



Action in Agroforestry

April 2013

Vol. 4, No. 4

Michael Gold and Katie Moritz, editors



Farmers try hand at elderberries at mentoring workshop

Photo by Katie Moritz | Center for Agroforestry Intern

A workshop participant gathers hardwood cuttings from the field at Eridu Farms, just outside Hartsburg, Mo. in order to propagate new elderberry plants.

By Katie Moritz
Center for Agroforestry Intern

A small group of farmers had a unique opportunity to learn about elderberries from an expert — and do a little work on his farm. Terry Durham, owner of Eridu Farms just outside quaint Hartsburg, Mo., held a hands-on mentoring workshop March 16 for growers who want to start an elderberry crop or improve what they already have.

The first half of the workshop was held at the Hartsburg Grand, an old, elegant restaurant that provided us with lunch and delicious homemade elderberry treats, like elderberry butter and cordial. We snacked while Durham gave us the rundown on how to start and maintain an elderberry farm, as well as some history and trivia about the plants. After the lecture, we caravanned to Durham's farm, just a few miles away. There, on an unseasonably chilly day, workshop participants were able to collect elderberry cuttings to take home, as well as plant hardwood cuttings in the fields at the farm. Participants even got

to try the planting machine: Two people sat on the back of a tractor that simultaneously punches planting holes in black plastic and also waters them so an elderberry cutting can be inserted.

Here are some of the interesting facts I picked up at the workshop:

- Elderberry seeds and stems — actually, everything but the juice — contains cyanide.
- Keep an elderberry orchard cut back to ground level to prevent disease.
- Wait until the ground is frozen to cut the current season's growth back to ground level to minimize soil compaction.
- Japanese beetles — a threat to elderberries — are not as attracted to "Bob Gordon" and "York" varieties.
- In the wild, elderberries ripen at different times so they have many chances to survive if they're eaten.
- Domesticated elderberries ripen all at once so farmers can avoid dealing with the cyanide-heavy green berries.
- Elderberry fruits are at their peak when they turn dark and transition from shiny to dull.

The healing power of Mother Nature

By Chung-Ho Lin

Dr. Lin gave a presentation on bioremediation at Lincoln University in Jefferson City in late March.

Presentation Abstract

Mother Nature offers a wide range of functional organisms, chemicals, and biomolecules that have been utilized to clean up the environment, fight against diseases, and provide sustainable sources of energy throughout human history. The Bioremediation and Phytochemical Program at UMCA has developed a multidisciplinary research program with participating scientists, international collaborators and industry partners to exploit these powerful tools offered by Mother Nature to 1) remediate contaminated soil and water, 2) improve drug designs against human pathogens, and 3) develop cost-effective and sustainable processes for biofuel production. Interdisciplinary expertise ranges from natural product chemistry, analytical chemistry and structural biochemistry to bacterial molecular genetics, medical microbiology and bioinformatics. The knowledge inspired by nature contributes significantly to developing ecologically friendly and cost-effective strategies to protect environments, improve public health and generate energy. Findings from these research projects may also provide the economic opportunity to turn the abundant, low value, renewable resources into a lucrative industries in Missouri and partnering countries.

Consumer preferences for elderberry products

By Phillip M. Mohebalian, Francisco X. Aguilar and Mihaela M. Cernusca
Mohebalian PM, FX Aguilar and MM Cernusca. 2013. *Conjoint Analysis of U.S. Consumers' Preference for Elderberry Jelly and Juice Products*. *HortScience* 48(3):338-346.

This study is the first of its kind in eliciting U.S. consumer preferences for elderberry juice and jelly products. An online survey collected self-reported information from 1043 U.S. residents. Results of a conjoint analysis suggest elderberry products that disclose qualified health claims and are produced locally were the best positioned to compete for greater

shares in the jelly and juice product markets. Consumers valued product price, disclosure of health claims, and origin. Consumers were 3.7 times more likely to choose locally produced jelly products than imported jelly and twice as likely to select products disclosing health claims compared with jelly products without claims. Likewise, consumers were 3.3 times more likely to choose locally produced juice products than imported juice products and 2.1 times more likely to select juice products with health claims than without. Our results indicate that an introductory strategy that combines the strength of preferences for locally pro-

duced products along with the disclosure of health claims at a competitive price can be an important tool in expanding the market for elderberry products in the United States.

Phillip is currently a PhD candidate in forestry working with Dr. Aguilar. This article is based on his MS thesis research.



Vegetative filter strips studied

By I.M. Unger, K.W. Goyne, R.J. Kremer and A.C. Kennedy
Unger IM, KW Goyne, RJ Kremer and AC Kennedy. 2013. *Microbial community diversity in agroforestry and grass vegetative filter strips*. *Agroforestry Systems* 87:395-402.

Vegetative filter strips (VFS) have long been promoted as a soil conservation practice that yields many additional envi-

ronmental benefits. This study examined potential differences in soil microbial community characteristics of claypan soil planted to VFS with differing vegetation and a traditional row-crop system in a maize-soybean rotation. Samples were tested for soil microbial function and community structure using dehydrogenase and fluorescein diacetate (FDA) hydrolysis enzyme assays and phospholipid fatty acid (PLFA) analysis, respectively. The grass VFS soil exhibited the greatest dehydrogenase activity levels and FDA activity was greater in the

grass and agroforestry (i.e., tree-grass) VFS soils relative to the cropland soil. The PLFA analysis revealed community structural differences underlying these functional differences. This work highlights differences in soil microbial function and community structure in VFS relative to cropland soil 12 years post VFS establishment. It also enhances our fundamental knowledge regarding soil microorganisms in VFS, which may aid in explaining some ecosystem services provided by VFS (e.g., decomposition of organic agrichemicals).

Kudos

American Society for Microbiology recognizes biochemistry student for research excellence

Biochemistry senior Sche-Min Su was awarded a First Place Award for Research Excellence at the American Society for Microbiology Regional Symposium on March 23. Sche-Min presented his research, "The Mode of Action of the Natural Antimicrobial Compounds from Eastern Redcedar," at the symposium. He was in competition with scientists from major institutes in the region. He was also recently awarded in the MU Life Science Week competition April 19. Sche-Min was mentored by Chung-Ho Lin of the Center for Agroforestry and George Stewart of the Department for Veterinary Pathobiology.

We already miss you!

Tricia Oswald, who has worked as the Center for Agroforestry's Administrative Associate since 2009, left the Center in early April of 2013 to take a new position and new challenge with MU Environmental Health and Safety as an Administrative Associate II. Tricia's four year tenure with the Center was a time of upheaval and change, great excitement and disappointment. Throughout all of the chaos, she remained upbeat, helpful to all, willing to pitch in on any project no matter how large or small, a great colleague. She will be missed. Tricia will maintain her connection to the Center by continuing to serve as the secretary to the Center's Advisory Board which meets annually in January.

Upcoming events

- May 4** MNGA Grafting and Scionwood Exchange Meeting
Dr. Bill Reid will demonstrate various grafts on nut trees at Phil Moore's orchard in Pleasant Hill, Mo.
Visit missourinutgrowers.org for more information.
- May 17 to 19** Chestnut Growers of America Annual Meeting
Gainesville, Fla.
Visit chestnutgrowers.com for more information.
- June 9 to 14** First International Symposium on Elderberry
Columbia, Mo.
Visit muconf.missouri.edu/elderberrysymposium for more information and to register for the conference.



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