



Action in Agroforestry

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Michael Gold and
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Center for Agroforestry Graduate Student, Danh Vu, Member of MU Team Awarded Prestigious P3 Grant

Article adapted from "EPA picks Mizzou team for prestigious P3 grant" by Ryan Owens

The Environmental Protection Agency selected 38 collegiate teams for 2016 People, Prosperity and the Planet (P3) grants to develop novel solutions to real-world environmental problems, then present them at the National Sustainable Design Expo in Washington, D.C. The Center for Agroforestry's Danh Vu is among a team of researchers at the University of Missouri who received an EPA P3 grant for their project, "Water quality monitoring at hydraulic fracturing sites using molecularly imprinted porous hydrogels." The team received \$15,000 for initial research in Phase I and have the opportunity to earn a \$75,000 grant to potentially create and market their product.

Hydraulic fracturing, or fracking, is a prominent issue in the areas of energy and the environment. The process involves drilling down, then using a pressurized mixture of water, sand and chemicals to force out gas. One of the environmental concerns associated with this process is the potential for chemicals to infiltrate nearby water supplies.

The current system of testing for these chemicals is time

consuming and requires off-site analysis. So the team decided to develop a sensor that can test for trace evidence of harmful chemicals on site.



Danh Vu, Jingjing Dai, Emily Kahanic, Maria Fidalgo, Tori Balise and Darryl Rockfield (not pictured) received an Environmental Protection Agency P3 grant for their project, "Water quality monitoring at hydraulic fracturing sites using molecularly imprinted porous hydrogels."

UMCA Associated Faculty, Dr. Maria Fidalgo, Dr. Chung-Ho Lin and colleagues developing new sensor to test for endocrine disruptors

Article adapted from "Fidalgo, colleagues developing new sensor to test for endocrine disruptors" by Ryan Owens

A recent grant from the U.S. Geological Survey will aid UMCA Associated Faculty Maria Fidalgo, UMCA researcher Chung-Ho Lin and their colleague Susan Nagel in the development of a new process to identify potentially damaging chemicals in natural waters.

The team is working on a project called "A novel artificial hormone

receptor for the sensing of total endocrine disruptor chemicals concentration in natural waters." The USGS grant will cover this year's work, providing \$44,000 for research expenditures.

The endocrine system regulates hormone levels in humans and includes the pituitary gland, pancreas, ovaries, testes, thyroid gland and adrenal glands and more. Certain contaminants in the

water supply can affect the endocrine system by binding to hormone receptors, blocking natural hormones leading to problems with hormone regulation. Associated health issues include such things as obesity, diabetes, thyroid disease and hypothyroidism.

What the team is working to accomplish is the creation of a test-strip sensor that uses artificial

hormone receptors mimicking the ones naturally found in the human body. The concept is that contaminants in the water capable of disrupting the endocrine system would bind to these artificial receptors, allowing researchers to assess the danger of the water.

Currently, testing involves searching for specific chemicals known to cause disruptions in the endocrine system. This creates the time-consuming problem of having to test for each individual chemical and the potential of missing chemicals not previously associated with the water source being tested.

The new process the trio hopes to create and perfect would be more universal, which would expedite the testing process.

Agroforestry in Southern Brazil

The upcoming **Agroforestry in Action Webinar**, "Agroforestry in Southern Brazil" will take place on April 27 at 11 a.m. CST

The webinar will feature Antonio J. De Araujo, Ph.D., former Professor of Forestry and Chairman of Department at the Central Western Parana State University (UNICENTRO). He will discuss a range agroforestry systems employed in Southern Brazil and the benefits for climate, biodiversity and local livelihoods. Dr. De Araujo will also analyze the forces and barriers that influence agroforestry development and adoption, as well as policies that could strengthen the triple benefit role of agroforestry.

For more information about the event and to register for the upcoming webinar, visit <http://www.agroforestryinaction.org>.

Upcoming Events

Agroforestry in Action Webinar: Agroforestry in Southern Brazil

April 27, 2016

11 a.m. CST

<http://www.agroforestryinaction.org>

Chestnut Growers of America Conference

June 10-12, 2016

MU Anheuser-Busch Natural Resources Building
Columbia, Mo.

<http://www.chestnutgrowers.org/>

Elderberry Workshop & Field Tour

June 16-18, 2016

MU Bradford Research Center
Columbia, Mo.

Early registration ends May 1st

<https://2015elderberryworkshop.wordpress.com/>

4th Annual Agroforestry Academy

July 25-29, 2016

Columbia, Mo.

Registration ends May 1. Limited scholarships available for military veterans.

<http://www.centerforagroforestry.org/academy/2016/RegistrationBrochure.pdf>

KUDOS

Drs. Ranjith Udawatta and Shibu Jose have been awarded an NRCS Mississippi River Basin Health Watershed Initiative grant to quantify effects of conservation practices on water quality of corn-soybean rotational watersheds located in Audrain County. The grant amount is \$85,719.

This paired watershed study will consist of cover crops, crop rotation, terraces, and nutrient management practices with no-till land preparation. The study runs from May, 2016 through September, 2022.

AGROFORESTRY IN SOUTHERN BRAZIL

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Agroforestry in Action Webinar
April 27, 2016 11:00am (CST)