

BARC e-Update

Beltsville Agricultural Research Center

10300 Baltimore Avenue

Beltsville, MD 20705

Phone: 301.504.5193

To subscribe, please email: BA.Office@ars.usda.gov

Access past e-Updates at www.ars.usda.gov/ba/e-Update



November 2007

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!

THANKSGIVING TURKEY HISTORY

Over 300 million turkeys are produced annually in the U.S. thanks to research at BARC. In the early 1930's, most turkeys had dark colored plumage, were medium to large in size (18-25 pounds) and had a narrow breast without much meat. Based upon a survey, consumers wanted a smaller turkey (8-15 pounds) that would better fit home refrigerators and ovens and be just the right size for a small family. In addition, they wanted a turkey that had more white meat and one that had no dark pin feathers. Therefore in 1934, BARC began a breeding program to create this new type of turkey and fulfill these requirements. Four different breeds (White Holland, White Austrian, Narragansett, and Bronze and Wild Turkey) were used to create this new turkey. Sixty years ago, in 1947, the new turkey made its commercial debut and in 1951 was officially recognized as a new breed, Beltsville Small White, by the American Poultry Association. The Beltsville Small White not only expanded the turkey market, it became the genetic foundation of practically every turkey sold today! Although extremely popular with the family consumer, the commercial consumer desired a bird with more breast meat. As a consequence, the Beltsville Small White was bred with other types to create the Broad Breasted White. By 1965, the Broad Breasted White had taken over the turkey market. The Broad Breasted White fit the commercial niche for a turkey yielding larger breast muscle and, when slaughtered at a young age, it also fit the family niche for a smaller turkey. Because of their large breast size, Broad Breasted Whites require artificial insemination for reproduction. It has been long recognized that the ability to store turkey semen for 24 hours *in vitro* without a significant loss in fertility upon insemination would benefit the commercial turkey industry. In the early 1980s, BARC researchers, including current Animal and Natural Resources Institute Director, **Dr. Tom Sexton**, developed semen extenders that extended sperm life up to 10 hours prior to insemination. Even with these extenders, *in vitro* semen storage has yet to duplicate the microenvironment within the hen's reproductive tract known as the sperm storage tubules, which maintain viable sperm for up to 10 weeks. Currently, **Drs. Julie Long** and **Murray Bakst** in BARC's Animal Biosciences and Biotechnology Laboratory are characterizing the cellular and molecular mechanisms that allow sperm to remain alive for up to 10 weeks within the sperm storage tubules and only 8 to 10 hours outside the tubules. One interesting fact they discovered is that there is difference in gene expression within the sperm storage tubules when sperm are present and when they are not. Genes may be identified that could be used to extend the sperm longevity. (For more information, contact Dr. Julie Long at Julie.Long@ars.usda.gov).

Community Interest...

STREAM CLEAN UP

The College Park Rotary, Rotaract Clubs from Prince George's County and the University of Maryland, the Beaver Dam Creek Watershed Watch Group and the BARC Ecology Committee all participated in a Beavercreek Creek clean up on Saturday, October 13. Well over a ton of trash was removed! The most notable item removed was an ironing board. If your group would like to hold a clean up activity anywhere along our 33 miles of streams please send a note to BA.Office@ars.usda.gov.



Dr. Phyllis Johnson, BARC Director



Team members and other volunteers

BARC PARTICIPATES IN DC GREEN FESTIVAL



Dr. Pat Millner and others from BARC, for the second year in a row, coordinated the composting of the biobased foodservice ware and food residuals from the October GREEN FESTIVAL at the D.C. Convention Center. This year samples of the compost produced from last year's GREEN FESTIVAL will be distributed to visitors. The intent was to show examples of what not to put into a compostables container to help drive home the point that source separation has an impact on final product. GREEN FESTIVALS are held throughout the country to celebrate what's working in communities, for people, for businesses, and for the environment. At the festival, green means safe, healthy communities and strong, local economies. Green is the color of hope, of social and economic justice, of ecological balance. Contact Pat.Millner@ars.usda.gov

"UTILITY LINE" TREES

There are enormous costs involved to both the public and utility companies in the maintenance of trees under power lines and the destruction of property from falling limbs and trees. The U.S. National Arboretum, the U.S. Forest Service, the Maryland Department of Natural Resources, the University of Maryland, Washington D.C.'s Urban Forestry Administration, and local utility companies have joined forces on a multi-goal "Power Trees Project". The initial goal is to identify trees requiring low maintenance, small to medium size, pest resistance and tolerance for environmental extremes. This collaboration is being led by **Dr. John Hammond** of the Floral and Nursery Plants Research Unit. Eight trees are currently being recommended: 'Adirondack' crabapple; 'Dream Catcher' flowering cherry; 'Natchez' crape myrtle; 'Brandywine', 'Sun Valley', and 'Somerset' red maples; 'Frontier' hybrid elm, and 'New Harmony' American elm. 'Frontier', for instance, reaches a height of 25 feet with a symmetrical shape and produces enduring reddish-brown fall foliage. Individual Fact Sheet on these selections can be found at www.usna.usda.gov/Newintro/awards.html. For the future, **Dr. Richard Olsen** of the Floral and Nursery Plants Research Unit is initiating a tree breeding program specifically for street and utility line trees. Contacts: Dr. Hammond, John.Hammond@ars.usda.gov and Dr. Olsen at Richard.Olsen@ars.usda.gov.

Mark Your Calendar! 

POWER PLANTS: PLANT BIOFUELS EXHIBIT AT THE USNA – COMING THIS SPRING!

The U.S. National Arboretum is in the planning stages for **POWER PLANTS** an outdoor Plant Biofuels Exhibit. The theme of the Exhibit is to display a range of plants that are grown in the United States that are being used or have potential to be used as renewable energy source. Specifically, this living display of plants will show ways that fuel may be derived from plants, how the USDA is involved in plant-based biofuels development and how this relates to the USNA's mission, how plant biofuels are good for the national economy and security, how plant biofuels can be a sustainable source of energy, and promote conservation of fuels and energy efficiency.

The opening of the Exhibit will occur on June 21, 2008 which coincides with the second annual Bioenergy Awareness Day. Bioenergy Awareness Day occurs on the Summer Solstice. On or near that day, the Sun is at its highest path through the sky and daylight is the longest. Since the Sun does not rise exactly in the east, but rises to the north of east and sets to the north of west, June 21 is the day with the longest period of sunlight. For more information on the Exhibit contact **Dr. Tom Elias**, Director, USNA, at Tom.Elias@ars.usda.gov.

BELTSVILLE AREA DISTINGUISHED LECTURE SERIES

This seminar is open to the public



Dr. Raymond Rodriguez, Director and Professor, Center of Excellence in Nutritional Genomics, University of California, Davis

Date: Wednesday, **January 23, 2008**

Time: 10:30 am – 11:30 am

Place: Building 003 Auditorium, BARC-West

Title: "Nutritional Genomics: Linking Agriculture, Nutrition and Genomics to Human Health"

WINTER SILHOUETTE BONSAI/PENJING EXHIBIT

Date: December 8-16

Time: 10:00am - 3:30pm

Place: U.S. National Arboretum National Bonsai & Penjing Museum, Special Exhibits Wing

Comments: Once the foliage drops in the fall, the inner beauty of bonsai and penjing comes alive. The architectural lines and inner framework of the trees become apparent. This winter exhibition of trees from the permanent collections will show the timeless structure of these aged beauties in a formal setting. Take a moment from your holiday schedule to enjoy these quietly, elegant national treasures. Free.

LITTLE PAINT BRANCH CREEK WATERSHED GROUP – ORGANIZATIONAL MEETING

Date: Saturday, November 10, 2007

Time: 9:30 am – 11:30 am

Place: Beltsville Community Center

Contact: Mr. John Galli at jgalli@mwcog.org

(Anyone interested in joining the group is invited to attend)

USDA Non-Discrimination Statement

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). USDA is an equal opportunity provider and employer.

