

# BARC e-Update



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BARC is part of the USDA's Agricultural Research Service and encompasses programs at the Beltsville Agricultural Research Center; the U.S. National Arboretum in Washington, D.C.; and worksites in Chatsworth, New Jersey; Presque Isle, Maine; and McMinnville, Tennessee. BARC is the largest and most diversified agricultural research complex in the world. BARC's record of accomplishments and its ongoing programs have made it a world leader in agricultural research.

## Blowing Our Own Horn!

### FULBRIGHT FELLOWSHIP AWARD



**Dr. Devanand Luthria**, Research Chemist in our Food Composition Laboratory, has been awarded a four-month Fulbright Fellowship for "Impact of Global Climate Change on Nutritional Quality of Agricultural Products". He will study the impact of global climate

change (increased carbon dioxide and temperature) on the nutritional quality of agricultural products (grains, fruits, and vegetables) by comparing the quantity and quality of the macronutrients and micronutrients of different agricultural products grown under ambient and elevated carbon dioxide concentration and temperature. The project will be carried out in collaboration with the Indian Agriculture Research Institute (IARI), New Delhi, India. Results from these studies will enable scientists to understand and predict changes in food composition due to global climate change and allow nutrition and agriculture professionals to formulate novel strategies for rebalancing vital nutrients in foods.

### BARC's TECHNOLOGY TRANSFER COORDINATOR IS LEAVING!

**Dr. Harry Danforth** has been appointed to the senior executive position of Associate Director, Midwest Area, Peoria, Illinois. Dr. Danforth will assume his new responsibilities effective May 13,

2007. In this capacity, Harry will share line management leadership and cooperative interaction responsibilities for the Agricultural Research Service laboratories and programs in the states of Minnesota, Iowa, Missouri, Wisconsin, Illinois, Indiana, Ohio, and Michigan. Dr. Danforth has had a successful professional career exceeding 26 years with ARS. He currently serves as BARC's Technology Transfer Coordinator, a position he has held since 2000.

### EMBREX FUNDAMENTAL SCIENCE AWARD



**Dr. Hyun Lillehoj**, Research Immunologist in our Animal Parasitic Diseases Laboratory, has been selected to receive the first Embrex Fundamental Science Award at the upcoming Poultry Science Association meeting to be held in San Antonio, Texas. This award was established last year by Embrex, Inc (now Pfizer). The Embrex Fundamental Science Award recognizes outstanding achievement in basic disciplines (genetics, genomics, immunology, molecular, cellular and developmental biology, physiology, poultry health, and proteomics).



## Community Interest...

### BELTSVILLE DAY

BARC is proudly supporting "Beltsville Day 2007" on **Sunday May 20<sup>th</sup>**, a day of family, fun and community. It is the largest family oriented function in Beltsville; about 3,000 adults and children attend this event from Beltsville and local surrounding communities. Beltsville Day takes place from 12 noon until 5:00 pm at 3900 Sellman Road, on the grounds of the Beltsville Community Center. Come out and enjoy the day! For more information, please contact **Mr. Joe Fuchs** at 301-434-6756 or [JoeFuchs@msn.com](mailto:JoeFuchs@msn.com).

## New Books...



### GENETIC IMPROVEMENT OF SOLANACEOUS CROPS, VOLUME 2: TOMATO

A long-felt need to have comprehensive information on the genetic improvement of tomato in one place has come to fruition with the publication of a 637-page book on Genetic Improvement of Solanaceous Crops, Volume 2: Tomato, which has been co-edited by Dr. Autar Mattoo and Dr. M.K. Razdan, University of Delhi, India. This book has been published by Science Publishers, Enfield, NH, 2007 (ISBN: 978-1-57808-179-0). **Dr. Mattoo** is a Plant Physiologist with BARC's Sustainable Agricultural Systems Laboratory, he can be contacted at [Autar.Mattoo@ars.usda.gov](mailto:Autar.Mattoo@ars.usda.gov).

## WHAT WE EAT IN AMERICA

Did you know that on any given day almost a quarter of all Americans eat breakfast away from home! Only 2% of those eating at home consume fried potatoes but this jumps to 10% when breakfast is eaten away from home. These facts plus more have just been released by BARC's Food Surveys Research Group. *What We Eat in America, National Health and Nutrition Examination Survey (NHANES) 2001-2002* and the FastFacts data sheet looking at **Breakfast in America** can be found at <http://www.ars.usda.gov/Services/docs.htm?docid=14827>.

For additional information, contact **Ms. Alanna Moshfegh** at [Alanna.Moshfegh@ars.usda.gov](mailto:Alanna.Moshfegh@ars.usda.gov).

## COWS IN SPACE



John W. Kennedy Consultants, Inc. has requested the assistance of **Dr. Neil Talbot**, Research Animal Scientist, in BARC's Biotechnology and Germplasm Laboratory, in a project to test the effects of space flight on the early development of bovine embryos. Dr. Talbot will act as a preflight and post-flight consultant to the project in the preparation of bovine embryos after their return to Earth. Bovine zygotes and culture materials will be provided by BoMed, Inc, Madison, WI, and Dr. Peter Hansen, University of Florida, Animal Sciences Department, Gainesville, FL. In flight incubation and culture robotics equipment will be provided by Astrotech Space Operations, Titusville, FL. The proposed flight time is August, 2007.

## NANOPARTICLE BASED IDENTIFICATION OF FOOD PATHOGENS

The development of rapid and routine identification methods for food borne bacteria is of considerable importance due to concerns regarding bio-/agro-terrorism, public health, and economic loss. The traditional techniques are time consuming and are not sufficiently rapid to assure the safety of read-to eat products. Recently developed biosensors for rapid and specific detection of bacteria tend to have time requirements and rates of false negatives/positives that limit their usefulness for rapid screening of bacteria. Fast microbial detection requires minimal sample preparation, permits the routine analysis of large numbers of samples with negligible reagent costs, and must be easy to operate. Researchers at BARC's Instrumentation and Sensing Laboratory, in collaboration with scientists at Food Technology and Safety Laboratory, have developed silver colloidal nanoparticle based surface-enhanced Raman scattering spectroscopy as a potential label-free tool for the rapid, simultaneous, qualitative, and routine screening of *Escherichia coli*, *Listeria monocytogenes*, and *Salmonella typhimurium* at a large scale. This method has several outstanding merits: (1) silver nanoparticle colloids are easy and inexpensive to prepare and their lifetime has been found to be much longer than that of vacuum-deposited nanoparticle films, (2) incubated bacterial cultures are directly mixed with silver colloids in tubes, requiring no other procedures and reducing the likelihood of cross-contamination, (3) exclusive bands based simple algorithms are more useful in determining bacterial species, and (4) data collection and interpretation can be completed in timeframes as short as 5 minutes. For more information, contact **Dr. Kevin Chao** at [Kevin.Chao@ars.usda.gov](mailto:Kevin.Chao@ars.usda.gov).

Mark Your Calendar! 

## MID-ATLANTIC PLANT MOLECULAR BIOLOGY MEETING

**August 16-17.** The Mid-Atlantic Plant Molecular Biology meeting (MAPMBS 2007) will be held on August 16-17 at the Patuxent Wildlife Visitors Center, Laurel, MD. The invited Keynote Speaker will be Dr. Roger Innes, Indiana University, who will present his latest research on the molecular biology of the defense response in plants. Eight other invited speakers and several society members will also present their data on topics at the leading edge of plant science in the fields of molecular biology, genomics, proteomics, and bioinformatics. For more information, contact Co-chairs **Dr. Ben Matthews** (301-504-5730, [matthewb@ba.ars.usda.gov](mailto:matthewb@ba.ars.usda.gov)) or **Dr. Leslie Wanner** (301-504-5953, [wannerl@ba.ars.usda.gov](mailto:wannerl@ba.ars.usda.gov)).

## RENEWABLE FUELS CONFERENCE: A MARYLAND-BRAZIL EXCHANGE

**May 20-21**, this conference will address the question, "What can American energy professionals learn from the Brazilian model?" Maryland Governor Martin O'Malley and U.S. Department of Energy Secretary Samuel Bodman have both been invited to speak. Breakout sessions include Research and Development, Business, Trade and Investment, and Environment and externalities. The conference is being organized by the Maryland Sister States Program. For more information, contact **Dr. Ron Korcak** at 301-504-5193 or [ron.korcak@ars.usda.gov](mailto:ron.korcak@ars.usda.gov).



## BARC FIELD DAY



**June 2, 2007**, On Saturday, June 2, BARC will once again host a Field Day for the general public. The research laboratories at BARC will exhibit and explain current research projects. Field day is free and parking is available on-site. For more information, please call **Ms. Sandra Martin** at 301-504-8253 during business hours. *In keeping with the goals of sustainable agriculture and environmental stewardship, we are trying to make BARC Field Day a Zero-Waste Event.*

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