

by Neil H. Mermelstein



Brookfield Engineering's DV2T features a five-inch color touch-screen display.

Food Safety Content Abounds at IFT's 2013 Annual Meeting

Food professionals attending the Institute of Food Technologists' Annual Meeting & Food Expo in Chicago, Ill., July 13–16, 2013, will find many pertinent presentations throughout the Scientific Program and the Food Expo exhibits. The following are brief descriptions of symposia related to food safety and technology.

Food Safety & Defense

In session 018 on Sunday morning, "Case Studies in Nonthermal Technologies for Spore Decontamination, Bio-Films, and Preventive Controls for Food Safety," P. Setlow of the University of Connecticut will discuss how high pressures kill spores primarily by triggering spore germination; Donna F. Schaffner of Rutgers University will discuss high-pressure pasteurization

as a preventive control for food safety; Lynne McLandsborough of the University of Massachusetts will discuss development of antimicrobial delivery systems for use in foods and against biofilms in the food processing environment; and Christopher J. Doona of the U.S. Army Natick Soldier Research, Development, and Engineering (RDE) Center will describe chlorine dioxide products that can be used in commercial processing environments for decontamination of fresh produce.

In session 022 on Sunday morning, "Progress in Implementing the 2011 Food Safety Modernization Act (FSMA) for Food Imports into the U.S.A.: Impact on Global Supply Chains," Luis A. Mejia will provide an update on the U.S. Food and Drug Administration's (FDA's) new rules and guidance documents related to food imports; Cory Bryant of the FDA will discuss the impact that the FSMA will

Exhibitor Information

The 2013 Annual Meeting & Food Expo will include a Food Safety & Quality Pavilion that will feature vendors offering options and solutions for food safety and quality. The following are brief descriptions of some exhibitors offering products for food safety and quality.

Building and managing a quality food safety program requires expertise. AgriFIS conducts audits and assessments, identifies root causes, and provides solutions for food safety issues. AgriFIS also prepares companies for FDA inspections, assists with addressing and reconciling inspection issues, and advises on Halal and Kosher certifications. *AgriFIS, www.agrifis.com, Booth 4148*



A new polarimeter provides high performance in sugar analysis. Compliant to ICUMSA and FDA 21 CFR part 11, the *SAC-i Automatic Polarimeter* (photo, above) is PTB traceable and offers fast, stable measurement to the third decimal place on all samples. This polarimeter gives continuous readings and easy access to flow cells and is

easily connected to ATAGO's *RX-i* refractometers for automated sugar purity measurements. *ATAGO USA Inc., www.atago.net, Booth 961*

Touch-screen technology modernizes viscosity testing. The *DV2T* viscometer features a five-inch color touch-screen display that guides users through test creation and data gathering and new capabilities such as data averaging and QC limits with alarms. The *DV3T* rheometer also offers touch-screen technology with a seven-inch screen displaying all test parameters as well as measured values for yield stress, viscosity, and temperature. *Brookfield Engineering Laboratories, www.brookfieldengineering.com, Booth 1721*

have on imports and provide an update on the activities of the FDA's China Office; Ricardo Carvajal of Hyman, Phelps & McNamara will present a domestic manufacturer perspective on compliance challenges presented by the FSMA's provisions regarding foreign supplier verification; and Rebeca López-García of LOGRE International Food Science Consulting will discuss issues faced by Latin American suppliers trying to comply with FSMA requirements.

In session 046 on Sunday afternoon, "Concerns and Criteria for the Proper Use of Pathogen Surrogates in the Completion of Food Safety Research and Process Intervention Validation," J.

Dickson of Iowa State University will discuss isolating and identifying suitable surrogate organisms to represent enteric pathogens for process validation; Gary R. Acuff of Texas A&M University will discuss use of a nonpathogenic bacterium as a surrogate for pathogens on carcasses and how evidence must be collected to support process validation documentation; Doris D'Souza of the University of Tennessee will discuss the use of feline calcivirus, murine norovirus, and Tulane virus as surrogates for human noroviruses in determining inactivation by processing or decontamination methods; Trevor Suslow of the University of California-Davis will discuss validation of bacterial surrogates for safety research on fruits and

vegetables; and Mickey E. Parish of the FDA will discuss the agency's view on the use of surrogates in validation studies.

In session 100 on Monday morning, "Bacteriophages: Green Post-Harvest Interventions to Improve Food Safety," Manan Sharma of the U.S. Dept. of Agriculture (USDA) will discuss the opportunities that the FSMA regulations will provide for environmentally friendly intervention strategies such as the use of bacteriophages; A. Senecal of the U.S. Army Natick RDE Center will discuss use of a combination of bacteriophage antimicrobial cocktails and commercial wash for treating produce contaminated with *Escherichia coli* O157:H7, *Shigella*, and *Salmonella*; M.W. Griffiths of the



Analyzing 120 samples in a day is easy with the *KjelDigester K-499* (photo,

left). The device offers perfectly synchronized and optimized process steps from digestion to results. Digested samples can be placed in the *KjelSampler K-377* for automated transfer and preparation for distillation. The *K-377* accommodates the processing of two batches of 20 samples simultaneously. *Buchi Corp.*, www.mybuch.com, Booth 200

Contamination from food-plastic packaging triggers expansion of testing services. CHEMIR has expanded its polymer testing

services by adding staff, instrumentation, and capabilities to meet increased demand for analytical projects involving extractables and leachables. The company, a division of Evans Analytical Group, develops methods to determine whether plastic packaging is migrating to food and beverage products. *CHEMIR*, www.chemir.com, Booth 4211

Software for sensory science and consumer interaction provide innovative services. *Compusense Five*, sensory software, allows customization of tests, facilitates panel training, and provides easy test replication. *Compusense at-Hand*, a web-based software platform, provides the ability to evaluate concepts or products from virtually anywhere. *Compusense*, www.compusense.com, Booth 1907

compusense.com, Booth 1907

A shear-based rheological

instrument can determine the functionality of wheat flour in a short time frame. *GlutoPeak* (photo, right) is a highly sensitive instrument that can differentiate flours with similar protein quality. With a range of applications for



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University of Guelph will discuss the use of bacteriophages to detect and control growth of foodborne pathogens in foods, including use of immobilized phage as biosensors and in active packaging materials; and Alexander Sulakvelidze of Intralytix Inc. will discuss food-safety-related applications of bacteriophages, regulatory strategies, and certification for use in kosher, halal, and organic commodities.

In session 104 on Monday morning, "Modeling and Simulation for Food Defense Exercises and Training: A Case Study," Tejas Bhatt of the Institute of Food Technologists (IFT) will discuss use of modeling and simulations for planning and preparing for food-related public health emergencies; Richard White of Battelle Technical Support Operations will discuss how tabletop exercises can validate and verify the adequacy and completeness of required food defense plans for FDA evaluation; and N. Mitenius of

Periscope Consulting will discuss how training, exercises, modeling, and simulations can be used in food defense programs to lower the risk of threats to businesses and consumers.

In session 118 on Monday morning, "Arsenic in Food: Forms, Hazards and Risks," Nega Beru of the FDA will discuss the agency's activities regarding the presence of arsenic in foods; Steve Hensley of the U.S. Rice Federation will describe cooperative research by the rice industry and government regarding arsenic in rice; R. Gerads of Applied Speciation and Consulting LLC will discuss a multifaceted approach to the speciation of arsenic in foods; and P. M. Bolger of Exponent will discuss forms of arsenic in foods, potential exposures, and risks to public health.

In session 119 on Monday morning, "IFT/Foodservice *Retail Food Safety Knowledge Base: Research and Education Resource for Application of*

Voluntary HACCP in the Retail Food Industry," O.P. Snyder of the Hospitality Institute of Technology and Management will discuss the Retail Food Safety Knowledge Base, a structured HACCP approach for retail and foodservice chefs and managers; Israel Ramos of H-E-B Grocery Co. will discuss a risk-ranking approach for implementing HACCP in the retail market; Brian A. Nummer of Utah State University will discuss whether retail and foodservice operators can utilize the same HACCP programs that food manufacturers use; Mike Starnes of Denny's Corp. will discuss the need for more information via training, development, and execution to guide the industry in controlling hazards in retail foodservice operations; and Kevin Smith of the FDA will discuss the agency's recommendations regarding the application of

breeders, millers, and product manufacturers, *GlutoPeak* can assess flour quality from a limited sample, help millers make decisions based on protein quality, and determine the quality of flour blends for various product applications. *C.W. Brabender Instruments*, www.cwbrabender.com, Booth 621

Computer software for nutrient analysis facilitates automated label creation. *Genesis R&D* automates nutrient analysis and the creation of a variety of labels. *Food Processor* evaluates client dietary needs and analyzes nutrient intake levels. And *Food Prodigy* documents client intakes and activities electronically. *ESHA Research*, www.esh.com, Booth 1637

Applications engineered to support compliance initiatives can be part of food safety management. EtQ's food safety

management system supports compliance initiatives such as GFSI-benchmarked food safety schemes, Hazard Analysis and Critical Control Points, and ISO 22000. The system offers a workflow platform that adapts to changing business processes without programming and is fully integrated with modules such as risk management, corrective and preventive action, and supplier management. *EtQ Inc.*, www.etq.com, Booth 4412

Enhanced nutritional calculations are a key feature of new software. *Formulator Nutritional Software* version 5.5 includes the latest version of the U.S. Dept. of Agriculture's nutritional database, customized product data sheets in multiple languages, and nutritional labels as well as enhanced nutritional calculations. *Formulator & ColorTec Software*, www.formulator.com, Booth 3504



Using helium is not the only way to analyze protein. The *Rapid N Cube* (photo, above) uses carbon dioxide for protein analysis, which eliminates the need to separate gases within the instrument. The device's non-use of helium also means lower costs for analyses. The *Vario Max Cube* uses either helium or argon, which is less costly than helium, for protein analysis and provides automatic ash removal. *Elementar Americas*, www.chnos.com, Booth 3820 >>>

HACCP principles to food preparation practices in retail and foodservice establishments.

In session 190 on Monday afternoon, “Taking the Bull by the Horns: A New Approach to Risk Management for the Food Industry in the Era of FSMA, Consumer Class Actions, Prop 65, and Blog-Based Science,” Tony Pavel of Morgan, Lewis & Bockius will discuss how food companies can identify potential risks and prepare a comprehensive plan to minimize risk; Linda W. Eatherton of Ketchum will discuss how the food industry can address the proliferation of blogs and dubious online sources that malign products and science; and Joshua S. Kim of Cargill will provide an in-house legal perspective on the risks

and challenges facing the food industry.

In session 185 on Monday afternoon, “Practical Implications of the FSMA Proposed Rule for Produce: Standards for the Growing, Harvesting, Packing, and Holding of Produce for Human Consumption,” speakers will discuss how the proposed rule addresses microbial contamination through Good Agricultural Practices, what’s new and what’s changing from a regulatory perspective, and how one foreign supplier is preparing for the FSMA and foreign supplier verification.

In session 239 on Tuesday morning, “Food Defense Education Curriculum Guide,” Neal Fredrickson of the National

Center for Food Protection and Defense (NCFPD) will describe NCFPD’s food defense education curriculum guide and programs, Steve Toburen of Kansas State University will describe the learning experiences of students participating in the Frontier program affiliated with the NCFPD that has sponsored field trips to help students appreciate the complexity of the global food system, and Abbey Nutsch of Kansas State University will describe the methods by which the NCFPD food-defense curriculum materials were created and incorporated into distance-learning opportunities.

In session 236 on Tuesday morning, “Innovative Processing Methods to Improve Cantaloupe Microbial Safety and Quality,” C.

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Wu of the University of Delaware will discuss the microbial safety and quality of cantaloupes and netted melons; Bassam A. Annous of the USDA will describe development of a commercial-scale surface-pasteurization process for enhancing the microbiological safety of cantaloupe; Z. Tony Jin of the USDA will discuss inactivation of *Listeria monocytogenes* on cantaloupes by edible antimicrobial coatings; Trevor Suslow of the University of California-Davis will discuss validation and verification of a combined thermal and nonthermal commercial treatment for cantaloupe and other melons; and Susan M. Leaman of Intertox Inc. will describe food safety guidelines for cantaloupes and other netted melons, which were developed jointly by four trade associations.

In session 240 on Tuesday morning, "Just How Well Do I Know My Upstream Supply

Chain?" Faye J. Feldstein of Deloitte Consulting LLP will set the stage for a tabletop exercise on supply chain simulation, Jennifer C. McEntire of Leavitt Partners will discuss traceability through the supply chain, Gale Prince of Sage Food Safety Consulting will discuss potential supply chain problem areas and preventive measures, William Fisher of IFT will describe IFT's activities regarding product tracing in support of the FDA and the FSMA, and S. McGarry of the FDA will also have a presentation.

In session 246 on Tuesday morning, "GMO and the Food Industry: A Global Perspective," Wayne Parrott of the University of Georgia will discuss how claims and concerns regarding genetically modified (GM) crops are not supported by existing data; Alison L. Van Eenennaam of the University of California-Davis will discuss how the current process-based regulatory approach and political interference in the regulatory process have inhibited commercial investment in the development of GM animals

for agricultural applications; and Bruce M. Chassy of the University of Illinois will discuss the science, regulation, and safety assessment of GM foods, misinformation, and consumer perceptions.

In session 270 on Tuesday morning, "Ensuring the Safety of New and Existing Food Additives and GRAS Substances," Haley Curtis Stevens of the International Food Additives Council (IFAC) will discuss how the food ingredient industry has responded proactively to the FSMA by developing a *Good Manufacturing Practices – Quality Assurance Guide* for food additives and generally recognized as safe (GRAS) substances, Martin J. Hahn of Hogan Lovells will describe how the FDA reviews GRAS notifications for food ingredients, G.C. Greeff of the Global Food Safety Initiative will have a presentation, Priscilla Zawislak of Ashland Inc. will describe the *Audit Guide for Food Additives and GRAS Substances* that the IFAC recently developed as a companion to the GMP-QA



Monitor pH, water quality, and the levels of elements in seconds. HORIBA Instruments (photo, above) offers compact meters that can be operated by any user regardless of technical aptitude. Available in a variety of functions, the company's meters can analyze pH, water quality, conductivity, and levels of calcium, potassium, and sodium, providing quality control data in a simple manner. *HORIBA*

Instruments, www.horiba.com, Booth 4086

Chemical-free food sterilization and pasteurization solutions increase efficiency. The *BioStream* system uses only heat, vacuums, and saturate steam to kill

pathogens effectively. The chemical-free, natural techniques of *BioStream* provide food producers with increased flexibility, traceability, line efficiency, and superior technology. *Imtech-Steri, www.imtech-steri.ch, Booth 4117*

Chemistry analysis, food safety, physical testing, and microbiology are all under one roof. Medallion Laboratories

combines state-of-the-art equipment, the expertise of more than 100 scientists, and ISO/IES 17025 accreditation to provide reliable analytical results. The company also offers nutrient analysis, package testing, and sensory evaluation *Medallion Laboratories, www.medallionlabs.com, Booth 1710*

Pasteurization and sterilization of low-moisture foods is essential for preventive controls. Napsol provides equipment to pasteurize and sterilize low-moisture foods such as nuts, seeds, herbs, spices, botanicals, and dry fruit. The company's chemical-free pasteurization process eliminates pathogens, reduces spoilage organisms, and eradicates insects at all stages of development. *Napsol, www.napsol.com, Booth 4612* »»

Guide, David R. Schoneker of Colorcon will discuss the need for global harmonization of food ingredient specifications and efforts underway by Codex Alimentarius and other initiatives, and Angela Lim of DuPont Nutrition and Health will discuss why the GRAS process is important to the food industry and highlight industry best practices.

In session 275 on Tuesday morning, "Food Risk Communication: Ignore at Your Peril," Robert B. Gravani of Cornell University will describe the NCFPD's best practices for developing crisis communication plans and responding to product recalls and other food-related incidents; Marianne Smith Edge of the International Food Information Council will discuss

how to identify and apply effective risk communication to overcome consumer fears about the safety of the food supply; Catherine E. Adams-Hutt of Sloan Trends Inc. will discuss the direct and indirect effects of foodborne outbreaks in the food-service and retail sectors and offer recommendations for minimizing adverse effects; and Joseph Scimeca of Cargill will discuss the food industry's need to be prepared to effectively manage and communicate food safety risk when failures in the global food supply chain system result in potential, real, or perceived harm.

In session 280 on Tuesday afternoon, "Supporting Food Safety in Retail and Foodservice Environments," Hal King of

Chick-fil-A will discuss the critical components of a food safety program within a retail food business and how to establish the program, measure its success, and obtain resources to support it; Ann Draughon of the University of Tennessee will discuss how effective and affordable environmental monitoring, sampling, and testing programs in retail and foodservice establishments can help managers understand risks associated with their facility and develop effective cleaning and sanitation programs; Joshua B. Gurtler of the USDA will discuss foodservice worker training and adherence to food safety standards; and V. Trinetta of Ecolab will describe strategies to control and prevent contamination in

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retail and foodservice environments by the use of floor sanitizers.

In session 282 on Tuesday afternoon, "Debunking the Risk Myths: Seafood's Success Story," W. Hayes of the Harvard School of Public Health will discuss the toxicology of methylmercury, the effect of lifetime accumulation of mercury, and consumer concern; Doris T. Hicks of the University of Delaware will describe how seafood safety is being communicated through the *Seafood Health Facts* website, a comprehensive resource for healthcare providers and consumers; and Roger A. Clemens of Horn Co. will discuss the 2010 Dietary Guidelines for Americans and the evidence presented to the Dietary Guidelines Advisory Committee about the value of seafood to health.

In session 003 on Sunday morning, "Applying for Food

Science Research Funding: Preparation, Review, and New Opportunities in the U.S. and Europe," Jochen Weiss of the University of Hohenheim will discuss grant opportunities for food scientists in the United States and the European Union (EU), Hongda Chen of the USDA will discuss how researchers can better prepare proposals for Agriculture and Food Research Initiative competitive grants from the USDA's National Institute of Food and Agriculture, and Hang Xiao of the University of Massachusetts will discuss strategies for successfully preparing grant applications for submission to third-party funding agencies.

Authenticity/Adulteration

In session 019 on Sunday morning, "Strategies and Technology to Prevent/Detect Economic Adulteration of Food," Katherine Maggi of Perrigo Nutritionals will discuss the 2008 Chinese melamine scandal in which infant formula was intentionally adulterated for economic gain, the repercussions on the infant

formula industry, and how one U.S. manufacturer has handled the situation; Philip Wylie of Agilent Technologies will discuss a dilute-and-shoot GC/MS method for the analysis of olive oils that avoids tedious sample preparation steps; and Katerina Mastovska of Covance Laboratories Inc. will discuss targeted and non-targeted analysis of contaminants and adulterants in food and dietary supplements by mass spectrometry.

In session 049 on Sunday afternoon, "Risk Assessment for Economically Motivated Adulteration of Raw Materials and Ingredients: New Tools and Research Needs," J. Scimeca of Cargill will discuss the need for quantitative risk assessment tools to compare and rank the economically motivated adulteration (EMA) vulnerability of raw materials for foods and beverages and will review the FSMA's requirement for implementation of preventive controls to minimize the risk of hazards resulting from EMA; Markus Lipp of the U.S. Pharmacopeial Convention



Steam sterilization and pasteurization are integral for low-moisture natural foods. Ingredients such as herbs, spices, seeds, and nuts are ripe for contamination by pathogens. *Steristep* (photo, above) is a continuous decontamination system designed for low-moisture foods. It contains a stair-step vibrating conveyor that uses direct heat and saturated steam to heat products. The treatment time is significantly reduced compared to that of

combined with decades of experience. With 80 years of food-testing experience, NP Analytical Laboratories provides comprehensive chemical and microbiological tests for *trans* fat, dietary fiber, sugar profiles, fatty acid profiles, and pathogens such as *Salmonella*, *E. coli*, and *Listeria*. The company also provides nutrient analyses. *NP Analytical Laboratories*, www.npal.com, Booth 962

other technologies. *Natprocess*, www.natprocess.com, Booth 4513

Chemical and microbiological testing

is more reliable when

Measure viscosity, density, temperature, color, and more with quality instruments. Paul N. Gardner Co. serves world commerce through the distribution, production, and design of testing instruments for the food industry. The company's meters and other equipment measure moisture, gloss, powder flow, Brix, pH, and much more. *Paul N. Gardner Co. (Gardco)*, www.gardco.com, Booth 2508

Analytical chemical and microbiological testing performed at comprehensive food testing laboratory and research facility. rTech Laboratories provides ISO 17025 testing and analyses, sensory and consumer research, nutrition labeling, pilot plant services, and information research services. *rTech Laboratories*, www.rtechlabs.com, Booth 2104 >>>

(USP) will discuss how USP's *Food Fraud Database* can be used to identify and create quantitative risk assessment and ranking models for ingredients vulnerable to EMA; K. Everstine of the NCFPD will discuss recent advances in using supply chain information for early event identification and the need for new approaches to information sharing; and Amy Kircher of the NCFPD will discuss how research on data fusion, analytics, and disruption dissemination within and across organizations can lead to informed assessments and decisions regarding EMA.

In session 235 on Tuesday morning, "NMR High Throughput Screening in the Quality Control of Food and Beverages—A New Paradigm," M. Link of Bruker BioSpin GmbH will discuss how NMR can contribute to the analysis of foods and beverages such as wines and edible oils by delivering many parameters in one measurement with minimized sample preparation; Peter Rinke of SGF International e.V. will describe an NMR method called *SGF-Profiling™* for determining authenticity of fruit juices; Michèle Lees of Eurofins Analytics France SAS will discuss integrating NMR into a routine monitoring program to ensure the integrity of products such as wine and spices; and Maren Ilse of Chemical and Veterinary Investigation Office Karlsruhe will discuss how NMR is being used in the EU to determine oxidative rancidity in vegetable oils, trace contaminants in spirits, and pharmacologically active substances in food supplements.

Health & Diet

In session 015 on Sunday morning, "Structure and Function of Dairy Proteins: Exploring New Technological and Health Benefits," Federico Harte of the University of Tennessee will discuss the casein micelle as an example of a milk component for which understanding can improve dairy products and create new food and nonfood applications; I. Recio of CIAL, Spain's Institute of Food Science Research, will discuss the effect of bioactive peptides derived from dairy proteins on gastrointestinal mucosa; Mark Fenelon of Teagasc will describe a low-calorie whey protein fat replacer in which lactose is replaced by inulin; and H. Patel of South Dakota State University will discuss effects of protein interactions on dairy protein functional properties.

In session 020 on Sunday morning, "Antioxidants in the Food Supply, in Vivo

Effects vs in Vitro Testing," David Klurfeld of the USDA will discuss why in vitro measurements of total antioxidant activity may not accurately represent the in vivo health benefits of antioxidants in foods and beverages, Rui Hai Liu of Cornell University will describe a cell-based cellular antioxidant activity assay that better represents the complexity of biological systems than chemical assays, Oliver Chen of Tufts University will discuss how in vitro assays of dietary antioxidants may not reflect the actual absorption of antioxidants in humans, David W. Plank of Medallion Labs will discuss the DPPH Antioxidant Activity Method (AOAC 2012.04) and its relevance as a surrogate for determining beneficial properties of foods and beverages, and Jonathon DeVries of Medallion Labs will discuss the pros and cons of various approaches to antioxidant assessment.

In session 050 on Sunday afternoon, "Healthier Eating Made Flavorful: Achieving Dietary Guidelines with Spices and Herbs," Guy H. Johnson of McCormick Science Institute will discuss how spices and herbs may make healthy foods more

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acceptable from a culinary perspective, J. Scott Smith of Kansas State University will discuss the effect of spices and herbs on the formation of heterocyclic amines during cooking of hamburger and other meat products, David Heber of the University of California-Los Angeles will discuss whether addition of spice mixtures can offset taste aversions and increase the intake of broccoli and cauliflower, and John C. Peters of the University of Colorado will discuss whether replacing dietary fat with herbs and spices in entree and side dishes as part of a complete lunch meal can deliver overall liking comparable to that of a full-fat meal.

In session 051 on Sunday afternoon, "The Skinny on Fats: New Functional Benefits with Healthy Oils," Penny Kris-Etherton of Pennsylvania State University will discuss the health benefits of unsaturated fatty acids on risk factors for cardiovascular disease, diabetes, and obesity and how to communicate to consumers and health

professionals the health benefits of a moderate-fat, heart-healthy diet that emphasizes unsaturated fatty acids; Rhonda Ryan of Dow AgroSciences will discuss how new-generation oils with high levels of monounsaturated fatty acids provide health benefits, stability, and long shelf life; and Peter Jones of the University of Manitoba will discuss the Canola Oil Multicenter Intervention Trial study designed to compare the action of five fatty-acid dietary oil blends on cardiovascular health in individuals with abdominal obesity.

In session 105 on Monday morning, "Beyond Gut Health to Bone Health: New Evidence for the Multiple Health Benefits of Short-Chain Fructooligosaccharides," K. Tappenden of the University of Illinois-Urbana will discuss the health benefits of short-chain fructooligosaccharides (scFOS), Cristina Munteanu of Ingredion Inc. will discuss how scFOS prebiotic fiber can maintain and improve the taste and mouthfeel of foods and provide health benefits, and Emeir McSorley of the University

of Ulster will discuss how scFOS taken in conjunction with a multi-mineral supplement rich in calcium has a beneficial effect on bone mineral density and bone turnover markers in postmenopausal women.

In session 106 on Monday morning, "Carbohydrate Digestion: Glucose Management and Related Physiology Responses," Amy Hui-Mei Lin of Purdue University will discuss how glucose generation from starch by mucosal glucosidases could lead to a new strategy to regulate glycemic response and improve glucose management, Bruce R. Hamaker of Purdue University will discuss the potential beneficial physiological effects when glucose from glycemic carbohydrates is deposited distally in the small intestine and strategies to achieve this type of digestion profile, Louise Dye of the University of Leeds will discuss how certain ingredients such as fiber may have a possible impact on glycemic response and mental performance, and Nicolas Bordenave of Pepsico will



Food-safety training courses are available through an international provider. SAI Global offers certification for food safety programs and a comprehensive suite of training courses and certification audits. The company's food safety team includes expert technical staff and dozens of support staff around the globe who can identify key strategies to achieve the right food safety standards for an organization. *SAI Global*, www.saiglobal.com, *Booth 3911*

Automation simplifies high volume, repetitive testing. The *Automated Linear Indexing System* (photo, left) automates many laboratory tests and is suitable for a wide range of product categories,

including dairy, baked goods, confectionery, fruits, and vegetables. The system has two modes of operation and is available in two platform lengths. *Texture Technologies Corp.*, www.texturetechnologies.com, *Booth 2134*

Quality analytical services provide end solutions for food testing. Waters Corp. offers food testing analytics that include sample preparation, chromatography, mass spectrometry, and data management software. The company's equipment and services are sensitive and versatile, meeting regulatory requirements for food safety, quality control, and profiling. *Waters Corp.*, www.waters.com, *Booth 2400 FT*

discuss technical approaches to glucose management via foods and beverages.

In session 180 on Monday afternoon, "Can the Copy Be as Good as the Original? In Vitro Methods for Assessing Food and Beverage Functionality," R. Paul Singh of the University of California-Davis will describe how a human gastric simulator can be used to study food disintegration during digestion, Mario G. Ferruzzi of Purdue University will discuss how in vitro gastrointestinal digestion and caco-2 human intestinal cell model systems can be used to study the delivery of phytochemicals from foods, and Bruce R. Hamaker of Purdue University will describe in vitro methods for glycemic carbohydrate digestion and dietary fiber fermentation and their predictive assessment of in vivo function.

In session 187 on Monday afternoon, "Diet, Mental Energy, and Mental Well-Being: A Landscape Overview of the Science and Consumer Perceptions," Rob C. Markus of the University of Maastricht will discuss dietary manipulation strategies that may reduce stress and improve mood and emotional well-being; Bonnie J. Kaplan of the University of Calgary will discuss the effects of diet and nutrition on mental disorders; and C.J. Geiger of the University of Utah will discuss consumers' perceptions of mental energy and the effect of foods and beverages on mental and physical energy.

Allergy

In session 103 on Monday morning, "Challenges and Approaches for Controlling Allergens in Foodservice Operations," Kevin Smith of the FDA will discuss control of allergens in foodservice establishments from a regulatory perspective; Dojin Ryu of the University of Idaho will discuss results of a study on menu labeling of common food allergens and the knowledge, attitudes, and practices of owner-operators of independent restaurants; Hal King of Chick-Fil-A will discuss management control systems in supply chain and retail operations that can be used to reduce allergen risk; and David Crownover of the National Restaurant Association will discuss results of a survey to determine what the foodservice industry thinks about food allergens and describe what the NRA is doing to help the industry.

In session 184 on Monday afternoon, "Detection of Allergens in Processed Food: Challenges and Solutions," T.J. Fu of the FDA will discuss ELISA-based methods for detection of allergens in processed foods, Ronald Niemeijer of R-Biopharm AG will

discuss DNA-based methods, Christine M. Hebling of the USDA will discuss how a global proteomics approach can be used to improve quantitative methods for allergen detection in complex food systems, and Balunkeswar Nayak of the University of Maine will discuss the impact of nonthermal processing methods on the detection of food allergenic residues using ELISA.

In session 243 on Tuesday morning, "Gluten-Free Product Development: Replacing Wheat," Joe L. Baumert of the Food Allergy Research & Resource Program at the University of Nebraska will provide an overview of celiac disease and non-celiac sensitivity, regulations, and detection methods the food industry can use to ensure compliance with gluten-free labeling claims; Dilek Uzunalioglu of Ingredion Inc. will discuss how specialty flours and starches can be used to produce gluten-free bakery products with taste, texture, and nutrient profile similar to those of gluten-containing products; Mehmet C. Tulbek of Alliance Grain Traders will discuss how pulse ingredients can be used in gluten-free formulations; and Bruce R.

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Hamaker of Purdue University will discuss strategies for making non-wheat cereal proteins as viscoelastic as gluten for use in dough and bread systems.

Sensory Evaluation/ Consumer Behavior

In session 023 on Sunday morning, "Hybrid Approaches to Understanding Consumer Behavior," Dulce Paredes of Takasago will discuss how integrating information from strategic consumer research, secondary data (market, product trends, and media), and product development can identify emerging concepts; Lopetcharat Kannapon of Nouveau Centric will discuss how purposeful ideation and focused consumer research can be combined to create new products; Margaret

Emrick of H.J. Heinz will discuss how a new panel approach called the *Insight Team*, which utilizes consumers throughout the product development process, can speed product and market development; and Howard R. Moskowitz of Moskowitz Jacobs Inc. will discuss *Mind Genomics*[®], an approach to identifying and harnessing consumer mindsets to create alternative futures that respond to business situations.

In session 055 on Sunday afternoon, "What's the Measure of Your Pleasure? Understanding the Relationship Between Satiety and Liking," Zata Vickers of the University of Minnesota will describe protocols designed to disentangle consumers' physical and mental feelings of hunger and fullness from changes in

liking, Betina Piqueras-Fizman of the Polytechnic University of Valencia will discuss how the sense of touch affects the perception of foods and beverages and eating behaviors and can be used to enhance the eating experience, and Martin Yeomans of the University of Sussex will discuss how expectations about a food modify post-ingestion behavioral and physiological responses and the need for new models that incorporate the role of expectations on appetite.

In session 110 on Monday morning, "Holistic Sensory Methods," Laura King of Game Changer will discuss how new sensory evaluation methods can accelerate product innovation; Tracy Bargman of T Catalyst LLC and Jennifer Jo Wiseman of E&J Gallo Winery will discuss a new

product development approach that includes simultaneous investigation of the product, package, positioning, and pricing; and Richard Popper of P&K Research will discuss how a product's success is strongly influenced by the emotional, sensory, and functional dimensions of competing products.

In session 126 on Monday morning, "Consumer Habits & Behaviors Affecting Food Innovation," Greg Stucky of InsightsNow Inc. will describe *BehaviorLens*, a behavior-based approach to product innovation, and discuss why it is important for food companies to understand the role of consumer behavior in successful product innovation; D. Lundahl of InsightsNow Inc. will discuss identifying the underlying motivators of consumer buying behavior and how they can be used for successful product development; David Neal of Empirica Research will discuss new techniques to obtain more valid knowledge about when, why, and how people consume out of habit; and Neale J. Martin of Sublime Behavior Marketing will describe use of the disrupt, activate, reinforce, repeat, maintain (DARRM) model to obtain an understanding of consumer behavior and integrate it into the development, launch, and positioning of products.

In session 245 on Tuesday morning, "Driving Product Quality: From Strategy to Sensory Testing," Mona Wolf of The Wolf Group will review ASTM's best practices in sensory quality methodology and new approaches that are key to providing business relevance; Bob Baron of Mars Chocolate North America will discuss how well-designed and well-executed programs can increase product success rates, avoid recalls, and eliminate consumer disappointment; Barbara Booth of McDonald's Corp. will discuss how to set the direction and articulate program expectations for a comprehensive sensory program for quality control across multiple organizations; and Leah Gruenig of General Mills will discuss how a quality sensory program can be implemented by utilizing five key strategies and understanding the fundamentals that lead to success.

Standards & Harmonization

In session 021 on Sunday morning, "Sweetening with Stevia: An Overview of Global Regulatory Developments, Improving Analytical Methods for Stevia Extracts, Market Trends, and Formulation Success and Challenges," Maria Teresa Scardigli of the International Stevia Council (ISC) will provide an overview of stevia regulations around the world and the activities of the ISC; Benno Zimmermann of Institut Kurz will describe the ISC's Proficiency Testing Program, which is designed to ensure that consistent analytical methods and reference standards are used throughout the industry to measure steviol glycoside content; Lu Ann Williams of Innova Market Insights will discuss global market trends for stevia-sweetened products; Melanie Goulson of Cargill will discuss challenges in formulating products with stevia extracts; and John Martin of Pure Circle will describe successful product category launches with stevia and the technical rationale for the categories, ingredients, and caloric reduction levels involved.

In session 054 on Sunday afternoon, "Challenges and Opportunities for Harmonization of Standards," Carla D. Mejia of USP will discuss how food safety standards set by the Codex Alimentarius Commission and other organizations promote food safety and prevent technical barriers to trade, Marcos X. Sánchez-Plata of the Inter-American Institute for Cooperation on Agriculture will discuss harmonization of food standards from the perspective of developing

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countries in Latin America and the Caribbean, and Bin Huang of the People's Republic of China's Registration Certification and Accreditation Administration will discuss the application of HACCP and the Food Defense Plan in China.

Nanoscience/Nanotechnology

In session 016 on Sunday morning, "Applications of Nanotechnology Advances in Food Engineering and Processing," Daeyeon Lee of the University of Pennsylvania will discuss designing programmable microcapsules for sequential release of agents of different polarity; N. Nitin of the University of California-Davis will discuss designing nanosensors for rapid detection of viral particles using optical imaging and use of nanoscale bacteriophages to

develop highly specific antimicrobial packaging; Paul Takhistov of Rutgers University will discuss use of diffusing wave spectroscopy to characterize the dynamic mobility of nanoscale particulate materials in natural polymeric systems that represent semisolid foods, extracellular polymeric matrices, and mucus; and Qixin Zhong of the University of Tennessee will discuss how solid lipid nanoparticles can be designed to deliver a variety of bioactive compounds in beverages for improved bioactivity, physical and chemical stability during storage, and eventual bioavailability after ingestion.

In session 048 on Sunday afternoon, "Applied Use of Nanotechnology in Detecting Foodborne Pathogens in Meat

Processing," Evangelyn C. Alocilja of Michigan State University will describe development of a field-operable, highly sensitive nanobiosensor for rapid detection of *Escherichia coli* O157:H7 without pre-enrichment; Bosoon Park of the USDA will discuss the use of nanobiosensors for rapidly detecting specific foodborne pathogens from chicken rinse; and Bryan A. Chin of Auburn University will describe development of a wireless magnetoelastic biosensor that can provide rapid, real-time, remote, and specific detection of foodborne pathogens such as *Salmonella*. **FT**



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