

Bioenergy, Sustainability, and Land-Use Change Report Oak Ridge National Laboratory (ORNL) December 2013

Publications and Reports:

Dec 5 - A manuscript titled "Forecasting changes in water quality in rivers associated with growing biofuels in the Arkansas-White-Red river drainage, USA." by Jager, Henriette; Baskaran, Latha; Schweizer, Peter; Turhollow, Anthony; Brandt, Craig; and R. Srinivasan was submitted to the journal Global Change Biology-Bioenergy.

Dec 18: Global Change Biology-Bioenergy published, "Global simulation of bioenergy crop productivity: analytical framework and case study for a perennial bioenergy crop - switchgrass" by Shujiang Kang, S. Nair, K.L. Kline, J.A. Nichols, D. Wang, W.M. Post, C. Brandt, S. Wullschleger, N. Singh, and Y. Wei. GCB Bioenergy (2014) **6**, 14–25, doi: 10.1111/gcbb.12047. [Note: this article was first published online February, 2013, and is now available in the January issue of the journal (hardcopy, or online at: <http://onlinelibrary.wiley.com/doi/10.1111/gcbb.2013.6.issue-1/issuetoc>)]

ORNL Presentations:

Dec 2 - Virginia Dale gave a talk to the Climate Change Science Institute on "Interdisciplinary Research in the Environmental Science Division: Selective History".

Dec 14 - Virginia Dale spoke at the China-US Eco-Partnership Workshop on Land Use Change: An Opportunity for Agricultural Sustainability in Shenyang, China, on "Opportunities to Design Biofuel Systems for Multiple Environmental Services and Socioeconomic Benefits"

Dec 16 –Virginia Dale spoke at the Special Forum for China-US Eco-Partnership for Environmental Sustainability at China Agricultural University in Beijing, China, on "Opportunities to Design Bioenergy Systems"

Forum of the Center for Bioenergy Sustainability (CBES)

Dec 19 – Tim Theiss presented "An update of Alternative Fuels and the Renewable Fuel Standard". This presentation can be accessed at the CBES website under forums: <http://www.ornl.gov/sci/ees/cbes/forums.shtml>

Other ORNL Activities:

Dec 2 – ORNL’s sustainability environmental and socioeconomic indicators for bioenergy systems were advertised in the December newsletter sent to all researchers participating in the USDA-funded Southeastern Partnership for Integrated Biomass Supply Systems (IBSS). A brief description and factsheet have been made available at the following link: <http://www.se-ibss.org/documents/publications/identifying-indicators-of-sustainable-bioenergy>

Dec. 2-18 - Davis and Kline participated in 11 webinars related to addressing comments on the second committee draft for ISO 13065. The next draft, due March 2014, will continue to be developed via webinars and a work group meeting in Berlin Germany.

Dec 2-6 – Virginia Dale attended The Australian Centre for Ecological Analysis and Synthesis (ACEAS) workshop on "Interactive Games to Value and Manage Ecosystem Services" in Brisbane, Australia.

Dec 11-16 – Virginia Dale co-chaired the China-US Workshop on “Land Use Change: Turning challenges into Opportunities for Agricultural Sustainability” hosted by the Shenyang Agricultural University, Shenyang, China.

Dec 11 – Rebecca Efrogmson facilitated the science club for 4th and 5th graders at Haw Creek Elementary School in Asheville, NC. The topic was renewable energy. Kymber Owens of Blue Ridge Biofuels explained the benefits of making biodiesel and home heating oil from used cooking oil.

Dec. 13 - Davis participated in discussions with the project team for NSF-PIRE (Program for International Research and Education) “Sustainability Ecosystem Services and Bioenergy Development Partnerships across the Americas,” on the application of proposed sustainability indicators (McBride et al. 2012; Dale et al. 2013). Baseline, contextual and indicator data will be collected in Argentina, Brazil, USA, Mexico, and Canada over the next three years.

Dec 13 - Dana Abulebdeh (senior from the University of North Carolina at Charlotte), assisted by Davis and Kline, finalized her literature review of methods used in Brazil and the US to measure soil organic carbon. Results, summarized in a poster, describe how measurement protocols can influence reported values. Dana’s research supports a joint paper being developed with the Brazilian Bioethanol Science and Technology Laboratory (CTBE).

Upcoming ORNL Visits/Events:

Feb 18 –Esther Parish and Zachariah Seiden will present recent research at the University of Tennessee’s 3rd Annual Watershed Symposium. Esther will present, “Designing Bioenergy Cropping Systems to Optimize Sustainability Objectives,” and Zachariah will present “A Water Quality Model Comparison of Potential Impacts from Bioenergy Crop Land Conversations: Switchgrass versus Hardwood.”

March 4-6 – Tentative date for Sustainable Landscape Design Workshop in New Bern, NC.

February 17-21 – Kline and Davis have been invited to participate in the WG3 meeting in Berlin Germany for developing the next iteration of the draft standard for ISO PC248.

May - Zachariah Seiden will speak on using SWAT to compare pine and switchgrass at the EWRI 2014 conference