

ACTION IN AGROFORESTRY

monthly newsletter of The Center for Agroforestry at the University of Missouri

September 2010

Michael Gold and Michelle Hall, editors

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Elderberry Research Part of New MU NIH Botanical Research Center

The University of Missouri has been awarded \$7.6 million to become one of five new National Institutes of Health botanical research centers.

Created with a new \$7.6 million grant from the NIH, MU's center is one of five in the country selected to lead interdisciplinary and collaborative research on botanical dietary supplements. The majority of Americans take dietary supplements, spending \$25 billion a year on such products as herbs and other botanicals. The Nutrition Business Journal forecasts that sales of botanical dietary supplements will increase about 19 percent over the next five years.

"Despite their widespread use, the safety and efficacy of these products have not been adequately studied," said Dennis Lubahn, principal investigator of the project and a professor of biochemistry and child health in the School of Medicine and College of Agriculture, Food and Natural Resources.

MU's Center for Botanical Interaction Studies will focus on five different plants and their abilities to aid in the prevention of strokes and prostate cancer, as well as improve resistance to infectious diseases. Botanicals that will be studied include soy; garlic; elderberries; sutherlandia, a common medicinal plant in Africa; and Picrorhiza, an herb that grows primarily in the Himalayan mountains.

A team of more than 20 human, animal and plant scientists at MU will study how the botanicals use antioxidant properties to protect people from disease.

"Far too many of the health claims for medicinal plants are unsubstantiated with hard science," said Mike Gold, associate director of The Center for Agroforestry. "This grant is exactly the type of research needed to validate or disprove these claims."

Because the potency of wild plants can vary, researchers at MU and elsewhere are cultivating their own. MU is cultivating 600 types of soybean seeds to study different concentrations of the same compounds in the plants and how they might work to prevent prostate cancer. MU also is growing 60 types of elderberries to study the plant's possible role in boosting the immune system against infection and fighting cancer and inflammation in the body. Lubahn said there may be variations in individual plants that will make a difference in how well they fight disease.

The new \$7.6 million grant is the third federal award MU has received from the NIH's National Center for Complementary and Alternative Medicine.

— MU School of Medicine Office of Communications contributed to this article

UMCA WELCOMES...

Wendi Rogers has joined The Center for Agroforestry as the postdoctoral fellow in silvopasture systems. She will participate in the silvopasture program focused on understanding forage/tree/livestock interactions.



Rogers was born and raised in northeastern Kansas. She attended Fort Hays State University, Hays, Kan., where she earned a bachelor's of science in biology. Prior to graduation she spent summers working as a range technician.

After spending several summers at Central Grasslands Research Center, Streeter, N.D., she was offered a graduate assistantship. Her master's thesis research at North Dakota State University, Fargo, N.D., involved observing how soil carbon storage differed among grazing intensi-

ties and how differing grazing intensity altered the spatial distribution of non-grass plant species.

After completing her master's of science in animal and range science from NDSU, she came to Columbia, Mo., and the University of Missouri to work in the Food and Agricultural Policy Research Institute. While there she worked on odor concerns of confined animal feeding operations, nutrient runoff from the pastures of grazing dairies and sources of phosphorus fertilizer for U.S. farmers.

She started a doctoral program in agronomy at MU in fall of 2004 while still working at FAPRI. The doctoral project concentrated on management practices that could be used to reduce fescue toxicosis. In 2008 Rogers joined the forage laboratory of Dr. Craig Roberts, her dissertation supervisor. She graduated in May 2010 with her Ph.D. in agronomy from MU.

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IMPACT

Andy Thomas is one of the scientific collaborators on the new MU NIH Botanical Research Center (see *article on front page*). Because Thomas' collaborative research on elderberry has been so exciting, this species became a key focus of the proposal.

KUDOS

Bruce A. Barrett (Principal Investigator), **W. Terrell Stamps** (Co-P.I.), and **Chung-Ho Lin** (Co-P.I.) have received a grant for "Developing a strategy for chestnut weevil monitoring." This Missouri Department of Agriculture Specialty Crop Block Grant runs through 2011; Barrett, Stamps and Lin received \$15,750 for the project.

OUTREACH

Rural Missouri magazine's Home and Hearth recipe section featured **chestnuts** and the **Missouri Chestnut Roast** in its September 2010 issue.

♦♦♦

Dusty Walter has presented on forestry and agroforestry at many MU Agricultural Station field days this summer and fall, including: Forage Systems Research Center Producers Field Day, Aug.

COMING SOON...

- Oct. 16** Missouri Chestnut Roast, 10 a.m.-4 p.m.
HARC, New Franklin
- Oct. 22** UMCA Faculty/Staff Meeting, 2 p.m.
HARC, New Franklin
- Oct. 28** Chestnut Roasting at MU Wellness Center
Farmers Market, 10 a.m.-2 p.m.
Lowry Mall, MU campus
- Oct. 30** Great River Road Chestnut Roast, 10 a.m.-4 p.m.
Forrest Keeling Nursery, Elsberry, Mo.
- Nov. 1** Abstract Submission Deadline
12th North American Agroforestry Conference
- Nov. 6, 13** Chestnut Roasting at the Columbia Farmers
Market
1701 W. Ash St.

3, Linneus, Mo.; Hundley-Whaley Farm Producers Field Day, Aug. 25, Albany, Mo.; Bradford Farm FFA Field Day, Sept. 14, Columbia, Mo.; Hundley-Whaley Farm FFA Field Day, Sept. 16, Albany, Mo.; Graves-Chapple FFA Field Day, Sept. 17, Columbia, Mo.; South Farm Showcase, Oct. 2, Columbia, Mo.; Wurdack Farm FFA Field Day, Oct. 7, Cook Station, Mo.; and Wurdack Farm Producers Field Day, Oct. 8, Cook Station, Mo.

RESEARCH

Lin, C.H., J. Yang, H. Yang, R.N. Lerch, H.Y. Hsieh, and B.M. Thompson. 2010. Enhanced rhizodegradation of munitions explosives TNT and RDX by selected grass species. Environment, Energy Security and Sustainability Symposium, National Defense Industrial Association, June 14-17, Denver, Colo.:

Contamination of munitions explosives residue including TNT, RDX and their metabolites has potential impacts on human health and ecosystem. Phytoremediation has been recognized as one cost-effective and environment-safe strategy. Integrating explosive-degrading bacteria into the phytoremediation plan could provide additional benefits to accelerate the degradation. Results indicated the degradation rates of RDX and TNT metabolites were significantly enhanced by the native C4 warm-season eastern gammagrass and switchgrass. The introduction of the specific degraders synergistically stimulated the degradation.



The Center for Agroforestry had a booth Sept. 11 at the Columbia Farmers Market to sample and sell papaya grown at the Horticulture and Agroforestry Research Center. (Mike Gold, right, offers samples in the photo above). Samples were very popular; so much so that the papaya available for sale ran out in less than two hours! It seems mid-Missouri has quite a taste for all of the Center's specialty crops! Papaya may now be out of season, but frozen papaya pulp never is – ice cream made from HARC papaya will be available at the Missouri Chestnut Roast, Oct. 16. (Photo courtesy Dan Cernusca.)



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 The Center for Agroforestry
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