at how to find the causes of the contamination, discuss the risks and threats to our food supply, how to apportion the liability, and the effect on industry when tainted ingredients are knowingly, or unknowingly, used in the production of food products. The symposium will include case studies and perspectives from top attorneys in the field of food law. They will discuss current concerns: peanuts, cookie dough, leafy greens, ground beef, melamine, etc.

S14 National Institute of Food and Agriculture Showcase

ISABEL WALLS, USDA, National Institute of Food and Agriculture, Washington, D.C., USA

LEE-ANN JAYKUS, North Carolina State University, Dept. of Food, Bioprocessing and Nutrition Sciences, Raleigh, NC, USA

LYDIA MEDEIROS, The Ohio State University, Dept. of Human Nutrition, Columbus, OH, USA

ROBERT GRAVANI, Cornell University, Dept. of Food Science, Ithaca, NY, USA

The National Institute of Food and Agriculture (NIFA) is a new agency within the U.S. Dept. of Agriculture (USDA). NIFA replaced the former Cooperative State Research, Education, and Extension Service (CSREES), which had been in existence since 1994. NIFA's unique mission is to advance knowledge for agriculture, the environment, human health and well-being, and communities by supporting research, education, and extension programs in the US Land-Grant University System and other partner organizations. NIFA doesn't perform actual research, education, and extension but rather helps fund it at the state and local level and provides program leadership in these areas. This symposium will provide an overview of NIFA, and showcase activities being funded in food safety research, education and extension.

S15 Risk-based Design of Microbiologically Safe Foods

TIM JACKSON, Nestlé North America, Glendale, CA, USA

ALEJANDRO AMEZQUITA, Unilever, Safety and Environmental Assurance Centre, Bedford, United Kingdom

NATHAN ANDERSON, NCFST-FDA, Division of Food Processing Science and Technology, Washington, D.C., USA

Traditional rules for the delivery of microbiologically safe food products, e.g., the 12D concept for low-acid canned foods are well established and have a good safety record. These traditional rules are set to be widely applicable and do not take into consideration specific factors relevant to risk, e.g., raw material contamination levels, and changes that may occur during production, distribution, storage, preparation and use of a product. Thus, by their nature, traditional rules are somewhat conservative. Designing products and processes based on a risk assessment approach can bring a better understanding of the factors relevant to risk. Through the application of such approaches it is possible to improve the safety of products and to optimise the quality of products (taste, texture, nutrition) and to optimise energy use to minimise the environmental impact of processes. Moving away from traditional rules requires co-operation between the key stakeholders e.g., industry, regulators, researchers, KOFs. The aim of this symposium is for the key stakeholders to present and discuss the latest thinking and developments in this area. IAFF attendees will be presented with the latest developments in the application of risk-based approaches in the design of microbiologically safe food products and processes.

S16 Significance and Detection of STEC or Non-O157 *Escherichia coli*

PINA FRATAMICO, USDA-ARS, Atlanta, GA, USA

CHRISTINE ROZAND, bioMérieux Industry, Global R&D Industry, Marcy L'Etoile, France

ALEX GILL, Health Canada, Bureau of Microbial Standards, Ottawa, ON, Canada

STEFANO MORABITO, Istituto Superiore di sanita, Dipartimento di Sanita Pubblica Veterinaria e Sicurezza Alimentare, Roma, Italy

MICHAEL COOLEY, USDA, Western Regional Research Center, Albany, CA, USA

JEFF FARBER, Health Canada, Bureau of Microbial Standards, Ottawa, ON, Canada

The focus of concern for hemorrhagic *Escherichia coli*, particularly in the USA, has been on O157:H7. This symposium will address the global significance of STEC or non-O157 *E. coli* as foodborne pathogens and will review methods for detection. Speakers from Canada, United States and Europe will discuss the epidemiology of STEC and specific concerns in their respective geographical locations. The symposium will conclude with a panel discussion to allow attendees to question and comment on the issues raised.

S17 The *Salmonella* Smorgasbord: The Problem with Too Many Choices

PAULA FEDORKA-CRAY, USDA/ARS/BEAR, Athens, GA, USA

JULIAN COX, The University of New South Wales, Sydney, NSW, Australia

JASON RICHARDSON, Coca Cola, Atlanta, GA, USA

BOB REINHARD, Sara Lee Corporation, Downer's Grove, IL, USA

SHAWN BEARSON, USDA-ARS-NADC, Ames, IA, USA

MARK BERRANG, USDA-ARS-BEAR, Athens, GA, USA

Although hundreds of articles are written about *Salmonella* each year, it continues to command top billing as a foodborne pathogen. We have revisited the same issues over a period of time without hitting upon a "eureka" moment. Often, we tend to travel in the comfort zone, bringing in the latest and greatest technology which, while providing insight regarding specific gene functions, has not provided us with the magic control solution. This symposium is meant to take us out of the comfort zone, sometimes back to areas we long thought of as complete, of little significance or too hard to deal with. For "Niche Displacement: Can you Really Find a New Renter?" the talk with focus on issues surrounding control. There is a preponderance of evidence that if you control for one serotype another comes in. The notion that you can 'get rid' of a specific serotype may not solve the problem as the niche seems to require filling by *Salmonella*, regardless of serotype. This is meant to be a thought provoking talk without the intent to talk about competitive exclusion, prebiotics or probiotics. A compelling example of what has happened over the last 11 years with Kentucky, Enteritidis, Heidelberg, Typhimurium and Typhimurium 5- should make the audience take pause. Additionally, what may not be present in plant may appear at retail! In "Country Specific Serotypes: Why Some *Salmonella* Never Seem to Travel" the talk will compare and contrast serotypes between countries. The goal would be to postulate why some seem rooted in one country. The DT104 story in England or Sophia in Australia are good examples of a widespread problem that hasn't really travelled well. "The Slugfest – Why Some *Salmonella* Outcompete Others" explores the differences between *Salmonella* serotypes in recovery and competition during cultivation both in vivo and in vitro. Although some may ask why this has to be revisited, there are serious implications as regulations are being made on the data which can be impacted by cultivation methods. "*Salmonella* – A Regulatory Challenge for Industry?" will focus on the challenges associated with developing regulations around *Salmonella*. This could also be given by someone who can speak to trade issues. "A Blast from the Past? Why We Need to Build a Better Host" will focus on the host/bug interactions, immunity and what molecular biology at the gut level can do for us today. If we can't control *Salmonella* by conventional means, will control in the host really work? Finally, "Give It Your Best Shot: The Chemical Control Conundrum" will focus around the myriad of serotypes found in a plant and how one chemical intervention may not necessary provide universal control. Therefore, if you can control it on farm but not in the plant, how much do you really gain?

S18 European Concept on Hygiene Monitoring in the Food Supply Chain – 'Farm to Fork' Concept in Practice

HELMUT STEINKAMP, Food Safety, German Institute of Food Technology, Quakenbrück, Germany

EBERHARD HAUNHORST, Lower Saxony State Office for Consumer Protection and Food Safety, Oldenburg, Germany

GUENTER KLEIN, University of Veterinary Medicine Hannover, Institute for Food Quality and Food Safety, Hannover, Germany

The idea of the symposium is to present a transatlantic comparison on food hygiene concepts based on EU-regulations. Eberhard Haunhorst: Monitoring of Food Safety in Practice. The EU demand on food safety is directed towards a cross-stage cooperation for hygiene monitoring in food production. Based on the existing EU-Regulations the European way towards an improved food safety in Europe is shown. The EU-Regulations are transferred on national level of the EU-Member States. Following the German model on food safety control, the practical application of the hygienic concept is presented. Guenter Klein: Zoonosis Control in Primary Production and in the Food Chain. The implementation of the EU zoonosis-regulations requires the monitoring of *Salmonella* and *Campylobacter* in animal production. The application of these regulations is described and shown to be an effective method for zoonosis reduction in the food supply chain. Only combined measures in primary production and in the following steps of the food chain (harvesting, processing) are successful to reach the goal of the regulations. Helmut Steinkamp: European Food Safety Standards. The European regulation concerning food safety and consumers' health is implemented by introducing the self control principles and the prevention of risks for foodstuffs following the HACCP principles (Hazard Analysis Critical Control Points). Furthermore food retailers are induces the food industries to elevate their qualitative and sanitary-hygienic standards. To export in Europe and to produce trademark products, it is necessary to demonstrate the capacity of applying international acknowledged standards such as the BRC (British Retail Consortium), the IFS (International Food Standard) and the EFSIS (European Food Safety Inspection Service). The aims are to control risk factors for consumers through: traceability, preventions of food intolerances, continuous updating of microbiological and chemical-physical requisites in foodstuffs and labelling.

S19 International Food Safety Policies

JAMES BALL, Delhaize Group, Belgium

MOHAMMED RAWASHDEH, Jordan Food and Drug Administration, Amman, Jordan

FLORIAN HEUPEL, Eurofins, Nantes, France

KEES AELBERS, PepsiCo, Amsterdam, The Netherlands

WILLIAM PAPPAS, Alliance One International, Morrisville, NC, USA

TERRY STILLMAN, Alliance One International, Morrisville, NC, USA

This symposium will provide a venue for an open discussion on the comparative differences of regulations and policies around the globe, updates on international legislation, and more importantly the effectiveness of an overall global food safety topology. Real-world examples of the challenges and accomplishments of multi-national organizations working in this environment will be cited to facilitate a “lessons learned” dialog. Speakers from Europe, Asia and the Americas will jointly explore current efforts to harmonize international standards, and gauge how near we are to a standardized approach and what’s to come in the future. Global standardization has important ramifications for food safety and the efficiency of multi-national organizations and governments. Can a safer and more secure food system be established without a negative economic impact? In a world of increasing global trade, the importance of this discussion spans from public health and safety to the bottom line of every business. Key points of differentiation from previous similar presentations: 1. This session will provide an update on international food safety legislation 2. This session will gauge the effectiveness of the international food safety topology 3. This session will feature lessons learned by multi-national organizations 4. This session will measure how close we are to global standardization? 5. This session will weigh food safety cost/benefit considerations. Can we deliver on those expectations?

S20 Food Packaging Technology: Opportunities and Challenges That Enhance Food Safety

JOSEPH HOTCHKISS, Michigan State University, School of Packaging, East Lansing, MI, USA

FORREST BAYER, The Coca-Cola Company, Atlanta, GA, USA

MICHELLE TWAROSKI, U.S. Food and Drug Administration, Food Packaging Division, College Park, MD, USA

ROBERT BRACKETT, Grocery Manufacturers Association, Washington, D.C., USA

CARL WINTER, University of California-Davis, Dept. of Food Science and Technology, Davis, CA, USA

Food safety continues to be a priority for food manufacturers, regulatory bodies and government agencies in the United States and abroad. Over the years, food packaging technology has evolved to keep pace with our global food supply by enhancing the safety and quality of edible products. To that end, packaging offers the value-added benefits of keeping food affordable for consumers, extending shelf life, and in many instances, minimizing the risk of possible microbial contamination. However, with the advancement of food packaging technology we are becoming more aware of chemicals migrating from food packaging surfaces to food, which has implications for public health. This symposium will put past, present and emerging packaging technologies into context relative to food safety. Speakers will delve into the specifics of packaging’s public health implications; the regulatory approval process associated with packaging and the benefits that food packing offers to enhance food safety.

S21 The Emergence of Non-culture Diagnostics and Their Impact on Global Foodborne Disease Surveillance

MARGUERITE A. NEILL, Brown Medical School and Memorial Hospital of Rhode Island, Division of Infection Diseases, Pawtucket, RI, USA

ANDREA G. ELLIS, World Health Organization, Dept. of Food Safety, Zoonoses and Foodborne Diseases, Geneva, Switzerland

TIMOTHY F. JONES, Tennessee Dept. of Health, Nashville, TN, USA

JOHN BESSER, Centers for Disease Control and Prevention, Enteric Diseases Laboratory Branch, Atlanta, GA, USA

G. BALAKRISH NAIK, National Institute of Cholera and Enteric Diseases, Beliaghata, India

The symposium will aim to describe the evolving landscape of surveillance for foodborne illness, ranging from new surveillance challenges at the national and global levels to harnessing the power of rapid molecular subtyping methods being utilized by international laboratory networks. Examples will be provided along the way, along with provocative questions they raise for the clinical and public health communities. Emphasis will be placed not just on questions raised, but on looking toward the future and suggesting solutions to get us where we want to go.

S22 Food and Food Environment Test Considerations in View of Changing Regulations

DON ZINK, Food and Drug Administration, College Park, MD, USA

MARK MOORMAN, Kellogg’s, Battle Creek, MI, USA

JOHN LEMKER, K and L Gates, Chicago, IL, USA

BOB BRACKETT, GMA, Washington, D.C., USA

TIM FRIER, Cargill, Minnetonka, MN, USA

MASI RAJIBI, ABC Research, Gainesville, FL, USA

JEFFREY L. KORNACKI, Kornacki Microbiology Solutions, Inc., McFarland, WI, USA

Responsible food processors have historically engaged in rigorous sampling of their production environments for pathogenic microorganisms and based remediation activities upon such data. This approach has resulted in great health risk reduction to consumers and business risk reduction to food producers. However, recent public events have created powerful incentives for regulatory agencies to seek this environmental and product pathogen test records previously considered confidential. These regulatory activities raise important concerns within the industry about how they should manage their pathogen control programs. The wrong approach (e.g., less environmental testing) will result in greater consumer and eventual business risk. This symposium will review the present situation, look at anticipated near-term regulatory changes, describe consequences of pathogen and indicator testing, and provide important suggestions to the industry that should result in a safer food supply and a less risky business environment.

S23 Way before the Fork: Impact of Pre-harvest Management Programs and Supply Chain Influences on the Control of Shiga Toxin-producing *Escherichia coli* Contamination in Beef

JAMES DICKSON, Iowa State University, Dept. of Animal Science and Interdepartmental Program in Microbiology, Ames, IA, USA

GUY LONERAGAN, West Texas A&M University, Canyon, TX, USA

STUART REID, University of Glasgow, Veterinary Medicine, Glasgow, Ireland

DAVID SMITH, University of Nebraska-Lincoln, Lincoln, NE, USA

PATRICE ARBAULT, BioAdvantage Consulting, Orlienas, France

PATRICIA GRIFFIN, Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases, Atlanta, GA, USA

The negative effects and outbreaks of foodborne pathogens, including Shiga toxin-producing *Escherichia coli* (STEC) are significant and can be devastating. Beef post-harvest control methods have been successful in reducing the risk of contamination of STEC. The role of pre-harvest control methods and management programs is becoming increasingly critical for food safety and public health. Development and adoption of pre-harvest tools are the keys to farm-to-fork control of STEC. *E. coli* are a large and diverse group of bacteria. Although most strains of *E. coli* are harmless, others have the potential to cause human illness. Some kinds of *E. coli* cause disease by making a toxin called Shiga toxin. The bacteria that make these toxins are called Shiga toxin-producing *E. coli* (STEC). This term is interchangeable with the term verocytotoxic *E. coli* (VTEC). Those STEC that can cause human illness are sometimes called enterohemorrhagic *E. coli* (EHEC). The most commonly identified STEC in North America is *E. coli* O157:H7 (often shortened to *E. coli* O157 or even just O157). News reports about outbreaks of *E. coli* infections usually refer to *E. coli* O157. In addition to *E. coli* O157, many other serogroups of STEC cause disease and are sometimes called “non-O157 STEC.” *E. coli* serogroups O26, O111, and O103 are the non-O157 serogroups that most often cause human illness in the United States. Most of what is known about STEC comes from outbreak investigations and studies of *E. coli* O157 infection, which was first identified as a pathogen in 1982. STEC live in the guts of ruminant animals, including cattle, goats, sheep, deer, and elk. The major source for human illnesses is cattle. The non-O157 STEC are not nearly as well understood as O157, partly because outbreaks due to them are rarely identified. As a whole, the non-O157 serogroups are less likely to cause severe illness than *E. coli* O157; however, some non-O157 STEC strains can cause the most severe manifestations of STEC illness. Addressing state-of-the-art pre-harvest efforts and tools to minimize the risks of STEC contamination of beef products, this symposium showcases input from global experts representing industry, academia and public health sectors.

S24 Advances in Detection Technologies to Address Food Safety and Food Defense Needs

ALEXANDER SIMONIAN, National Science Foundation, Biosensing and Bioengineering/CBET, Arlington, VA, USA

DANIEL V. LIM, University of South Florida, Advanced Biosensors Laboratory, Tampa, FL, USA

CHRIS R. TAITT, Naval Research Institute, Center for Bio/Molecular Science and Engineering, Washington, D.C., USA

ARUN K. BHUNIA, Purdue University, Dept. of Food Science, West Lafayette, IN, USA

BRUCE APPLGATE, Purdue University, Dept. of Food Science, West Lafayette, IN, USA

The risk of unintentional contamination of food and ingredients with microbial and chemical agents continues to be an ongoing and relentless food safety challenge to all stakeholders. Moreover, the malicious contamination of food for political, financial and other purposes is a real and current threat, and deliberate contamination of food at one location could have global public health implications. Industries that comprise the U.S. food system from farm to table are potential targets for bioterrorism and terrorist hoax situations. Terrorists could create harm through: (1) final product contamination using either chemicals or biological agents with the intent to kill or cause illness among consumers, (2) disruption of food distribution systems, (3) damaging the agricultural economy (which makes up roughly 17% of the gross domestic product) by introducing devastating crop pathogens or exotic animal diseases or (4) hoaxes, which create anxiety and fear and which could severely impact an area of the food system. A variety of potential bioterrorism and chemical agents could contaminate the food supply, and the possible scenarios for deliberate contamination events are essentially limitless. One of several important detection methods for identifying credible threats, so that incidents may be appropriately triaged and responded to according to level of risk, includes enhanced laboratory capacity and technologies. Planning for possible crises should consider the ability of the surveillance and monitoring systems to rapidly detect food safety emergencies, including those caused deliberately. Investigation of a potential outbreak identified by surveillance should include identification of the food and the responsible agent in the food. Qualified laboratories are important requirements for food defense preparedness. The timely sampling, transport and analysis of suspected foods should be addressed as part of preparedness planning. Given these assertions, enhanced food testing capabilities are critical to successful food safety and defense programs. This symposium is designed to address and describe emerging technologies that can be considered state of the art laboratory tools for identifying food microbial and chemical biohazards of accidental and intentional origin.

S25 Human Noroviruses: Attribution, Transmission and Control

JUDY GREIG, Public Health Agency of Canada, Guelph, ON, Canada

NIGEL COOK, CSL, York, United Kingdom

CRISTOBAL CHAIDEZ, CIAD, Culiacán, Sinaloa, Mexico

ALVIN LEE, National Center for Food Safety and Technology, Chicago, IL, USA

MOSHE DREYFUSS, FSIS, Washington, D.C., USA

JAMES ARBOGAST, GOJO Industries, Akron, OH, USA

The transmission of the newly emerging norovirus genogroup II.4 that are highly virulent and capable of causing death in the elderly and immunocompromised needs to be better understood. Questions revolve around foodborne related outbreaks of noroviruses in determining the types of foods that typically cause outbreaks, consumption trends, and changes in food commodities that are known to cause outbreaks over time and various geographical regions in comparison to the outbreaks of the recent years. Many questions involve new transmission routes or the ability to better detect these pathogens in foods that were not routinely tested for earlier. This symposium will increase our understanding of the risks associated with the transmission of enteric viruses from the farm to the table and what control measures can be put into place at the various levels. Questions will be answered related to what extent farm workers have in the spread of enteric viruses to produce. The importance of norovirus cross contamination in the commercial food service setting during preparation of fresh produce will be discussed. Information regarding the extent person-to-person transmission has on the spread of enteric viruses during outbreaks will be examined. Finally the impact of sanitizers for control of enteric viruses for produce and workers will be discussed.

S26 Global Issues and Impact of Gluten Allergy and Celiac Disease

SAMUEL GODEFROY, Health Canada, Ottawa, ON, Canada

STEVE L. TAYLOR, University of Nebraska, FARRP, Lincoln, NE, USA

RHONDA KANE, FDA, Food Labeling and Standards, College Park, MD, USA

ROLAND E. POMS, International Association for Cereal Science and Technology, Cereal Science, Vienna, Austria

GLENN BLACK, GMA, Science Operations, Washington, D.C., USA

Wheat gluten is known to provoke a disorder known as celiac disease (CD) in a significant part of the worldwide population. In the United States alone, it is estimated that more than two million people suffer from CD. Moreover, wheat proteins are also responsible for allergies. This symposium elucidates the differences between CD and allergy, based on actual clinical and epidemiological data. There is currently no treatment for celiac disease or for wheat allergy, so people suffering from CD or allergy have to follow a strict gluten-free diet. As wheat, and more generally grains, represent a significant part of food ingredients, additives and final products, there is a tremendous need for food industry players to acquire an adequate understanding of the current needs and requirements of consumers with CD and wheat allergy and to fulfill their responsibilities in accordance with national and international regulations for gluten-free foods and labelling. This symposium will cover current regulations in the U.S. and Europe, consumer and patient needs, and current analytical and production technologies. The latest breakthroughs for gluten analysis in foodstuffs will be addressed, along with the benefits and limitations of the various technologies. To that end, some “real life” experiences during routine analysis will be highlighted. What’s more, current progress by the food industry in the risk management of gluten in gluten-free food and manufacturing facilities will be presented. Such a topic has not been thoroughly approached for the last 2 years of the IAFP Annual Meeting.

S27 Food Safety in Developing Countries

BOBBY KRISHNA, Dubai Municipality, Food Safety Unit, UAB, United Arab Emirates

CAMERON SMOAK, Georgia Dept. of Agriculture, Madison, GA, USA

SHRI R. VIJAY, Food Safety and Standards Authority of India, Administration & Finance, New Delhi, India

FERNANDO G. QUEVEDO, San Marcos National University, Lima, Peru

PETER BEN EMBAREK, World Health Organization, Dept. of Food Safety, Zoonoses and Foodborne Illness, Beijing, China

Speakers will deliver the challenges that address different developing countries or regions and strategies taken to carry out the surveillance and control measures. Most of these speakers have not presented at IAFP meetings before.

S28 Foodborne Disease Outbreak Update

JEFFERY HIGA, Colorado Dept. of Public Health and Environment, Communicable Diseases, Denver, CO, USA

MAHA HAJMEER, California Dept. of Public Health, Food and Drug Branch, Sacramento, CA, USA

SHAUN COSGROVE, Colorado Dept. of Public Health and Environment, Communicable Diseases, Denver, CO, USA

SCOTT SEYS, USDA-FSIS, Office of Public Health Science, Minneapolis, MN, USA

MARK SOTIR, Centers for Disease Control and Prevention, Outbreak Response and Prevention Branch, Atlanta, GA, USA

TIMOTHY JACKSON, Nestle USA, Inc., Food Safety, Glendale, CA, USA

This symposium will describe the epidemiologic and environmental investigations of four foodborne disease outbreaks that have occurred in the past year.

S29 Maintaining Consumer Market Continuity during Animal Disease Outbreaks

TODD MCALOON, Cargill Animal Protein, Minneapolis, MN, USA

TIMOTHY CLOUSE, USDA-CEAH, Fort Collins, CO, USA

DARRELL TRAMPEL, Iowa State University, Ames, IA, USA

JON ZACK, USDA-APHIS, Riverdale, MD, USA

HOWARD MAGWIRE, United Egg Producers, Washington, D.C., USA

WILLIAM HUESTON, University of Minnesota, St Paul, MN, USA

For the last 5 years, a diverse team of egg industry, university and state/federal regulatory persons have proactively worked on a means to contain a Highly Pathogenic Avian Influenza disease outbreak while at the same time, maintaining market continuity. The process is highly collaborative and engaged. The team has garnered significant support by some respected animal health groups such as the United States Animal Health Association and National Poultry Improvement Plan as well published USDA APHIS Risk Assessments for various egg industry products, an MOU between Iowa and Minnesota with other states joining this coalition and the resulting work (Secure Egg Supply Plan) will be utilized by both egg industry and USDA APHIS as part of emergency preparedness and response plans. This group is changing the paradigm for animal disease outbreak control and is proof that collaboration between all stakeholders is the model going forward. Already a new group has been formed to address market issues related to a potential Foot and Mouth Disease (FMD) outbreaks in hogs, modeled after this team’s efforts.

S30 A Practical Approach to Risk Communication: Engaging Stakeholders and the Public

ANDY BENSON, International Food Information Council, Washington, D.C., USA

JEAN KENNEDY, European Food Information Council, Brussels, Belgium

CARL WINTER, University of California-Davis, Dept. of Food Science and Technology, Davis, CA, USA

PETER BEN EMBAREK, World Health Organization, Dept. of Food Safety, Zoonoses and Foodborne Illness, Beijing, China

GENARO W. GARCIA, Centro Panamericano de Fiebre Aftosa, Health Surveillance and Disease Management, São Bento, Brazil

MARJORIE DAVIDSON, U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition, College Park, MD, USA

Risk communication is vital to help prevent or reduce the risk of foodborne illness for the public and especially for target audiences. The fact that today's food supply is global and truly international in scope adds another set of food safety communication challenges. This session will help attendees build communication competence and capacity among IAFP members in the U.S. and abroad to be successful when communicating about food safety issues either in a local or global environment. The symposium is designed to facilitate a dialogue that enhances communication among food safety stakeholders (academic, government, industry and consumers) and will help develop best practices when communicating about food risks. In addition, the symposium will highlight examples/case studies from various food safety stakeholders in the U.S. and abroad including perspectives from the U.S., SE Asia, South America and Europe. These and other invited speakers will come together to share best practices for future risk communication initiatives.

S31 Setting the Science-based Agenda for Co-management of Watershed Quality and Produce Safety

CHRISTINA FISHER, The Nature Conservancy, Arlington, VA, USA

DANIEL MOUNTJOY, USDA, Natural Resources Conservation Service, Salinas, CA, USA

MICHELLE JAY-RUSSELL, University of California-Davis, Western Institute for Food Safety and Security, Davis, CA, USA

JEFFERY LEJEUNE, The Ohio State University, Dept. of Veterinary Preventive Medicine, Wooster, OH, USA

MICHAEL BATZ, University of Florida, Emerging Pathogens Institute, Gainesville, FL, USA

TIM YORK, Markon Cooperative, Salinas, CA, USA

Providing fresh produce of high quality and safety, at all scales of production and distribution, is a vital national and global issue. In many areas, the seeming overriding focus on food safety issues and responses, in the absence of scientific certainty, has thrown fresh produce into a nexus of competing agendas between consumer health, environmental stewardship, and the economic sustainability of this agricultural sector. Efforts to ensure compliance with on-farm food safety audit requirements and microbiological standards may have resulted in significant local and regional negative impacts on watershed quality and wildlife in the central coast of California, a major cool-season fruit and vegetable producing region. A key feature in this dilemma is the limited specifically-applicable data on the role of non-crop vegetation as habitat for diverse vertebrate and invertebrate vectors on transference and persistence of enteric pathogens to fresh produce. In the absence of developing adequate risk-based data and analysis to support co-management strategies, the construction of sound, science-based policies that protect public health and balanced environmental systems will be unattainable. Adopting national mandatory standards for produce production and marketing based on conceptually limited or flawed options for co-management could have devastating economic impacts, especially to small farm and limited resource producers. This symposium is a novel and timely topic for IAFP and would bring together scientists and policy-drivers from a broad spectrum including the fresh produce industry, environmental advocacy, and regulatory communities. Attendees will attain a more in-depth understanding of the current conflicts and the efforts of a broad coalition of grower and environmental associations, agencies, regulators, and researchers to define the state-of-the science and a best path forward for developing effective co-management strategies. Symposia at IAFP in 2008 (S15 Harmonization of Irrigation Water Practices) and 2009 (S20 Environmental Reservoirs of Major and Emerging Foodborne Pathogens) have not recognized that the co-management of public health and the environment are critical, or considered the potential widespread impacts of inconsequential or ineffective food safety management practices.

S32 Bacterial Toxins: A Past or an Emerging Issue for Food and Beverage Safety?

PATRICE ARBAULT, BioAdvantage Consulting, Food Safety and Analytical Methods, Orliénas, France

SANDRA M. TALLENT, FDA, Division of Microbiology, College Park, MD, USA

JULIAN COX, University of New South Wales, Faculty of Science, Sydney, NSW, Australia

STEFANO MORABITO, Istituto Superiore di Sanità, Dipartimento di Sanità Pubblica Veterinaria e Sicurezza Alimentare, Rome, Italy

ERIC A. JOHNSON, University of Wisconsin-Madison, Dept. of Bacteriology - Food Research Institute, Madison, WI, USA

JULIAN COX, University of New South Wales, Faculty of Science, Sydney, NSW, Australia

Bacterial toxins have never really disappeared from the radar screens of food safety and epidemiological data have underlined their perennial implication in foodborne intoxications worldwide. Recent outbreaks linked to consumption of foods and beverages (botulinum toxins in carrot juice and in "foie gras") have re-highlighted their significance, introducing some of them as 'a new threat', but are they really new or simply back from the oubliette? The symposium first gives an introduction to bacterial toxins and their relevance to food safety. Several of them (staphylococcal enterotoxins, *Bacillus* toxins, toxins excreted by some of the pathogenic *E. coli* groups, and *Clostridium botulinum* toxins) will then be discussed, including their characteristics, food matrices of concern, and current analytical technologies available for their detection. Such a global approach on bacterial toxins has not been presented for the last two IAFP Annual Meetings. This symposium wants to update on the impact of various bacterial toxins on food safety issues, including beverage, on the analytical techniques for their detection in food, and to illustrate the lessons learned from some of the recent outbreaks.

S33 Tools for Predictive Microbiology and Microbial Risk Assessment

VIJAY JUNEJA, USDA, Wyndmoor, PA, USA

LEE-ANN JAYKUS, North Carolina State University, Dept. of Food, Bioprocessing and Nutrition Sciences, Raleigh, NC, USA

SARAH CAHILL, FAO, Nutrition and Consumer Protection Division, Rome, Italy

PANAGIOTIS SKANDAMIS, Agricultural University of Athens, Dept. of Food Science and Technology, Athens, Greece

Predictive models have been increasingly used by the food industry, regulatory agencies, and research institutes to predict the behavior of the pathogens in foods, for developing HACCP plans. The predictions serve as building blocks for microbial risk assessments. This symposium will give an update on the tools in predictive microbiology and risk assessment.

S34 WHO's Epidemiological Approach to Estimating Foodborne Diseases – WHO FERG

CLAUDIA STEIN, World Health Organization, Food Safety and Zoonoses, Geneva, Switzerland

ARIE HAVELAAR, RIVM, Bilthoven, The Netherlands

DANIEL ENGELJOHN, USDA OPPD FSIS, Washington, D.C., USA

VANESSA CRANFORD, Walt Disney Inc., Buena Vista, FL, USA

In 2007, WHO launched an initiative to estimate the global burden of foodborne diseases (FBDs), and established an international expert advisory group, the Foodborne Disease Burden Epidemiology Reference Group: FERG to assist with this effort. FBDs are caused by bacteria, viruses, parasites and chemicals and result in illnesses ranging from milder forms to life-threatening conditions, and from rare to abundant. Well-known foodborne pathogens are not always transmitted by food, but often by human-to-human transmission or by direct contact to reservoir animals, etc. In order to estimate the true burden (frequency, severity, and resulting life-years lost) of FBDs and provide useful inputs to policy makers and other stakeholders, we will learn how WHO FERG deals with the global quantification of foodborne diseases, understand the initiative's challenges and approaches, discuss what food safety professionals can expect from WHO FERG and find out how they can best support this work. This global epidemiological consideration is unique in IAFP compared to those discussed in the last few years.

S35 New Definitions in Imported Seafood Safety

BARBARA BLAKISTONE, National Fisheries Institute, McLean, VA, USA

PETER BEN EMBAREK, World Health Organization, Dept. of Food Safety, Zoonoses and Foodborne Illness, Beijing, China

ANA HOOPER, Darden Restaurants, Winter Spring, FL, USA

STEVE WILSON, NOAA, Washington, D.C., USA

DON KRAEMER, Food and Drug Administration, Washington, D.C., USA

BARBARA BLAKISTONE, National Fisheries Institute, McLean, VA, USA

Within this decade concern has increased about imported foods, especially seafood because over 80% is imported. Import Alerts from the Food and Drug Administration (FDA) have long existed but have increased in importance. In 2006 Import Alert 16-131 was issued by FDA because of unapproved antibiotic residues in seafood. The Alert targeted China's exports of shrimp, catfish, basa, eel, and dace. Seafood products from other nations too are under close scrutiny by the agency for unapproved antibiotic residues. Concerns are not strictly chemical. Other Alerts are cited on imports such as 16-18 on *Salmonella* spp. in shrimp. In response to public demand and the demand of Congress, FDA has now opened offices in other nations to more effectively address the real and consumer-perceived problems in imported seafood. And the agency continues to pursue third party certification programs to pre-empt export of seafood that does not meet FDA criteria. The United States is not alone in pursuit of improving the safety and quality of seafood. The EU and Canada have strict programs also and closely tabulate issues in seafood from outside their borders. The quest for safety and quality is not solely the responsibilities of the various governments. Private certifiers and are guardians too and offer restaurants, retailers, and industry oversight of wild and aquacultured product. In the mix too are the standards offered to countries by Codex Alimentarius and recent technical committee actions through ISO.

S36 Risk Benefit Analysis of Food Production and Consumption

CRISTINA TIRADO-VON DER PAHLEN, University of California-Los Angeles, School of Public Health, Los Angeles, CA, USA

KAZUKO FUKUSHIMA, WHO, Food Safety, Geneva, Switzerland

BERNARD BOTTEX, EFSA, Scientific Committee, Parma, Italy

STÉPHANE VIDRY, ILSI Europe, Brussels, Belgium

The Analysis of Risks and Benefits is necessary when these coexist; for example in foods (e.g., nutrients vs. food contaminants), or as a result of food technology processes, food production and farming systems etc. The assessment of risk to human health of food substances or nutrients is usually conducted independently of possible health benefits. Both health risks and benefits need to be balanced. At the same time, the risk and benefits of food technologies and food production systems in the environment and/or health should be also considered and integrated into the whole assessment. This new approach deserves special attention since the assessment of risks and benefits of foods, technologies, production systems, etc. will provide a powerful tool for risk managers for decision and policy making and for regulatory purposes. In particular, and as first step, there is a need for the development of a science based methodology for Risk Benefit Assessment. Objectives of the symposium on Risk Benefit Analysis include: Raise awareness on the need to address the risk and benefits of Food Consumption and Food Production Systems on Health, and/or the Environment in an integrated way. -Address the role of food scientist and producers in the provision of information and quality data for the assessment of the health risks and benefits of foods, processes, technologies, production systems, etc. for adequate risk management and risk communication. -Present the progress done at the international level - WHO/FAO, ILSI and the Scientific the European Food Safety Authority- (EFSA) on development of an harmonized methodology for health risk benefit assessment and -Offer a platform to discuss the need for an integrated science based methodology for risk benefit assessment for both health and the environment.

S37 Issues in the Production and Manufacture of Nuts and Nut-containing Products: Nuts to You

LINDA J. HARRIS, University of California-Davis, Dept. of Food Science and Technology, Davis, CA, USA

DOJIN RYU, Texas Woman's University, Dept. of Nutrition and Food Sciences, Denton, TX, USA

MATILDA FREUND, Kraft Foods Global, Global Microbiology and Food Safety, Tarrytown, NY, USA

TIM BIRMINGHAM, Almond Board of California, Quality Assurance/Industry Services, Modesto, CA, USA

This short symposium aims to address the production and processing of nuts, both as individual products and as ingredients. Speakers will cover all different types of nuts, such as almonds, pistachios, walnuts, pecans, hazel nuts, and the legume, peanuts, and will look at harvest, sanitation, storage, processing into other products and related problems, as well as contamination and outbreak issues. Current and new regulations related to nut cultivation, processing and use as ingredients will also be addressed.

Roundtable Abstracts

RT1 Research Needs A Roundtable: Retail and Foodservice Food Safety

JENNIFER QUILAN, Drexel University, Philadelphia, PA, USA

LARRY KOHL, Food Marketing Institute, Arlington, VA, USA

ANN MARIE MCNAMARA, Jack in the Box, San Diego, CA, USA

DONALD W. SCHAFFNER, Rutgers University, New Brunswick, NJ, USA

KEVIN SMITH, FDA, College Park, MD, USA

The Retail Food Safety Consortium is comprised of food safety professionals from five land-grant universities, professional societies (including IAFP), and government agencies. Its primary goal is to facilitate communication between food safety professionals at all levels. The Consortium was recently funded by the USDA by over half a million dollars to accomplish four specific objectives relative to retail and foodservice food safety. The last of these objectives (identify and prioritize retail food safety needs) will be accomplished with the help of this roundtable. The purpose of the roundtable is to allow various constituencies to raise the relevant issues and to begin group discussion to reach consensus on the important research issues to be addressed.