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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!

BOXWOODS AT THE WHITE HOUSE & COLONIAL WILLIAMSBURG

Lynn Batdorf, the Curator of the U.S. National Arboretum's National Boxwood Collection, shares his expertise with our nation's most famous gardens. For the past two decades, Batdorf has been directly involved with renovating boxwood at The White House. The Roosevelt boxwood on the north lawn and those in the Rose Garden are examples that present unique horticultural challenges to Batdorf. This is due to their age, the Roosevelt boxwood range in age from 125 to 200 years old. In fact if you look at the reverse side of a \$20 bill you will see the Roosevelt boxwood lining the White House. Batdorf has visited The White House over three dozen times to consult with, and advise National Park Service supervisors. Together they are renovating and applying proper maintenance of these irreplaceable boxwood. Likewise, Colonial Williamsburg is synonymous with both American history and boxwood. Batdorf is currently involved with guiding

a major renovation of the boxwood gardens at this American institution. Through site visits and consultation with staff, he has been evaluating and recommending horticultural practices to ensure that these boxwood continue to thrive for centuries. Lynn can be contacted at Lynn.Batdorf@ars.usda.gov.

Pruning boxwood at the White House

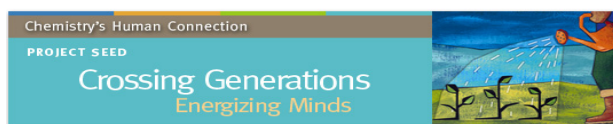


Boxwood at Colonial Williamsburg



Community Interest...

HIGH POINT HIGH SCHOOL STUDENT AWARDED PROJECT SEED GRANT



Mr. Dien Nguyen, a 2007 graduate of High Point High School in Beltsville was awarded a Project SEED grant from the Chemical Society of Washington which is a section of the American Chemical Society. Mr. Nguyen will be working with **Dr. Shioh Y. Wang** of BARC's Genetic Improvement of Fruits and Vegetables Laboratory investigating the Antioxidant Capacity in Berry Fruits. Project SEED is designed to encourage economically disadvantaged high school students to expand their education and career opportunities in the chemical sciences.

WAVY-LEAF BASKET GRASS ERADICATION AT BARC

Wavy-leaf basket grass (*Oplismenus hirtellus* ssp *undulatifolius*) is a broad green-leaved plant that spreads horizontally from nodes. It is currently considered to be an invasive plant. In

August of this year BARC Director, **Dr. Phyllis Johnson**, was participating in the 6th Mid-Atlantic Conference on Invasive Plants Research Removal and Renewal in Philadelphia. At the Conference she was made aware of the existence of wavy-leaf basket grass in a park near Sellman Road by **Dr. Marc Imlay**. Dr. Imlay is a retired botanist who is now associated with the Anacostia Watershed Society. In a matter of days BARC Ecology Committee (**Dr. Rob Griesbach**, **Mr. George Meyers**, **Ms. Martha Tomecek**, and **Mr. Glenn Welch**) and BARC Bird



Club members (**Dr. Doug Bolt** and **Ms. Beverly Russell**) surveyed parts of the BARC East and West campuses. One large (10-20 sq. ft.) and several smaller colonies were located on BARC-West in a forested area. Within days all plants were sprayed. The site is being monitored for new seedlings. For more information contact Mr. Glenn Welch, Chair, BARC Ecology Committee at Glenn.Welch@ars.usda.gov.

On the Research Side...

HONEY BEE COLONY COLLAPSE DISORDER- A VIRAL CONNECTION

A team led by scientists from the Agricultural Research Service, Pennsylvania State University, and Columbia University have found a connection between colony collapse disorder in honey bees and Israeli acute paralysis virus. BARC entomologist **Dr. Jeffery S. Pettis**, research leader of the Bee Research Laboratory, MD. **Diana L. Cox-Foster**, a professor in the Department of Entomology at Pennsylvania State University; and **Dr. W. Ian Lipkin**, Director of the Jerome L. and Dawn Greene Infectious Disease Laboratory at Columbia University, led the team that did genetic screening of honey bees collected from 30 colonies with Colony Collapse Disorder (CCD) and 21 colonies with no CCD from four locations in the US. The genetic screening led to the identification of pathogens that the sampled honey bees were exposed to. Honey bees were found to harbor 6 symbiotic types of bacteria and 8 bacterial groups, 81 fungi from four lineages, and 7 viruses. The search for potential pathogens was done using a new, novel means of sequencing the genetic material from the healthy and unhealthy bees. This technology, termed high-throughput sequencing, allows for a unbiased look at DNA from all the organisms, bacteria, fungi and viruses, present in the host bees. Then the DNA sequences are searched against known genomic libraries for best matches. This gives a very precise picture of what

genus level. Often specific species can be identified and unknown organisms, if present, can also be catalogued for further study. The sequencing work performed by 454 Life Sciences Corporation, followed by a large group effort to further identify specific groups of microorganisms. The only pathogen found in almost all samples from honey bee colonies with CCD but not in non-CCD colonies was the Israeli acute paralysis virus (IAPV), a dicistrovirus virus that can be transmitted by the varroa mite. It was found in 96.1 percent of the CCD-bee samples. This is the first report of IAPV in the United States. IAPV was initially identified from honey bee colonies in Israel in 2002 where the honey bees exhibited unusual behavior such as crawling bees with twitching wings outside the hive and a loss of worker population. IAPV has not yet been formally accepted as separate species; it is a close relative of Kashir Bee Virus, which has been previously found in the United States. These finds do not necessarily identify IAPV as the cause of CCD. Even if IAPV proves to be a cause, there may also be other contributing factors involved that stress the bee colony and allow the virus to replicate, which researchers are pursuing. The next step is exposing healthy hives to IAPV and seeing if CCD develops. Results of this study were published in the September XX issue of Science. For more information contact Jeff Pettis at Jeffery.Pettis@ars.usda.gov.

Technology Transfer...

BIOBASED CAFETERIA WARE & FOOD SCRAP DIVERSION PROJECT FOR FEDERAL CAFETERIAS

A Pilot Project to investigate modifications to cafeteria operations and use of biobased utensils on composting USDA cafeteria residuals in lieu of landfilling was performed at the USDA Whitten Building employee cafeteria in August 2005 (see BARC E-Update September 2005). The overall success of the demonstration led to the desire to include all USDA cafeterias in the DC metropolitan area in a biobased product / food scrap diversion project. In this new project, **Dr. Patricia Millner** of the Sustainable Agricultural Systems Laboratory is working with Renewable Carbon Management, LLC to develop a closed composting system for this material. Renewable Carbon Management, LLC has developed an in-vessel composting system using modified 20 to 55 ton roll-off or inter-modal shipping containers. A closed composting system eliminates the need for composting buildings, large concrete surfaces, and stormwater treatment basins. In addition, composting odors are eliminated by processing the air through a biofilter. A major advantage of a closed composting system is that they can be located in small areas close to residences and businesses, reducing the transportation cost of moving cafeteria waste. For additional information contact Dr. Millner at Pat.Millner@ars.usda.gov.

Mark Your Calendar!

BELTSVILLE AREA DISTINGUISHED LECTURE SERIES

This seminar is open to the public



Dr. Otto Doering, Professor of Agricultural Economics, Purdue University
Date: Wednesday, **October 17, 2007**
Time: 10:30 a.m. - 11:30 a.m.
Place: Building 003 Auditorium, BARC-West
Title: "From Biofuels to the Agricultural Landscape: Where Are We Headed?"

BELTSVILLE AREA DISTINGUISHED LECTURE SERIES

This seminar is open to the public



Dr. Pedro A. Sanchez, Director, Tropical Agriculture and Rural Environment Program, The Earth Institute at Columbia University
Date: Wednesday, **October 24, 2007**
Time: 1:30 p.m. - 2:30 p.m.
Place: Building 003 Auditorium, BARC-West
Title: "The African Green Revolution, Millenium Villages and Food Aid"

CELEBRATION OF THE "CHRYSANTHEMUM MOON"

This exhibition features the chrysanthemum in various Asian art forms namely bonsai, pattern stones, ikebana, woodblock prints and scrolls which celebrate this ancient Eastern symbol of autumn. **Now through October 21, 2007**, U. S. National Arboretum, National Bonsai & Penjing Museum, Special Exhibits Wing. For more information visit <http://www.usna.usda.gov/Education/events.html>.

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