

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

**ORNL Publications:**

National Research Council Committee. 2012. *Sustainable Development of Algal Biofuels in the United States*. National Academy Press, Washington, DC. [RA Efroymson was one of the authors] A press release can be found at <http://nationalacademies.org/> and the report can be accessed electronically at [http://www.nap.edu/catalog.php?record\\_id=13437](http://www.nap.edu/catalog.php?record_id=13437).

Dale VH and KL Kline. In press. Issues in using landscape indicators to assess land changes. *Ecological Indicators*. [Revised manuscript accepted by the journal]

Dale VH, RA Efroymson, KL Kline, MH Langholtz, PN Leiby, GA Oladosu, MR Davis, ME Downing, MR Hilliard. In press. Indicators for assessing socioeconomic sustainability of bioenergy systems: A short list of practical measures. *Ecological Indicators*. [Revised manuscript accepted by the journal]

Dale VH, Kline KL, Kaffka SR, and Langeveld JWA. In press. A landscape perspective on sustainability of agricultural systems. *Landscape Ecology*. [Revised manuscript accepted by the journal]

Kang S, Surendran S, Kline KL, Nichols J, Wang D, Post WM, Brandt C, Wullschleger S, Singh N, Wei Y. In review. Global Simulation of Bioenergy Crop Productivity: Analytical Framework and Case Study for Switchgrass. Submitted to *GCB Bioenergy* (18 Oct 2012).

Oladosu G and Kline K. In review. A dynamic simulation of the ILUC effects of biofuel use in the USA. [Re-submitted to the editor of *Energy Policy Journal* with response to reviewer comments (Oct. 15 2012)]

Parish E, Kline K, Dale V, Efroymson R, McBride A, Johnson T, Hilliard M, Bielicki J. In press. Comparing Scales of Environmental Effects from Gasoline and Ethanol Production. *Environmental Management*. DOI: 10.1007/s00267-012-9983-6

**ORNL Presentations:**

Oct 4 – Laurence Eaton presented “Beyond the Billion-Ton: Resource Analysis Challenges and Outcomes from the Regional Partnership Resource Assessment Team” at the Sun Grant Initiative conference held in New Orleans, LA.

October 18-28 – Kline participated in a series of meetings in Campinas, Brazil, related to next steps in the Global Sustainable Bioenergy (GSB) and the Latin America, Caribbean and African Sustainable Biofuels (LACAF) projects, as well as collaborations with Brazil’s federal Bioethanol Technology Research Center (CTBE) sustainability program. Presentations (on CBES website) include an overview of recent global crop modeling simulations using HPC-EPIC, update on LUC analysis, and bioenergy sustainability indicators.

October 20 - Virginia Dale gave the keynote talk at the annual meeting of the Tennessee Chapter of the Sierra Club at Pickett State Park on "Environmental Effects of Climate Change in Tennessee" and discussed bioenergy and other options for reducing greenhouse gas emissions.

### **ORNL Center for BioEnergy Sustainability (CBES) Forums:**

October 18 – Robert Fletcher from the University of presented "Bioenergy expansion: A Wildlife perspective." This presentation can be accessed at the CBES website under forums:

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

### **Other ORNL Activities:**

Oct 4 –Maggie Davis and Keith Kline discussed options for collaboration in the application and testing of sustainability indicators for biofuels with Marcelo Galdos of CTBE.

October 5 – Kline and Davis participated in the U.S. Task Advisory Group discussion of a US position and recommended actions on Committee Draft ISO 13065, Sustainability Criteria for Bioenergy. Kline shared comments on major issues for call participants. All comments will be consolidated in December and distributed for review and discussion in the January plenary meeting.

October 9 –Maggie Davis (as secretariat) led and Kline (as contributing expert) presented material and comments for the indirect effects working group of the ISO Project Committee on Sustainability Criteria for Bioenergy. The working group will report to the January plenary on the state of the science of indirect effects.

October 16-18 – Virginia Dale participated in the National Environmental Observation Network (NEON) Science, Technology and Education Advisory Committee (STEAC) meeting in Washington, DC.

October 19 - Yetta Jager, Latha Baskaran and Maggie Davis met with Dave Tilman (University of Minnesota) and Robert Thatcher (University of Florida) to discuss indirect land-use change and comparisons of energy options.

October 2012 - Virginia Dale served as a member of the Conference Programming Committee for the "Science for Biomass Feedstock Production and Utilization National Conference" that was held in October 2012 in New Orleans and sponsored by the Sun Grant Initiative.

<http://www.sungrant.org/News+and+Events/2012+National+Conference.htm>

October 24-25 – Virginia Dale and Matt Langholtz were guest speakers at the University of Tennessee 2012 From Grow to Go: A Biomass Field Day in Vonore, TN.

Oct. 24 – Keith Kline and Maggie Davis submitted detailed comments on the Committee Draft of ISO 13065 to the U.S. Task Advisory Group.

October 25 – Virginia Dale and Maggie Davis participated in the Sustainability Information Exchange Database (SIED) webinar led by Ethan Warner and Helena Chum of the National Renewable Energy Laboratory (NREL). The primary purpose of the webinar was to determine

the appropriate role and priorities for the database to best benefit the OBP program and the biomass energy systems community.

### **Upcoming ORNL Visits/Events:**

November 5-8 – The 9<sup>th</sup> Biennial Short Rotation Woody Crops Operations Working Group will meet in Oak Ridge and Knoxville, Tennessee. Several presentations are being made by ORNL staff:

- Opening Remarks - Mark Downing
- New Technology for New Markets - Jerry Tuskan
- Harvest Scheduling of Eucalyptus spp. In Florida for Economic and Environmental Optimization - Matthew Langholtz
- Evaluating the Impact of Feedstock Quality on Delivered Cost: Two Case Studies from the US Southeast Region - Laurence Eaton
- Environmental and Socioeconomic Indicators for Bioenergy Sustainability as Applied to Short Rotation Woody Crops - Virginia Dale
- Handling/preparation of biomass wood chips (ORNL Gasification Unit) - Chris Keziah
- Wrap Up with Conference Summary and Challenges - Mark Downing with Tim Rials of The University of Tennessee

November 12-15 – Latha Baskaran will present “Modeling the effects of switchgrass management on aquatic macroinvertebrates” at the 2012 American Water Resources Association Conference in Jacksonville, FL. <http://www.awra.org/meetings/Jacksonville2012/>

November 13-15: Keith plans to participate as an invited panelist on sustainability standards at the “4th International Conference on Biofuels Standards” hosted by NIST in Gaithersburg, MD.

November 16-17: Keith plans to participate in the IEA Task 38 workshop on time and emission accounting via remote (web-based) access; the workshop is in in Vienna, Austria.

November 29-Dec 1: Virginia Dale is invited to be a panelist for the Bioenergy Futures: Technical Feasibility Meets Social Sustainability Workshop, at Michigan State University.

Dec 14 – Rebecca Efroymsen and Virginia Dale are invited to 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 8-14: Keith is invited to serve on the annual evaluation committee of the bioenergy sustainability program at CTBE, Brazil.

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.