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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! 

UNIVERSITY OF ARKANSAS 2007 OUTSTANDING GRADUATE



Dr. Ali Sadeghi of BARC's Hydrology and Remote Sensing Laboratory was recognized by the University of Arkansas, Department of Crop, Soil, and Environmental Sciences as its 2007 Outstanding Graduate. Dr. Sadeghi's research has led to significant contributions to soil and water quality sciences, including the fate of urea/ammonia volatilization, nitrate and phosphorous movement in agricultural ecosystems, and the environmental fate of pesticides and pathogens in soils, surface runoff, and groundwater under different agronomic environments.

EPA OFFICE OF SOLID WASTE AWARD

Drs. **Rufus Chaney**, Environmental Management and Byproduct Utilization Laboratory at BARC, **Robert Dungan**, formerly at BARC, and **Nick Basta** and **Libby Dayton**, from The Ohio State University have been selected to receive a Friend of Office of Solid Waste Award for their path breaking work on Foundry Sand Risk Assessment. Recycled foundry sand is a byproduct of the ferrous and nonferrous metal casting industry, where sand has been used for centuries as a molding material because of its thermal conductivity. In modern foundry practice, sand is typically recycled and reused through many production cycles. Industry estimates are that approximately 100 million tons of sand are used in production annually. Of that, 6-10 million tons are discarded annually and are available to be recycled into other products. An emerging use for some foundry sands is as a component in the manufacturing of topsoil. Commercial landscapers and nursery growers frequently manufacture topsoil by blending composted materials and low quality soils. Most bagged topsoil sold in garden centers and home improvement centers is manufactured topsoil. Foundry green sands are of particular interest to soil blending companies because of their dark color, clay content, moisture retention, and consistency.

Community Interest

REFORESTATION AT BARC

The Metropolitan Washington Council of Governments (COG) partnered with BARC to organize two reforestation events on December 1st and 2nd, 2007, at BARC. Citizen volunteers for both events included Anacostia sub-watershed groups and residents from the surrounding residential communities. Twenty-four volunteers from the Friends of Little Paint Branch, Neighbors of Northwest Branch, and the Beltsville neighborhood community participated on Saturday, December 1st. The volunteers planted and mulched 160 native trees and shrubs along the Little Paint Branch stream bank. On Sunday, December 2nd, eleven volunteers including members from the Beaverdam Creek Watershed Watch Group and Citizens to Conserve and Restore Indian Creek and residents from the City of Greenbelt planted and mulched 60 native trees and shrubs along Beaverdam Creek. For both tree planting events, the BARC reforested area totaled approximately 0.3 acres. Stay tuned with the BARC e-update for future BARC tree planting announcements. For more information about the Anacostia sub-watershed citizen's group, visit www.Anacostia.net.



REMOTE SENSING AND GEOGRAPHIC MODELING FOR DETECTION OF LEAFY SPURGE

Leafy spurge (*Euphorbia esula* L.) causes over \$200 million dollars annually in lost economic activity in the Great Plains and Western United States. Leafy spurge has brightly colored yellow-green flower bracts and spreads both by seeds and by underground rhizomes. Using NASA's advanced hyperspectral sensor, the Airborne Visible InfraRed Imaging Spectrometer (AVIRIS), **Dr. Raymond Hunt** of BARC's Hydrology and Remote Sensing Laboratory and colleagues developed and tested a new method for locating leafy spurge based on the spectral characteristics of the yellow-green flower bracts. The predictions were verified using data collected in the field with overall accuracies from 75% to 95%, which were much higher than other methods of remote sensing applied to the same area. A decision support system is being developed that predicts the conditions when a particular invasive weed can be detected by remote sensing. Fighting leafy spurge and other invasive weeds requires techniques that can predict where invasive species may occur. In collaboration with the USDA Forest Service, The Weed Invasion Susceptibility Prediction (WISP) model was developed to show the locations of favorable habitat for leafy spurge and other invasive species. The WISP model is incorporated into Geographical Information Systems (GIS) and was validated using the AVIRIS data for Devils Tower National Monument. The validated model was highly accurate in predicting where leafy spurge may be located in the Fishlake National Forest in central Utah and the Theodore Roosevelt National Park in western North Dakota. The levels of infestation were below the detection limit of remote sensing, so having maps of favorable habitat improves the efficiency of field crews for monitoring leafy spurge. For additional information contact Dr. Hunt at Raymond.Hunt@ars.usda.gov.

(Left) The study site for this work is around Devils Tower National Monument in Northeastern Wyoming. Leafy spurge is shown in the foreground, occurring along the flood plain. (Right) A close up of leafy spurge showing the yellow-green flower bracts.



Mark Your Calendar!

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"

BELTSVILLE AREA DISTINGUISHED LECTURE SERIES

This seminar is open to the public



Dr. John Norman, Professor, Department of Soil Science, Forest Ecology and Management Sciences, University of Wisconsin

Date: Thursday, **February 28, 2008**

Time: 10:30 am – 11:30 am

Place: Building 003 Auditorium, BARC-West

Title: "Applying Site-Specific Research in Crop Production and Environmental Protection to Farm Management"

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