



ACTION IN AGROFORESTRY

monthly newsletter of *The Center for Agroforestry at the University of Missouri (UMCA)*

October 2011

Michael Gold and Paige Pritchard, editors

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Grant Approved to Fund Elderberry Symposium

The Missouri Department of Agriculture's Specialty Crop Block Grant Program recently approved a grant proposal entitled "Hosting the First International Elderberry Symposium to Fast-track the Growth of Missouri's Elderberry Industry".

Summary: The elderberry, a native Missouri shrub, is an emerging and promising specialty crop in Missouri, North America, and internationally. Both the fruit and flowers are used in wines, jellies, food colorants, and, increasingly, in medicinal/nutraceutical products. Based on 14 years of research and grower initiatives, Missouri is emerging as the national leader in elderberry development and production. Over the past 3 years Missouri has established the largest acreage of improved elderberry in the US. A recent major NIH grant to MU is funding research into elderberry's medicinal characteristics. Researchers worldwide are studying the horticultural, biochemical, and medicinal attributes of elderberry. Our objective is to fast-track the growth of Missouri's elderberry industry by organizing and hosting

the First International Elderberry Symposium, linked with a concurrent elderberry producer workshop in Columbia, MO, in June, 2013. The Symposium is being organized under the auspices of the International Society for Horticultural Science and will bring the world's elderberry experts to Missouri. This international Symposium and producer workshop will place Missouri at the forefront of elderberry research and development, and will profoundly influence the competitiveness of the Missouri elderberry industry.

PIs include: Andrew Thomas, MU Southwest Research Center; Patrick Byers, MU Cooperative Extension Service; Michael Gold, MU Center for Agroforestry; Kevin Fritsche and Grace Sun, MU Dept. of Biochemistry; Dennis Lubahn, Director, MU Center for Botanical Interactions Studies; Sanjun Gu, K.B. Paul, and Sarah Becker, Lincoln University; Anson Elliott, Martin Kaps and John Avery, Missouri State University; Wendy Applequist, Missouri Botanical Garden.

Plants Use Chemicals for Communication

Jack Schultz, a chemical ecologist who also serves as director of the Bond Life Sciences Center at the University of Missouri, said plants communicate through the use of volatile organic compounds.

"Plants dump megatons of volatiles into the atmosphere," Schultz said at a recent seminar sponsored by MU's Bioprocessing and Biosensing Center. Fragrances released by mint, geraniums and spices are obvious examples. Grass's volatile emissions are the source of the wonderful scent resulting from a freshly mowed lawn. In some instances, volatiles are visible. Schultz said the "smoke" from the Great Smoky Mountains is a result of off-gassing by trees. Calling plants "huge chemical factories," he said most of the chemicals they produce are defensive agents. But, Schultz said, none of these plant responses has been demonstrated "outside of glassware." Volatiles occur at such low levels that

they are measured by gas chromatography. He and fellow researchers, UMCA's Chung-Ho Lin and Division of Plant Sciences' Heidi Appel, along with undergraduate researcher Caitlin Vore, hope to develop a microscale electronic nose that will have the ability to detect fluxes in organic plant volatiles in the great outdoors. The research is aimed at developing plants as environmental sensors, possibly even to detect the presence of pathogens and dangerous chemical agents. That ability also would have implications for use in precision agriculture, a concept aimed at targeted management in such areas as fertilizer use and weed and pest control.

Adapted from an article written by Jan Wiese-Fales for The Columbia Tribune. It can be found online at: <http://www.columbiatribune.com/news/2011/sep/11/plants-use-chemicals-for-communication/>

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Kudos

UMCA associate faculty member Dr. Michele Warmund was elected as an ASHS Fellow of the American Society for Horticultural Science in Waikoloa Village, Hawaii.

Research

Dr. Michele Warmund has had the following papers published:

- Warmund, M.R. 2011. Chinese chestnut (*Castanea mollissima*) as a niche crop in the central region of the United States. *HortScience* 46:345-347.
- Warmund, M.R., J.R. Elmore, K. Adhikari, and S. McGraw. 2011. Descriptive sensory analysis and free sugar contents of chestnut cultivars grown in North America. *J. Sci. Food Agric.* 91:1940-1945.

MU has signed a license agreement with **Spogen Biotech Inc.** to transfer the developed technology resulting from the collaborative research efforts between UMCA's **Dr. Chung-Ho Lin** and the Department of Veterinary Pathobiology's **Dr. George Stewart** and **Dr. Brian Thompson** to Spogen Biotech Inc. for commercial applications. The commercialization will facilitate the process of transferring benchtop research

COMING SOON...

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| Oct. 27 | UMCA Chestnut Roasting Booth
MU Farmer's Market
Lowry Mall, University of Missouri
10:00 a.m. - 2:00 p.m. |
| Nov. 7-8 | Northeastern Silvopasture Conference
Harbor Hotel
Watkins Glen, NY
http://www.nwnyteam.org |
| Nov. 12 | UMCA Chestnut Roasting Booth
Columbia Farmer's Market
Activities and Recreation Center (ARC)
1701 W. Ash St.
8:00 a.m. - noon |
| Dec. 2 | UMCA Chestnut Roasting Booth
Columbia Living Windows Festival
The District, Columbia MO
9th St. and Broadway
6:00 p.m. - 8:00 p.m. |

discoveries to real-world applications. The licensed technology will help to improve the quality of the public's life by providing the innovative, cost-effective technologies to produce energy, clean up the environment and produce medicines.

Outreach

On Saturday, Sep. 24, the MU College of Agriculture, Food and Natural Resources hosted the Fifth Annual South Farm Showcase. Events included live music, soil testing opportunities, local food samples, agricultural engineering demos and a number of children's activities such as a corn maze, tornado simulator, petting zoo and free pumpkins. Forestry's **Dr. Hank Stelzer** and UMCA's **Dr. Dusty Walter** were on site performing sawmill and forestry demonstrations.

Throughout the past few weeks, UMCA faculty and staff members have been hard at work harvesting the fall crops at the Horticulture and Agroforestry Research Center (HARC) in New Franklin, MO and the MU Southwest Center in Mt. Vernon, MO. Part of the chestnut harvest is being used for the UMCA Chestnut Roasting Booth at various local events (see calendar for upcoming roasting booth events). Thus far, UMCA faculty and staff members have roasted chestnuts at Clover's Natural Market's 46th Anniversary Party, The Columbia Center for Urban Agriculture's Harvest Hootenanny and Forrest Keeling Nursery's Great River Chestnut Roast. This year also saw a record harvest for walnuts at the Southwest Center. Many of the nut samples harvested will be used for research.



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 The Center for Agroforestry
University of Missouri

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