



Action in Agroforestry

September 2013
Vol. 4, No. 9

Michael Gold and
Savannah Kannberg, editors

Welcome, Dr. Campos: The newest face at UMCA

Professor Mario Campos dos Santos has joined the MU Center for Agroforestry as a post-doctorate fellow. Dr. Campos was born in the city of Manaus, located in the state of Amazonas, Brazil. He graduated in Wood Technology and Forestry from the Amazon Institute of Technology (1989), got his M.S. in Wood Science and Technology (Esalq/USP) from the University of São Paulo (2000) and received his Ph.D. in Forest Resources from the University of São Paulo (2004). Currently he is the leader of the agroforestry research group (GRAF) and is a professor at the Federal University of Sergipe, Brazil (UFS). He has over 15 years experience working with agroforestry systems in four major biomes in Brazil (Amazon, Atlantic Forest, Cerrado and Caatinga). His research is focused on the following topics: agroforestry, silvopasture and alley cropping, low impact forestry and sustainability, economic assessment and environmental modeling.

AGROFORESTRY ABROAD

Tracking our Online Agroforestry M.S. Students

Joe Stangl, former Peace Corps volunteer (Zambia) and currently enrolled in the online agroforestry M.S. program, has taken a job in Afghanistan.

Joe writes from Afghanistan: "I'm an Agronomy Extension Specialist with Purdue University's 'Afghanistan Agriculture Extension Project' (AAEP). AAEP is a collaborative effort between UC Davis, Purdue, Washington State, and Maryland and is funded by a \$14 million USDA grant. The project goal is to train the provincial Directorates of Agriculture, Irrigation, and Livestock (DAIL) in horticultural crop production and integrated pest management. Working through the DAIL, the project intends to improve the livelihood of Afghan farmers. The project includes conservation farming, women in agriculture, irrigation methods, IPM, and improved seed storage. Transfer of knowledge is through model teaching farms, field days, workshops, and lectures from participating university specialists. The project is in its

final stages and is expected to conclude September 2014."

Joe also noted that "I'm becoming more and more interested in Afghanistan's disappearing natural pistachio forests. Considering the strong winds in my region (Herat) I think I can incorporate the trees into a multifunctional windbreak research project."



Google Maps

The red circle on the map represents Herat, Afghanistan, the region where Stangl is currently working to help the livelihoods of farmers in this area of Afghanistan with conservation farming, agroforestry and more.

Grant Award

Working in collaboration with Gary Bentrup at the USDA Forest Service National Agroforestry Center, UMCA's Mike Gold was awarded a grant entitled: *Agroforestry as a climate change mitigation and adaptation tool for agriculture in temperate regions - Developing an annotated bibliography.*

To use agroforestry as an effective climate change mitigation and adaptation tool, it is necessary to develop a better understanding of the scientific basis for these services, identify gaps in knowledge that need additional research and translate the scientific knowledge into planning and design tools. As a key first step in this process, the existing scientific literature on these climate change services will be gathered, summarized and made available to all interested parties.

Events

2013 Horticulture & Agroforestry Research Center Field Day

Oct. 5, 8 a.m.-12 p.m.
10 Research Center Rd
New Franklin, Mo.

Registration starts at 7:30 a.m. The day will include tours of historic Hickman House and presentations of agroforestry and horticulture topics.

<http://aes.missouri.edu/harc/>

Forrest Keeling Nursery Great River Road Chestnut Roast

October 12, Elsberry, MO.
<http://www.fknursery.com>

RESEARCH: Microbial diversity in an alley cropping system

Sougata Bardhan, Shibu Jose, Ranjith P. Udawatta, and Felix Fritschi published "Microbial community diversity in a 21-year-old temperate alley cropping system" in the *Agroforestry Systems* journal [87(5):1031-1041].

Abstract

Soil physical and chemical properties in the crop alleys and tree rows in alley cropping systems vary greatly due to differences in litter quality and microclimate under trees compared to the alleys. Variations in soil properties influence microbial diversity and function, and thus, in alley cropping systems, bacterial diversity could be different between soils in tree rows and crop alleys. The objective of this study was to compare and contrast soil bacterial diversity in the crop alleys and tree rows in a 21-year-old alley cropping system in Northeast Missouri, USA. Soil samples were taken in three parallel transects to a depth of 10 cm in the tree row and at the middle of the alley in a silver maple (*Acer saccharinum*) alley cropping system with a companion maize (*Zea mays*)—soybean (*Glycine*

max) rotation. Soil bulk density, C and N concentrations were similar between the different transects while minor differences were observed between crop alleys and tree rows. No significant difference in bacterial diversity was observed between the tree rows and alley soil based the denaturing gradient gel electrophoresis profiles, band richness (19.6 and 22.8 for tree row and alley, respectively) and Shannon–Weiner diversity (2.958 and 3.099 for tree row and alley, respectively). Identification of bacterial genera revealed dominance of gram +ve as well as gram –ve bacteria in both soil types. Ordination plot revealed no clustering effect based on location (transect) or on the cropping system in the different samples. Bacterial diversity in crop alleys most likely was influenced not only by the maize-soybean rotation, but also by the tree rows contributing both above- and below-ground litter for the past 21 years.

Contact Dr. Bardhan at bardhans@missouri.edu

Graduate Certificate in Agroforestry

If you build it, they will come. To complement the online M.S. in agroforestry, UMCA created a formal, 4 course/12 credit Graduate Certificate in Agroforestry. This certificate has been formally approved and we now have our first certificate students enrolled in the program.

The courses for this program, which include classes on the biophysical and socioeconomic foundations of agroforestry, can be completed in one year. They also are all online, so it is doable to be anywhere with an Internet connection and complete the coursework necessary for this graduate certificate.



The Center for Agroforestry
University of Missouri

A Global Center for Agroforestry, Entrepreneurship and the Environment

203 Anheuser-Busch Natural Resources
(573) 884-2874
centerforagroforestry.org
Shibu Jose, Ph.D., Director