HEALTHY FOODS SUMMIT 2012
Minnesota Leaders in Food and Health
Monday, October 1 – Minnesota Research: Leading the Way

SPEAKER BIOGRAPHIES

ROBERT J. JONES, PH.D.
Senior Vice President for Academic Administration
University of Minnesota

Biography
Dr. Robert J. Jones is Senior Vice President for Academic Administration at the University of Minnesota. Dr. Jones earned a bachelor’s degree in agronomy from Fort Valley State College, a master’s degree in crop physiology from the University of Georgia, and a doctorate in crop physiology from the University of Missouri. After earning the Ph.D., he joined the University of Minnesota faculty as a professor of agronomy and plant genetics. He is an internationally recognized authority on plant physiology and has published numerous scientific papers, manuscripts and abstracts. His research focuses on stabilizing grain yields of maize against environmental stresses and global climate change. He is a fellow of both the American Society of Agronomy and the Crop Science Society of America.

MINDY S. KURZER, PH.D.
Professor, Department of Food Science and Nutrition
Director, Healthy Foods, Healthy Lives Institute
University of Minnesota

Biography
Mindy Kurzer is a professor in the Department of Food Science and Nutrition at the University of Minnesota, where she also directs the Healthy Foods, Healthy Lives Institute. Her current research interests focus on the biological effects of bioactive constituents of plant foods such as soy and green tea. She currently is principal investigator of a clinical trial funded by the National Institutes of Health to evaluate the breast cancer preventive effects of green tea in postmenopausal women. Dr. Kurzer received her Ph. D. in nutrition from the University of California, Berkeley, in 1984 and
received postdoctoral training at the National Nutrition Institute in Rome, at Odense University, Denmark (as a NATO postdoctoral fellow), and at the University of California, San Francisco (in Reproductive Endocrinology).

**SONNY RAMASWAMY, PH.D.**
Director, National Institute of Food and Agriculture
U.S. Department of Agriculture

**Biography**
Sonny Ramaswamy was recently appointed to serve as director of the U.S. Department of Agriculture’s (USDA) National Institute of Food and Agriculture (NIFA). Dr. Ramaswamy oversees the awarding of funds for a wide range of extramural research, education, and extension projects that address the needs of farmers, ranchers, and agricultural producers. Prior to joining NIFA, Dr. Ramaswamy served as Dean of Oregon State University’s College of Agricultural Sciences and director of the Oregon Agricultural Experiment Station. Previously, he was associate dean of the Purdue University College of Agriculture and directed the University’s agricultural research programs from 2006 to 2009. Prior to joining the Purdue faculty, he was head of Kansas State University’s Department of Entomology from 1997 to 2006. He also served on the faculty of Mississippi State University and as a research associate at Michigan State University. Dr. Ramaswamy has received numerous research grants from various federal agencies, state agencies, commodity groups, and industries. He has published nearly 150 journal articles, book chapters, as well as a book on insect behavior, and is a Fellow of the American Association for the Advancement of Science and of the Entomological Society of America.

**Abstract**

**Priorities and Challenges for Food and Health Research: Directions of the USDA Extramural Grant Programs**

By the year 2050, the Earth’s population is expected to exceed 9 billion. We need to find ways to feed, clothe, and shelter all people without wreaking havoc on the environment. The 9 billion problems have major implications on the way we do science at NIFA. We must align our science with the challenges of the day. We see five major areas that are affected by the rising population: food security and hunger, sustainable energy, food safety, childhood obesity and climate change. Food and health research is a critical component of the work of NIFA. From working in local communities to fighting hunger and food insecurity to developing strategies to combat childhood obesity to making sure the food America’s eat everyday is nutritious and safe, NIFA places a high priority on food and health science. NIFA will also need to work with the best and brightest scientists at universities and colleges and in the private and non-governmental sectors throughout the United States who are working to find innovative solutions to these challenges. While the land-grant universities have much of the needed research capacity already available, we must go beyond our traditional partnerships with the land-grant universities to bring the best scientists and brightest minds together.

**Prevention of Carcinogenesis by Dietary Compounds**

Many studies have shown that the majority of human cancers are preventable. One approach to prevention is consumption of foods or their ingredients that can interfere with the carcinogenic process. Many different food compounds inhibit the carcinogenic process by blocking critical steps and there are examples of cancer prevention in virtually all major tissues. Examples of chemopreventive dietary compounds include those isolated from cruciferous vegetables, spices, tea, fruits, and others. Sulforaphane from broccoli sprouts, phenethyl isothiocyanate from watercress, curcumin from turmeric, anthocyanins from black raspberries, resveratrol from red grapes, indole-3-carbinol from cabbage, and myo-inositol from various vegetables and nuts are just a few examples. An important requirement is complete lack of toxicity as these agents would be consumed for years in a preventive setting. While animal studies clearly support the role of these and other compounds in cancer prevention,
the results of epidemiologic studies are less clear and few clinical trial results are available. In ongoing research, phenethyl isothiocyanate, alone or in combination with myo-inositol, shows great promise for prevention of lung cancer in rats and mice. Clinical studies of phenethyl isothiocyanate and myo-inositol are in progress for further evaluation of these promising agents.

**Vince Fritz, Ph.D.**

Professor, Department of Horticultural Sciences Southern Research and Outreach Center  
College of Food, Agricultural and Natural Resource Sciences  
University of Minnesota  

**Biography**

Vince Fritz is a professor of Horticultural Science and Extension Vegetable Specialist at the University’s Southern Research and Outreach Center in Southcentral Minnesota. He has worked with both fresh market and processing vegetable industries for the past 27 years. Dr. Fritz’s current research efforts focus on the development of vegetable and spice crop production systems that enhance chemopreventive benefit. He currently serves on the University’s Healthy Foods, Healthy Lives Institute advisory board and is an executive member of the Minnesota Chemopreventive Consortium which has led to unique collaborations that integrate agriculture with medicine.

**Abstract**

**Production Issues and Variability of Dietary Chemopreventive Compounds**

The primary function of many phytonutrients identified today has been to protect plants from both biotic and abiotic stress. Once viewed as toxins and major contributors to bitter taste, efforts to reduce concentrations in the breeding and development of new varieties began in the early 1980’s. The concentration of chemopreventive phytonutrients found in many vegetable and spice crops vary widely due to the diversity among varieties of a given species and the environments where they are cultivated. Many factors that together comprise a production system can be modified in a way that may bring about a desired change in phytonutrient concentration. Some of the production factors that have had an effect on phytonutrient concentration include light (both intensity and quality), water, soil fertility, temperature, time of harvest, and postharvest storage conditions. A brief summary highlighting the impact of key factors will be presented with the goal of developing a production system that consistently yields crops with enhanced phytonutrient concentration. As research in this area continues to evolve, a real, rather than perceived benefit will need to be established in order to provide a clear choice for both the producer and consumer. This will most likely require a standardized certification process along with strong sensory acceptance.

**Marla Spivak, Ph.D.**

McKnight Distinguished University Professor, Department of Entomology - College of Food Agricultural and Natural Resource Sciences  
University of Minnesota  

**Biography**

Marla Spivak is a MacArthur Fellow and McKnight Distinguished Professor in Entomology at the University of Minnesota. Dr. Spivak’s interest in bees and beekeeping was kindled while working for a commercial beekeeper when she was 18. Her research efforts focus on protecting the health of all bees, breeding bees for their natural defenses against diseases and parasites, promoting sustainable beekeeping practices, and propagating floral rich and pesticide-free landscapes to support the nutritional needs, health and diversity of bee pollinators. She is the author and creator of numerous beekeeping manuals and videos, and her scientific articles have appeared in such journals as the Journal of Neurobiology (now Developmental Neurobiology), Evolution, Apidologie and Animal Behavior. In recognition of her work, Dr. Spivak has received an Eastern Apicultural Society, Jl Hambelton award for Outstanding Research, Apiary Inspectors of America Service Award for Outstanding Work in Apiary Research, a McKnight Land-Grant Professorship as well as Merit and Distinguished Teaching awards from the College of Agriculture, Food, and Environmental Science and the College of Natural Resources (now known as the College of Food, Agricultural and Natural Resource Sciences).

**Abstract**

**Bee Health: Why Should We Care?**

Bee pollinators are essential to our environment and our food supply. The service they provide is critical for the production of more than two-thirds of the world’s crop species. This includes not only products like apples, cucumbers and tomatoes, but also crops like alfalfa seed—creating forage sources for America’s meat and dairy industries. The U.S. alone grows more than 100 food crops that either need or benefit from pollinators. But pollinators are in trouble. While the amount of cropland requiring insect pollination is at an all-time high, the number of managed honey bee hives in the U.S. has dropped by 50% since 1945. Diseases, parasitic mites and the mysterious Colony Collapse Disorder have created a honey bee crisis. It may no longer be a safe assumption that honey bees will always be able to provide the pollination services that farmers and gardeners need to produce food. It is a curious conundrum that our rising demand for healthy, bee-pollinated fruits and vegetables can negatively impact the health of bee pollinators when these crops are grown in large monocultures. Fortunately, honey bee colonies are very resilient and perform remarkable behaviors that contribute to their social immunity and parasite defense. When they are healthy, we harvest from their hives products with medicinal qualities, including honey, propolis, and even venom.
Bee Products for Improving Human Health

Bees are critical to healthy ecosystems and global food supplies. In addition, they produce several substances that have been used medicinally by humans for thousands of years. These substances—honey, bee pollen, beeswax, propolis, royal jelly, and bee venom—may be helpful for improving health and wellness today. The scientific evidence is variable, intriguing, and suggests further exploration.

Michael Osterholm, Ph.D., M.P.H.
Director, Center for Infectious Disease Research and Policy (Academic Health Center)
Professor, Division of Environmental Health Sciences - School of Public Health
University of Minnesota

Biography
Michael Osterholm is Director of the Center for Infectious Disease Research and Policy, Director of the Minnesota Center of Excellence for Influenza Research and Surveillance, Professor in School of Public Health’s Environmental Health Sciences Division, and Adjunct Professor in the Medical School. Dr. Osterholm is an internationally recognized expert in infectious disease epidemiology who led investigations into infectious disease outbreaks during his 15 years as Minnesota state epidemiologist and served as a special advisor to former D.H.H.S. Secretary Tommy Thompson on issues regarding public health preparedness. He is an international leader on the growing concern regarding the use of biological agents as catastrophic weapons targeting civilian populations. Dr. Osterholm provides a comprehensive review of America’s current state of preparedness for a bioterrorism attack in his New York Times best-selling book, Living Terrors: What America Needs to Know to Survive the Coming Bioterrorist Catastrophe. He has received numerous honors for his work, including an honorary doctorate from Luther College; the Pump Handle Award - Council of State and Territorial Epidemiologists; the Charles C. Shepard Science Award - Center for Disease Control and Prevention; the Harvey W. Wiley Medal - U.S. Food and Drug Administration; and the Squibb Award - Infectious Diseases Society of America. Dr. Osterholm is a member of the Institute of Medicine of the National Academy of Sciences.

Abstract
Current Issues in Food Safety: Bringing the Best Science to the Discussion

The complexities of the 21st century global food supply makes it difficult to describe the safety of the food we eat in few and simple terms. Yet today, largely through marketing efforts and the development of environmental and personal choice belief systems, there are an increasing number of value-based messages common in the food safety area. We often hear or read that “locally grown or organically raised food is more nutritious and safer” and “genetically modified foods pose a public health risk.” These generally-held conclusions have spurred on the fastest growing segment of our country’s modern food supply system. Food safety must depend on the best science-based information in order to minimize the risk of foodborne disease. This presentation will explore the information that is at the boundary between food safety fact and fiction.

Francisco Diez-Gonzalez, Ph.D.
Professor, Department of Food Science and Nutrition – College of Food, Agricultural and Natural Resource Sciences, University of Minnesota

Biography
Dr. Francisco Diez-Gonzalez is a Professor of Food Safety Microbiology in the Department of Food Science and Nutrition at the University of Minnesota. His research program is focused to study and control of foodborne pathogens. His particular interests are: development of pre-harvest control strategies of Escherichia coli O157:H7; the safety of organic foods, mechanisms of bacterial acid resistance, microbial safety of fresh vegetables, development of organic sanitizers, control of Salmonella in low water activity foods, and control of Listeria monocytogenes in ready-to-eat foods. He teaches courses on food safety, and food microbiology. Dr. Diez earned his B. S. in Food Technology, from the Instituto Tecnológico y de Estudios Superiores de Monterrey in Queretaro, Mexico. He received his M. S. and Ph. D. degrees in Food Science from Cornell University. Before joining the University of Minnesota in 1999, Dr. Diez was a Postdoctoral Research Associate in Microbiology at Cornell University. Dr. Diez has authored over sixty peer-review articles and ten book chapters. He serves in the editorial board of Applied and Environmental Microbiology, Journal of Food Protection, Food Analytical Methods and Food Protection Trends. He has participated on four different USDA National Institute of Food and Agriculture panels and has served as a member of the National Research Council’s Committee on Ranking FDA Product Categories Based on Health Consequences.
Abstract

Is Organic Produce Unsafe? Where's the Evidence?

In the past 15 years, organic food consumption has increased steadily due to the demand for foods produced with less artificial inputs. Consumers assume that organic foods offer a variety of advantages over conventionally produced commodities. Consumers often believe that organic foods are safer choices, but at the same time, experts are concerned that organic foods may pose a greater risk of foodborne diseases. In particular, because of the limited number of fertilizers and antimicrobial choices approved for organic agriculture and food production, the use of animal manure for crop fertilization, the lack of effective sanitizers for processing plants and the ban of antibiotics for livestock could increase the risk of foodborne diseases caused by pathogenic microorganisms. However, to this date there is fairly limited epidemiological and scientific evidence linked to increased risk of foodborne diseases of organic foods, but the recent occurrence of relatively high profile outbreaks and the zoonotic nature of some pathogenic bacteria justify the need for a thorough risk assessment. The lack of epidemiological evidence could be influenced by the fact that organic foods barely account for 4% of the total food supply. The number of recalls of organic foods seemed to have increased in recent years, but all types of food recalls have also been more frequent. To this date, the few studies that have addressed the question whether organic fresh fruits and vegetables pose greater microbial risk have not been able to detect significant differences between organic and conventional produce.

Allan Levine is Dean of the University of Minnesota's College of Food, Agricultural and Natural Resource Sciences and Director of the University's Obesity Prevention Center. He is also the Director of the Minnesota Obesity Center, a National Institute of Health funded collaborative research group of more than 60 federally funded investigators from the University, the Mayo Clinic, the Minneapolis VA Medical Center, HealthPartners, and Hennepin County Medical Center. Dr. Levine is a Professor in the departments of Food Science and Nutrition, Psychiatry, Neuroscience, and Medicine, and is a member of the Nutrition, Food Science, and Neuroscience graduate faculties at the University of Minnesota. He lectures in a variety of courses and is currently teaching a freshman seminar in food ethics. For more than 30 years Dr. Levine and his colleagues have explored the neural regulation of food intake, particularly related to the opioid peptides, oxytocin and Neuropeptide Y. He has published over 290 scientific papers and over 100 review articles, editorials and book reviews. He has been named a Fellow of the American Association for the Advancement of Science, the American Psychological Association and the Obesity Society, and was recently elected to Sigma Xi. He has served on advisory groups for various food and pharmaceutical corporations, including the Dannon Institute, Best Foods, and the International Life Sciences Institute.

Simone French is a professor in the Division of Epidemiology & Community Health at the University of Minnesota. Dr. French received her Ph.D. in Psychology from the University of Minnesota in 1990, and has been a faculty member in the Division of Epidemiology & Community Health at the University of Minnesota since 1994. She has conducted research in the area of obesity prevention for the past 20 years, with a focus on environmental influences, and has served as Principal Investigator on several NIH grants that support her research program. Her research has evaluated interventions to promote healthful food choices in community settings such as worksites, schools, and households. These interventions target environmental influences such as food availability, prices, portion sizes and promotions. Dr. French has published over 140 research articles in peer-reviewed scientific journals. She is the founding editor of the International Journal of Behavioral Nutrition and Physical Activity, and is an internationally recognized expert in obesity prevention among youth and adult populations.

Simone A. French, Ph.D.
Professor, Division of Epidemiology & Community Health - School of Public Health
Director, Obesity Prevention Center
University of Minnesota

Biography

Simone French is a professor in the Division of Epidemiology & Community Health at the University of Minnesota. Dr. French received her Ph.D. in Psychology from the University of Minnesota in 1990, and has been a faculty member in the Division of Epidemiology & Community Health at the University of Minnesota since 1994. She has conducted research in the area of obesity prevention for the past 20 years, with a focus on environmental influences, and has served as Principal Investigator on several NIH grants that support her research program. Her research has evaluated interventions to promote healthful food choices in community settings such as worksites, schools, and households. These interventions target environmental influences such as food availability, prices, portion sizes and promotions. Dr. French has published over 140 research articles in peer-reviewed scientific journals. She is the founding editor of the International Journal of Behavioral Nutrition and Physical Activity, and is an internationally recognized expert in obesity prevention among youth and adult populations.

Abstract

Why We Can't Stop Eating: Biological Drivers of Food Intake

Animals are motivated to eat by a variety of stimuli including hunger and palatability. A complex network of neurotransmitters is involved in feeding behavior. This talk will focus on representative peptidergic systems that are involved in the motivation to eat due to nutrient needs and taste/reward. Opioid peptides and their receptors are involved in sweet and fat consumption and so-called “additive” feeding behavior. Evidence will be presented that, aside from increasing sugar/fat consumption, opioids silence the oxytocin-driven satiety system. The talk will also include a discussion of opioid-related hedonic deprivation. Hedonic deprivation suggests that a lack of free access to rewarding food leads to a deprivation state that resembles energy deprivation. Finally, data will be included that demonstrates interactions between food and drug reward systems. We conclude that, due to the complexity of neural and functional interactions, opioids are capable of enhancing pleasure of eating any food – palatable or aversive – making any meal into a more rewarding experience.

Environmental influences are an important contributor to the obesity epidemic. Food portion sizes, food pricing, marketing practices and advertising are examples of environmental influences that may promote higher energy intake and excess weight gain. This presentation will review some of these environmental influences on food choices and potential interventions and policies that could address them.