

**Bioenergy, Sustainability, and Land-Use Change Report
Oak Ridge National Laboratory (ORNL) December 2012**

ORNL Publications:

Dale VH, RA Efrogmson, KL Kline, MH Langholtz, PN Leiby, GA Oladosu, MR Davis, ME Downing, MR Hilliard. 2013. Indicators for assessing socioeconomic sustainability of bioenergy systems: A short list of practical measures. *Ecological Indicators* 26: 87-102.

<http://dx.doi.org/10.1016/j.ecolind.2012.10.014>

ORNL Presentations:

December 3 – The research team from the short-rotation woody biomass sustainability project presented three posters at the American Geophysical Union Conference in San Francisco, CA.

- Jackson, C. Rhett, Enhao Du, Julian Klaus, Natalie A. Griffiths, Jeffrey J. McDonnell, and John I. Blake. 2012. Whole hillslope irrigation reveals differential interflow behavior of dye tracers, conservative solutes and nutrients.
- Du, Enhao, C. Rhett Jackson, John I. Blake, Natalie A. Griffiths, Julian Klaus, Jeffrey J. McDonnell, Kellie Vache, and Matthew H. Langholtz. 2012. Modeling water quality within biofuel production landscapes: integrating hillslope flow paths, deep groundwater dynamics, riparian groundwater interactions, and end-member chemistry.
- Griffiths, Natalie A., Patrick J. Mulholland, C. Rhett Jackson, Jeffrey J. McDonnell, John I. Blake, Enhao Du, Julian Klaus, and Matthew H. Langholtz. 2012. Biogeochemistry of forested watersheds in the Southeastern U.S. prior to conversion to short-rotation pine for bioenergy.

December 5 - Kline presented, “Cooperation on Sustainability Standards” for the USDOE Biomass Program public webinar “Global Solutions for Global Challenges: International Collaborations to Advance Bioenergy Research.” Over 145 attended with registrations from many countries – Finland, Canada, the UAE, Italy, Paraguay, Lithuania, Taiwan, South Korea, Germany, South Africa, and Saudi Arabia. The presentations are posted on the Biomass website: www.eere.energy.gov/biomass/webinars.html

ORNL Center for BioEnergy Sustainability (CBES) Forums:

December 20 – Rebecca Efrogmson presented “Sustainable Development of Algal Biofuels”. This presentation can be accessed at the CBES website under forums:

<http://www.ornl.gov/sci/ees/cbes/forums.shtml>

Other ORNL Activities:

December 3 - Davis and Kline submitted a proposal under the special call for joint research from ORNL and the Brazilian Research Institute of Sao Paulo (FAPESP). The project would contribute to collaborations with Brazil on bioenergy sustainability.

December 3-5, 19-21 – Kline and Davis participated in multiple calls, exchanges and meetings with the US delegation to ISO PC248 to discuss strategies regarding the committee draft of the standard. The US comments were finalized and formally submitted on December 6th. After

receiving the list of comments received from other national bodies, ORNL participated in further conference calls with US delegates to prepare strategies for the meeting in Australia.

December 10-14 - Kline assisted as an external reviewer of the Sustainability Research Program at Brazil's Center for Technology of BioEthanol (CTBE) in Campinas Sao Paulo (all costs were paid by Brazil). He also met with colleagues from the Copernicus Institute (Netherlands) and continued developing plans for the Global Sustainability of Bioenergy (GSB) project.

December 11 & 14 - Davis assisted in convening 2 final Working Group 4 webinars to finalize the WG4 annotated bibliography designed to update the PC on scientific research related to indirect effects. Davis and the WG4 Convenors are now preparing for the presentation and discussion of this research during the upcoming plenary meeting in January 2013.

Dec 14 – Rebecca Efrogmson and Virginia Dale attended the workshop “Data needs and testing methods for assessing the safety of a field release of synthetically designed algae for biofuel production,” co-sponsored by the U.S. EPA's Office of Pollution Prevention and Toxics, Woodrow Wilson Center, and Massachusetts Institute of Technology Synthetic Biology Engineering Research Center.

December 21 – ORNL finalized and distributed an annotated bibliography in fulfillment of the ISO PC 248 Resolution 06/2012: “ISO/PC 248, following resolution 05/2012, reinstates WG 4 with the specific mandate to inform the PC at the next plenary on new scientific research including issues surrounding definitions, system boundaries and responsibilities relevant to the issue of indirect effects.” ORNL submitted 11 of the 16 journal articles included in the annotated bibliography as well as compiled and edited the document in coordination with an internal ISO PC248 review committee.

December 19 - Visit from D.K. Lee, Assistant Professor and Extension Agronomist, University of Illinois at Urbana Champaign hosted by Laurence Eaton. Professor Lee presented “Diversifying Cellulosic Bioenergy Feedstocks with Native Prairie Grasses”

Upcoming ORNL Visits/Events:

January 21-25 - Kline and Davis will serve as delegates to the international Plenary in Australia, where Kline will continue to serve as leader of the International Editing Committee and contribute to working groups 1 (crosscutting issues) and 2 (greenhouse gasses), Davis will assist with presenting the final report of working group 4 (indirect effects) and Davis and will contribute to working group 3 (environmental, social, and economic indicators), and both Kline and Davis will contribute to the Committee Advisory Group.

January 2013 - Carlos Cerri of University of Sao Paulo plans to visit ORNL to discuss soil carbon, nutrient cycling and bioenergy sustainability indicators and their measurement in Brazil.

January 2013 - Maggie Davis and Keith Kline plan to serve on the U.S. delegation to the Project Committee plenary meeting for ISO 13065, Sustainability Criteria for Bioenergy.

March 7-8 – Virginia Dale will serve as panelist on the National Science Foundation’s Exploratory and Research Collaborative Network Grants Panel in Arlington, VA.

March 17-24 – Virginia Dale will be the keynote speaker at the 4th meeting of the Ecological Society of Mexico to be held in Villahermosa, Tabasco.

April 2-4 – Virginia Dale will be guest speaker at the 2013 Conference on Invasion Biology, Ecology and Management Conference in Lexington, KY.