

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

ORNL Publications:

Dale VH, Kline KL, Kaffka SR, and Langeveld JWA. In press. A landscape perspective on sustainability of agricultural systems. *Landscape Ecology*. (DOI) [10.1007/s10980-012-9814-4](https://doi.org/10.1007/s10980-012-9814-4)
<http://www.springerlink.com/openurl.asp?genre=article&id=doi:10.1007/s10980-012-9814-4>

Oladosu G, Kline K, Leiby P, Uria-Martinez R, Davis M, Downing M and Eaton L. 2012. Global economic effects of US biofuel policy and the potential contribution from advanced biofuels. *Future Science – Biofuels* 3(6):703-723.

ORNL Presentations:

November 5-8 – The 9th Biennial Short Rotation Woody Crops Operations Working Group met in Oak Ridge, Tennessee. Several presentations were 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
- Handing/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 6th – Matt Langholtz presented “Harvest Scheduling of Eucalyptus spp. in Florida for Economic and Environmental Optimization” (oral presentation) at <http://www.woodycrops.org/News/2012+SRWCOWG+Conference.htm> .

November 13-16 - Poster presented at the Southeast Climate Consortium Fall Meeting in Tifton, GA titled “Developing a Framework for Climate Risk Management in the Biofuels Industry”. Breuer, NE, Langholtz, MH. 2012.

November 12-15 – Latha Baskaran presented “Modeling the effects of switchgrass management on aquatic macroinvertebrates” at the 2012 American Water Resources Association Conference in Jacksonville, FL.

November 13-16 – Breuer NE, Langholtz MH. 2012. Developing a Framework for Climate Risk Management in the Biofuels Industry. Poster presented at the Southeast Climate Consortium Fall Meeting. Tifton, GA.

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

November 29-Dec 1: Virginia Dale was a presenter and panelist for the Bioenergy Futures: Technical Feasibility Meets Social Sustainability Workshop at Michigan State University.

ORNL Center for BioEnergy Sustainability (CBES) Forums:

November 8 – Lynn Wright from Wright Link Consulting presented “Energy Crop Resource and Technology Development: A Historical Perspective 1978-2012. This presentation can be accessed at the CBES website under forums: <http://www.ornl.gov/sci/ees/cbes/forums.shtml>

Other ORNL Activities:

November 1 – ORNL staff (Kline, Davis, Kang) met with Lee Lynd (Dartmouth) to discuss collaborations with Brazil and the Global Sustainable Bioenergy project on consistent and comparable environmental and socio-econ indicators and ways to address food security.

November 2-30 – Kline and Davis provided draft text and participated in multiple calls to develop a US position statement and consolidated comments on ISO Committee Draft 13065, Sustainability Criteria for Bioenergy. Progress update #8 on OBP contributions to the ISO process was distributed on November 8th.

November 5 - ORNL staff (Downing, Webb, Eaton, Brandt) met with Ron Zalesny (USDA Forest Service), William Headlee (Iowa State), Glen Stanosz (University of Wisconsin), Tim Rials (UTK) and Gary Kling (University of Illinois, U-C) to discuss poplar productivity modeling. Zalesny and Headlee have adapted the 3PG model to predict mature hybrid poplar woody energy crop yields for Minnesota and Wisconsin. The meeting explored the potential to collaborate to expand the spatial range to those areas where hybrid poplar has a comparative advantage over other potential woody crop species within the lower 48 states, and to refine productivity and supply potential projections established in the Billion Ton Update.

November 6 – ORNL CBES members (Leiby, Kline, Efroymsen, Dale) provided comments and revisions for the draft OBP “Social Aspects of Bioenergy Sustainability Workshop Report.”

November 6 – Kline and Davis participated in a planning call for implementation of the “Sustainability, Ecosystem Services, and Bioenergy Development across the Americas” project under an NSF Partnership for International Research and Education (PIRE) grant.

November 13 - Conference call between ORNL (Paul Leiby, Rocío Uría-Martínez and Maxwell Brown), Exelus and Ceres to discuss BRDI project status. This project (“Technology to Enable Local Production of Biofuels from Energy Crops”) investigates the feasibility and benefits of a novel biofuel production pathway that introduces innovations in feedstock types and conversion process. Ceres is developing drought-resistant and salt-resistant energy crop varieties while Exelus’ conversion process is characterized by feedstock flexibility and lower biorefinery capital costs that make small biorefineries competitive. ORNL’s role in the project is modeling the proposed biofuel production pathway alongside others to evaluate its economic and environmental sustainability.

November 13 – Davis organized and led a working group webinar for the ISO Project Committee on Sustainability Criteria for Bioenergy to support preparation of a January report to the plenary on the state of the science of indirect effects.

November 14-15 - Dave Muth from INL visited to plan for collaboration on Feedstock Supply and Logistics and Sustainability. Discussions and presentations are as follows:

- Matt Langholtz presented an FSL overview.
- Dave Muth presented on the National Residue Assessment and Residue Removal Tool.
- Esther Parish presented on Sustainability.
- Maggie Davis presented on International Bioenergy and Brazil collaborations.
- Yetta Jager presented on Water Quality.

November 16 - Esther Parish and Virginia Dale participated in two conference calls with Molly Jahn and others about the opportunities for Knowledge Systems for Sustainability to adopt ORNL's sustainability approach and the Vonore work as a case study.

November 16-17 - Keith Kline participated in the IEA Task 38 workshop on time and emission accounting via remote (web-based) access; the workshop was in Vienna, Austria.

November 21 - Virginia Dale shared information about ORNL's perspectives on sustainability with Tim Volk, Co-Director of the Center for Sustainable and Renewable Energy at the State University of New York and a part of a new AFRI CAP project: *Northeast Woody Biomass (NEWBio) Consortium for Sustainable Woody Biomass Feedstocks*. The new project is interested in adopting the approach developed by ORNL.

Nov 26-28 - ORNL hosted "Knowledge Systems for Sustainability – Advancing Toward Prototypes" with the University of Wisconsin-Madison. The workshop seeks to advance collaboration and information sharing among representatives of major projects promoting sustainable landscape management. Vonore is being considered as a case study.

November (various dates) – CBES monthly reports and presentations generated interest in recent publications. Papers on socio-economic indicators, context for indicator selection and interpretation, scales of environmental effects for ethanol and gasoline pathways, and "A landscape perspective on sustainability of agricultural systems" were among those requested and shared with interested parties including the Roundtable for Sustainable Biofuels (RSB in Switzerland), Porter Center-Imperial College of London, Be-Basic (Netherlands), the ISO PC-248 international work group on indirect effects, and the Center for Bio-Ethanol Research and Technology (CTBE) in Brazil.

Upcoming ORNL Visits/Events:

December 8-14 - Keith Kline is invited to serve on the annual evaluation committee of the bioenergy sustainability program at CTBE, Brazil.

Dec 14 – Rebecca Efroymson 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.

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.