

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

Publications:

Dale VH, Parish ES, Kline KL (In press) Risks to global biodiversity from fossil-fuel production exceed those from biofuel production. *Biofuels, Bioproducts & Biorefining*

ORNL Presentations:

October 1-3 – The annual meeting of the USDA AFRI CAP project, Southeastern Partnership for the Integrated Biomass Supply Systems (IBSS), was held in Knoxville. Esther Parish and Virginia Dale presented “Bioenergy Sustainability: How to Define and Measure It.” Esther Parish gave a poster titled “Assessing multimetric aspects of sustainability: Application to a bioenergy crop production system in East Tennessee.” Mike Hilliard gave a demonstration of initial stages of visualization of the indicators for bioenergy sustainability titled “Interactive Visualization of Bioenergy Sustainability Indicators.” Nate Pollesch gave a poster titled “Bioenergy sustainability assessment: Mathematical approaches to protocol development.” Mithun Saha also attended the meeting. In addition, Latha, Esther and Virginia contributed to a presentation by John Schwartz and Zachariah Seiden (University of Tennessee) on “Water Quality Monitoring and Modeling to Support Development of Sustainability Indicators for Bioenergy Crop Production.”

October 5-11 – Virginia Dale spoke 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.

October 9-17 – Keith Kline presented “Biomass for bioenergy: resources today and in the future,” as invited lecturer in the “São Paulo Advanced School on the Present and Future of Bioenergy” at University of Campinas (<http://www.nipe.unicamp.br/espca/>)

October 19-23 – Kline and Maggie Davis presented “Incorporating bioenergy into sustainable landscape design,” and “Brazil’s strategic role in future biofuels – a joint assessment” respectively; and coauthored “Food Security and Biofuels: Can Policy Flexibility Mitigate Food Price Crises for the Poor?” at the 2nd Brazilian Bioenergy Science and Technology Conference in Campos do Jordão (<http://bbest.org.br/>). Davis also presented a poster on “Soil organic carbon measurement protocols” and Kline chaired the “Bioen Highlights: Sustainability” session.

October 20-24 – Virginia Dale participated in the International Energy Agency (IEA) Bioenergy workshop and Task 43 Meeting in Brussels, Belgium, and gave an overview of ORNL Land Design approach.

October 22 – National Bioenergy Day was celebrated at ORNL. Events included an information booth at the ORNL Cafeteria during lunchtime (10 a.m.-2 p.m.) with pop-up displays highlighting ongoing collaboration with the Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) and The University of Tennessee’s Center for Renewable Carbon (CRC). At 3:30 p.m., Esther Parish presented a CBES Forum entitled, “Assessing Bioenergy Sustainability: Application of a Suite of Environmental and Socioeconomic Indicators to a Cellulosic Biofuel Production System in East Tennessee.”

Other ORNL Activities:

October 3-6 – Keith Kline shared data and references in exchanges with Chris Clark (U.S. EPA) and Chad Hellwinckel (UT) in response to questions about transitions of land between production and conservation programs. Large, dynamic transitions between grassland and cultivated cropland are documented by USGS and USDA census data but geospatially referenced CRP data have not been available to facilitate analysis of land-cover histories before and after CRP contract periods.

October 6 – Virginia Dale and Keith Kline sent comments per request from Kristen Johnson on experiences to date with the Global Bioenergy Partnership (GBEP) “indicators” and recommendations for improvements in future applications. Comments from partners will be considered as GBEP prepares its next “Programme of work.”

October 16 – Gangsheng Wang, Yetta Jager, Latha Baskaran, and Tyler Baker submitted WBS 4.2.1.40 Forecast Water Quality and Biodiversity Q4 milestone: ORNL report documenting SWAT implementation and water balance calibration against reservoir storage in the Tennessee River Basin, “Wang et al. 2014. Hydrologic Modeling of the Tennessee River Basin. ORNL/TM-2014/566. October 31, 2014.”

October 24 – Kline and Davis contributed to discussions of U.S. comments on Draft International Standard (ISO 13065) Sustainability Criteria for Bioenergy and provided input for comment table, a U.S. cover letter and an ASTM ballot.

Upcoming ORNL Visits/Events:

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, California.

November 17 – Yetta Jager will present “Designing Landscapes for Wildlife” to the BETO Hydrology/Water Quality Modeling Group.

November 19-20 – Workshop on Biofuels and Food Security Interactions, at the International Food Policy Research Institute (IFPRI), Washington DC, <http://www.ifpri.org/event/workshop-biofuels-and-food-security-interactions>. 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. Virginia Dale will attend.

December 1-3 – Keith Kline is invited to meet with colleagues at Utrecht University on collaborations to assess the sustainability of the Southeastern U.S. wood-residue for bioenergy supply chain, and participate in two sustainability workshops.

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

December 15-19 – Natalie Griffiths will present a poster titled “Water quality response after two years of short-rotation pine management for bioenergy in the southeastern U.S.” with co-authors C.R. Jackson, J.J. McDonnell, M. Bitew, E. Du, and J. Klaus at the AGU fall meeting.

January 17-23 – Keith Kline and Maggie Davis are invited to attend the International Organization for Standardization (ISO) PC 248 Plenary as U.S. delegates to review committee comments and prepare the draft international standard (DIS) of ISO 13065, Sustainability Criteria for Bioenergy.