

Bioenergy, Sustainability, and Land-Use Change Report Oak Ridge National Laboratory (ORNL) June 2014

Publications and Reports:

Dale B, Anderson J, Brown R, Csonka S, Dale V, Herwick G, Jackson R, Jordan N, Kaffka S, Kline K, Lynd L, Malmstrom C, Ong R, Richard T, Taylor C, Wang M. (2014) Take a Closer Look: Biofuels Can Support Environmental, Economic and Social Goals. *Environmental Science & Technology* 48(13): 7200-7203.

ORNL Presentations:

June 3 – UT collaborator Zachariah Seiden presented, “A Water Quality Model Comparison of Potential Impacts from Bioenergy Crop Land Conversions: Switchgrass versus Hardwood” at the EWRI World Environmental & Water Resources Congress in Portland, Oregon. Implications of this modeling work suggest hardwood pine as a bioenergy crop may reduce pollutant load and may be an effective management practice for implication of a total maximum daily loads (TMDLs) in 303d listed water bodies in East Tennessee.

June 4-7 – Virginia Dale was invited guest speaker at the 4th Pan-American Congress on Plants and Bioenergy in Guelph, Canada. She spoke on “Opportunities to Design Biofuel Systems for Multiple Environmental Services and Socioeconomic Benefits.”

June 25 – Keith Kline presented a summary of the 1st BETO Workshop on Landscape Design held in New Bern, North Carolina, on March 4-6 at the 2nd BETO Workshop on “Incorporating Bioenergy in Sustainable Landscape Designs: Agricultural Landscapes” at Argonne, Illinois.

Forum of the Center for Bioenergy Sustainability (CBES)

June 19 – Dr. Manoel Regis is the Institutional Relations Coordinator of CTBE-Brazilian Bioethanol Science and Technology Laboratory presented “Biomass Resources and conversion Efficiencies in the Cultivation and Processing of Sugarcane for Ethanol and Electricity.” All CBES forum presentations can be found here: <http://web.ornl.gov/sci/ees/cbes/forums.shtml>

Other ORNL Activities:

June 17-20- Regis Leal of the Brazilian Bioethanol Science and Technology Laboratory met with ORNL (Dale, Davis, Kline) to discuss ongoing and future collaborations in bioenergy sustainability research related to land-use change and soil organic carbon. Dr. Leal also attended the workshop on “Incorporating Bioenergy in Sustainable Landscape Designs: Agricultural Landscapes” held in Argonne, Illinois.

June 24-26. Keith Kline and Yetta Jager participated in the 2nd BETO Workshop on “Incorporating Bioenergy in Sustainable Landscape Designs: Agricultural Landscapes” at Argonne National Laboratory (NL) in Illinois. Participants discussed the utility of landscape design to improve planning and assessment of sustainability of bioenergy pathways. Kline presented a recap of the 1st workshop on behalf of Virginia Dale, moderated two sessions and assisted with notes from break outs.

June 25 – Representatives from BETO (Goss-Eng, Johnson), ANL (Cristina Negri), NewBio-Northeast Woody/Warm Season Biomass Consortium (Tim Volk, SUNY) and ORNL (Kline) met to review IEA Bioenergy multi-task case study plans that are relevant and complementary to ongoing DOE and USDA

projects. ORNL is collaborating with the IEA team on a SE woody biomass case. ANL and NewBio were introduced to opportunities to collaborate on additional case studies.

June 30 - Matt Langholtz and Laurence Eaton held a conference call with Jonathan Rubin (University of Maine) and his research team members, Stephanie Whalley, Binod Neupane, and Sharon Klein. The call reviewed ongoing work at the University of Maine to reprogram the Fuel Reduction Cost Simulator (FRCS) used in the BT2 analysis of forestry thinnings and extend the cost analysis to pulpwood estimates for bioenergy in the Northeast forest region. The analysis is the subject of Stephanie's master's thesis. Future calls are in planning stages to consider this in future supply projections.

Upcoming ORNL Visits/Events:

July 19 - Laurence Eaton will present "Enhanced National Feedstock Supply Modeling of Woody Crops for Bioenergy and Bioproducts" at the 10th Biennial Short Rotation Woody Crops Conference in Seattle, WA. The presentation will cover the woody crops mapping activities with the Sun Grant Regional Feedstock Partnership Woody Crops and Resource Assessment Teams and will feature recent work to map potential facility distribution according to the feedstock quality specifications outlined in the 2017 Thermochemical Pathway Design Report. Co-authors of the presentation are Matt Langholtz, Craig Brandt, (ORNL) Chris Daly, Mike Halbleib (Oregon State University), Danny Inman (NREL), Tim Rials and Jessica McCord (University of Tennessee), Tim Volk (SUNY-ESF), Bill Berguson and Bernie McMahon (University of Minnesota), Ray Miller (Michigan State University), Jeff Wright (Arborgen), Rich Shuren (Greenwood Resources), Bryce Stokes (CNJV, LLC), and Marilyn Buford (USDA-FS).

July – Virginia Dale, Keith Kline and Maggie Davis will give presentations at the Conference on Pan American Biofuels and Bioenergy Sustainability July 22-25, 2014 in Recife, Brazil, that is being organized by the PanAm Research Coordination Network (RCN). [Virginia will participate via her University of Tennessee affiliation]. Keith and Maggie will also participate in the NSF-PIRE "Sustainability, Ecosystem Services and Bioenergy Development across the Americas" annual project meeting in Belem (17-21 July) and sustainability indicator meetings in Campinas (28 July-01 Aug).

July 29-30 – Several ORNL scientists will participate in the Biomass 2014 at the Washington Convention Center in Washington, D.C.

July 31-Aug 1 – Virginia Dale will participate in the NEWBio annual meeting in New York.

Sept 23 - Laurence Eaton and Matt Langholtz are hosting a day-long meeting with forestry supply modelers to review, discuss, and coordinate ongoing resource assessment strategies to quantify potential primary forest resources for bioenergy. The meeting will be held in Charlotte, NC in September. For more information, please contact Laurence at eatonlm@ornl.gov

Oct 5-11 – Virginia Dale will speak on "Opportunities to Design Sustainable Bioenergy Systems" at the International Union of Forest Research Organization World Congress in Salt Lake City, Utah. A side meeting will occur with IEA collaborators on landscape design for sustainable bioenergy and potential contributions to the IEA case studies.

Oct 10-31 – Keith Kline will serve as invited lecturer in the "São Paulo Advanced School on the Present and Future of Bioenergy" at University of Campinas (10-17 Oct), participate in the 2nd Brazilian Bioenergy Science and Technology Conference in Campos do Jordão (19-24) and collaborate on the

Global Sustainable Bioenergy Project (Campinas Oct 25-31). More info at: <http://bbest.org.br/> and <http://www.nipe.unicamp.br/2013/eventos-detalle.php?id=95>

Oct 8-10 – The 3rd annual meeting of the Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) will take place at the University of Tennessee Institute of Agriculture (UTIA) campus in Knoxville.

Oct 20-24 –Virginia Dale will participate in the launch of the SCOPE Synthesis Volume at the 2nd Brazilian Bioenergy Science and Technology Conference (BBEST2014) in Sao Paulo, Brazil

November 2-5 – Esther Parish will speak on "Designing Bioenergy Systems for Multiple Environmental Services and Socioeconomic Benefits" at the symposium on "Plants Helping Plants: Bioenergy Feedstock Based Systems for Sustainable Production Environments" at the -American Society of Agronomy International Annual Meeting held in Long Beach, CA.

November 19-20 –Workshop on Biofuels and Food Security Interactions, at the International Food Policy Research Institute (IFPRI), Washington DC. Keith Kline is serving on the workshop Science Committee. The workshop aims to examine current and future interactions between biofuels and food security and elaborate learnings from analysis and field experience relevant for project developers, researchers and policy-makers.

Dec 2-5 - Virginia Dale will participate in the Advisory Committee review of the Energy Biosciences Institute (EBI) in California.