



Welcome to the inaugural issue of *ARS & You!* Our talented Information Staff has developed this newsletter and will be sending new issues to you periodically. I hope all of you had an enjoyable holiday season and are now ready to help ARS contribute to and achieve USDA's many important national and global goals and priorities in 2010.

This is an exciting time to be part of ARS, not only because of the many and diverse challenges facing our Nation and the world—challenges that demand and stimulate our greatest innovations and problem-solving abilities—but also because of the increasingly important role of ARS as USDA's principal in-house scientific research agency.

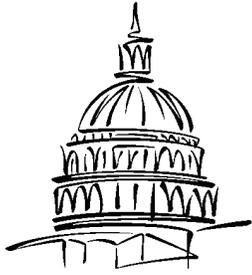
ARS has a diverse workforce of approximately 8,000 employees, including some 2,200 scientists spread across the United States and abroad. Many of you know what it's like to have a large, extended family that's scattered across the country, or perhaps around the world; it can be hard to keep in touch with everyone. It is my hope that members of the "ARS family" will always be able to keep in touch with one another, regardless of our far-flung locations. To that end, I encourage you to read each issue of *ARS & You*, and feel free to submit story ideas as well as news about your awards and achievements.

As we strive to achieve ARS' goals, we must always remember and appreciate our most important resource: the people of ARS. Thanks to the incredible talents and dedication of the entire ARS family, much was accomplished in 2009, and I'm sure we will achieve even more this year. Please accept my best wishes to each of you for a successful 2010!

Handwritten signature of Edward B. Knipling.

Edward B. Knipling
ARS Administrator

ARS Helps Shape Federal Science Policy



The Science of Science Policy

On October 28-29, research management experts from across Federal science agencies gathered in Washington, DC, to share “best

practices” and discuss effective approaches for identifying research priorities, exploring research performance management, and assessing the impact of completed research in order to develop a framework for ensuring that future investments of research and development dollars are spent wisely. The workshop, co-sponsored by USDA, the Environmental Protection Agency, and George Washington University, brought together more than 250 participants from 67 Federal agencies, private-sector organizations, and academia to identify efficiencies and management strategies that could be applicable to other research and development agencies. Conducted under the Science of Science Policy initiative led by the White House Office of Science and Technology Policy, the workshop enabled participants to share and critique processes they use in continuing efforts to improve the likelihood of beneficial impacts for public expenditures in the Federal research and technology development sectors.

ARS/Origami Foods Partnership Results in a New Start-up Business

Sushi, a big part of Japanese cuisine that has become a mainstay in American food culture, will soon have a new savory twist—flavorful, healthy fruit- and vegetable-based wraps. The new technology is thanks to an ARS Western Regional Research Center employee in Albany, CA, and Origami Foods, LLC in Stockton, CA, cooperative



Tara McHugh examines colorful fruit- and vegetable-based films.

partnership. Under a Cooperative Research and Development Agreement (CRADA), the partnership ultimately resulted in the creation of a start-up business, the building of a manufacturing facility in an economic redevelopment area of northern California, and the creation of new jobs. Origami opened a factory

in Stockton, a rural area in need of employment opportunities, to mass produce the patent-pending technology.

The edible films were originally developed by **Tara McHugh**, Research Leader of the Processed Foods Research Unit in Albany, CA. They are made from pureed fruits and vegetables, like apples, oranges, carrots and strawberries. The films can be made into fruit- and vegetable-based wraps, or sheets that can be used for a variety of culinary food purposes. So far, the partners have come up with bright-orange carrot-based wraps, deep-red tomato and basil wraps, pineapple-apricot ginger wraps, broccoli wraps and even blueberry and strawberry wraps for desserts.

Carrot wraps can be found on Sunny California Roll sushi products around the country in Trader Joe’s stores, and apple wraps are available on spiral-cut hams as a glaze.

Around ARS

Donald P. Knowles, Research Leader, Animal Diseases Research Unit in Pullman, WA, is working closely with the Animal Plant Health Inspection Service and the Texas Animal Health



Equine babesiosis is a potential problem for horses.

Commission to assess and control the spread of a recent major outbreak of equine babesiosis in Texas. *Equine babesiosis* is a foreign animal disease and is regulated by testing horses for infection prior to importation. This disease could have serious international trade implications. Until now, the disease was not present in the United States.

Leon Kochian, Center Director, Robert W. Holley Center for Agriculture and Health in Ithaca, NY, gave the opening plenary address on November 10th at the XIII Mexican National Congress of Biochemistry and Plant Molecular Biology in Guanajuato, Mexico. His presentation, "Strategies Plants Employ to Cope with Toxic Metals: Crop Aluminum Tolerance as a Model," focused on Kochian's ARS research on using genomic and genetic approaches to improve cereal crop yields on acid soils that limit agricultural production on up to 50 percent of the world's arable lands, including many developing countries in the tropics and subtropics.

Jean McLain, Microbiologist, U.S. Arid Land Agricultural Research Center in Maricopa, AZ, participated in the Global Environment Federation International Waters Conference in October in Cairns, Australia. McLain was invited by the United Nations Environmental Programs (UNEP) to lead a conference workshop on methods for detecting pollution sources in freshwater samples. The UNEP funds projects in more than 170 countries worldwide. McLain's workshop, attended by program leaders of projects based in Asia, Africa, and islands of the

South Pacific, was designed to inform managers of methods currently available for detecting pollution. Such measures will allow for estimation of health risks associated with water pollution and will ultimately facilitate measures for remediation.



On November 4, then REE Under Secretary Rajiv Shah and ARS Administrator Edward B. Knipling helped kick off the 2009 ARS

Combined Federal Campaign (CFC) drive during a lively ceremony at the National Agricultural Library (NAL) in Beltsville, MD. In comments to approximately 150 ARS employees, Shah talked about charities that he was personally familiar with that benefited from CFC contributions, while Knipling challenged ARS keyworkers to seek 100-percent participation within their units. The ceremony featured displays by 10 charities and musical performances by two talented employees. A bake sale held during this event generated more than \$400 in sales. Other fundraising activities took place as well, including sales of books donated by employees, a CFC Food Day, and a CFC Silent Auction.

Notable Awards

Lindsay H. Allen, Center Director, Western Human Nutrition Research Center in Davis, CA, won the Conrad Elvehjem Award for Public Service in Nutrition from the **American Society for Nutrition** in recognition of scientific and distinguished public service. Allen has worked extensively on committees of the Institute of Medicine, the World Health Organization, and other national and international agencies. She is currently vice-president of the International Union of Nutritional Sciences. Her research focuses on the consequences of micronutrient deficiencies and approaches to improve micronutrient status of at-risk populations in developing countries and the United States.

Sarah Hake, Center Director, the Plant Gene Expression Center in Albany, CA, was elected to the **National Academy of Sciences**. Election to the Academy is considered one of the highest honors accorded to a U.S. scientist or engineer. She is internationally recognized for her contributions to plant genetics, particularly her work on using clonal analysis to study developmental plant genes. She was one of 72 new members (and 18 foreign associates) elected to the Academy in recognition of “distinguished and continuing achievements in original research.”



Sara Hake examines experimental corn for genetic changes.

Alfred French, Research Chemist, Cotton Structure & Quality Research Unit in New Orleans, LA, will receive the 2009 Anselme Payen Award from the Cellulose and Renewable Materials Division of the **American Chemical Society (ACS)**. He will be honored at ACS’s March 2010 meeting in San Francisco, CA. The award, the Division’s highest, is given for outstanding professional contributions to cellulose science and chemical technology. French and collaborators from Los Alamos National Laboratory in New Mexico and Joseph Fourier

University in Grenoble, France, published an article in *Biomacromolecules* on the relationship between hydrogen bonds and cotton cellulose crystals. This information contributes to a better understanding of cotton defects and weaknesses, which could ultimately lead to improvements in permanent press and antimicrobial finishes for consumer products.

To view a simulation of cellulose crystals, click below or see “Inside Look at Cellulose Provides Insight into Cotton Crystals” at:

www.ars.usda.gov/is/pr/2009/090608.htm



Carroll Vance, Research Leader, Plant Science Research Unit in St. Paul, MN, and **Mel Oliver**, Research Leader, Plant Genetics Research Unit in Columbia, MO, were both given a 2009 **American Society of Plant Biologists** Fellow Award. The award is given for distinguished and long-term contributions to plant biology.

The American Phytopathological Society recognized the following ARS scientists as 2009 Fellows in recognition of distinguished contributions to plant pathology for the society: **Martin Carson**, Research Leader, Cereal Disease Laboratory in St. Paul, MN; **David Marshall**, Research Leader, Plant Science Research Unit in Raleigh, NC; and **Timothy Paulitz**, Research Plant Pathologist, Root Disease and Biological Control Research Unit in Pullman, WA.

Scott R. Yates, Research Leader, Contaminant Fate and Transport Research Unit in Riverside, CA, received the **Soil Science Society of America’s** 2009 Soil Science Applied Research Award for contributing to a better understanding of atmospheric emissions of methyl bromide and other soil fumigants, and for efforts to protect the ozone.

Kris Havstad, Supervisory Research Rangeland Management Specialist, Range Management Research Unit in Las Cruces, NM, received a Fellow Award from the **Society for Range Management** for career contributions to the advancement of range science.

Ed L. Fredrickson, Research Rangeland Management Specialist, Range Management Research Unit in Las Cruces, NM, and **Brandon T. Bestelmeyer**, Research Ecologist with the same lab, both received an Outstanding Achievement Award from the **Society for Range Management** for contributions to the advancement of range science.

R. Daren Harmel, Agricultural Engineer, Grassland Soil and Water Research Laboratory in Temple, TX, received the **American Society of Agricultural and Biological Engineers'** New Holland Young Researcher Award, which recognizes dedicated use of scientific methods to seek out facts or principles significant to the agricultural engineering profession.



Daren Harmel (left) and a colleague inspect soil cracks caused by severe drought.

R. Nolan Clark, Laboratory Director, Renewable Energy and Manure Management Research Unit in Bushland, TX, received the Small Wind Advocacy Award presented by The Wind Powering America Program at the **American Wind Energy Association**. The award is in recognition of his leadership, dedication, and numerous contributions to small wind turbine applications.



Scientists examine a wind turbine.

Albert Clemmens, Center Director, U.S. Arid Land Agricultural Research Center in Maricopa, AZ, received the **United States Committee on Irrigation and Drainage (USCID)** Merriam Improved Irrigation Award in recognition of his distinguished service to USCID and the irrigation profession.

David Huggins, Soil Scientist, Land Management and Water Conservation Research Unit in Pullman, WA, and Microbiologist **Hal Collins**, Vegetable and Forage Crop Research Unit in Prosser, WA, were part of the Climate Friendly Farming Project Team that received the **USDA National Institute of Food and Agriculture (NIFA)** Partnership Award for innovative program models. The award was presented to the team for their contributions in identifying and developing innovative solutions to reduce greenhouse gas emissions from agriculture.



Hal Collins evaluates soil bacterial diversity under various cover crop treatments.

N. Andy Cole, Supervisory Research Animal Scientist, Renewable Energy and Manure Management Research Unit in Bushland, TX, was named a Research Fellow by the **American Society of Animal Science** for distinguished service to animal science and the livestock industry over a period of time.

James Joseph, Research Physiologist, Human Nutrition Research Center on Aging in Boston, MA, won the GlaxoSmithKline Award for Flavanoid Research from the **International Conference on Polyphenols and Health** "for novel findings on flavonoid polyphenolics and health."

Five ARS scientists have been named Fellows of the **American Association for the Advancement of Science**. **Wilbert H. Blackburn**, Northern Plains Area Director, Ft. Collins, CO, was cited for distinguished contributions to advancing

science and technology in agriculture. Geneticist **Michael D. Casler**, U.S. Dairy Forage Research Center, Madison, WI, was cited for distinguished contributions to agricultural sciences in teaching research on perennial forages and bioenergy crop genetics, quality, fitness, and adaptation and for scientific services. Center Director **Sarah Hake**, the Plant Gene Expression Center in Albany, CA, was cited for distinguished contributions to the field of plant biology, particularly for elucidating the mechanisms underlying the vegetative and reproductive development of flowering plants. Chemist **Ronald J. Nachman**, Southern Plains Agricultural Research Center, College Station, TX, was cited for his cutting-edge research on insect neuropeptides, particularly the development of novel agonists and antagonists capable of disrupting insect development. **David Spooner**, Botanist, Vegetable Crops Research Unit in Madison, WI, was cited for “distinguished contributions to the systematics, evolution and domestication of potato, tomato and their wild relatives.” They will be honored at the AAAS Annual Meeting in San Diego, CA, in February 2010.

Soil Scientist **Martin J. Shipitalo** and Supervisory Research Hydraulic Engineer **James V. Bonta**, North Appalachian Experimental Watershed in Coshocton, OH, received the **Soil and Water Conservation Society** Ohio Chapter Award for Excellence in a Scientific or Technical Publication for their paper “Impact of Using Paper Mill Sludge for Surface-Mine Reclamation on Runoff Water Quality and Plant Growth.”

Did You Know?

Researchers at the **Eastern Regional Research Center** (ERRC) in Wyndmoor, PA, developed technology that led to one of the most convenient “homemade” food products today—**instant mashed potato flakes**. This technology led to a new industry that changed the way family meals were and are prepared today. Commercial production of instant mashed potatoes first started in 1957, and the industry continued to grow. Today, Americans consume about 130 pounds of fresh and processed potatoes annually, 40 pounds more than tomatoes, the next most commonly eaten vegetable, according to the USDA Economic Research Service.



The technology that ARS scientists developed is used in preparing frozen french fries, instant mashed potatoes and other products like potato chips. In addition, subsequent improvements to the original process to dry vegetables and fruits also led to development of explosion puffing processes. Explosion puffing technology helps seal in flavor and nutrients of fruit and vegetables when dried (or dehydrated), which can then be

later used as a food ingredient in cereals, muffins and other food products.

The American Chemical Society, the world’s largest scientific society, bestowed upon ERRC the honor of National Historic Chemical Landmark status in 2007 for its scientific contributions leading to the development of novel dehydration techniques. These discoveries, and the technologies arising from them, have made possible convenience foods that are enjoyed by consumers worldwide. ERRC’s achievements in food chemistry have improved the overall value of the U.S. potato crop and expanded the use of numerous other agricultural commodities.

Please pass the potatoes!

Written by **Tara T. Weaver-Missick**, ARS Information Staff.

Potato Facts:

- Loaded with fiber
- Rich in vitamin C
- More potassium than bananas, spinach and broccoli
- No fat, cholesterol or sodium
- Only 100 calories per serving
- 44 billion pounds of potatoes produced in the United States
- 38% of potatoes produced are used for frozen french fries and other frozen products
- Nearly 8 out of 10 consumers eat some form of potatoes 3.6 times every 2 weeks

Source: National Potato Council's 2008 Potato Statistical Yearbook

Please submit story ideas and national award items to Tara T. Weaver-Missick, tara.weavermissick@ars.usda.gov or call 301-504-1663.