

Bioenergy, Sustainability, and Land-Use Change Report Oak Ridge National Laboratory (ORNL) August 2016

Publications

- ASTM International. 2016. E3066: Standard Practice for assessing the relative sustainability involving energy or chemical from biomass. (Coauthors include Keith Kline and Maggie Davis).
<http://www.astm.org/Standards/E3066.htm>
- Dale VH and KL Kline. (In review) Interactive Posters: A valuable means for enhancing communication and learning about productive paths toward sustainable bioenergy. Submitted *Biofuels, Bioprod. Bioref.*
- Dale VH, Parish ES, Kline KL, Tobin E. (In review) How does wood-based pellet production affect forest conditions in the southeastern United States? Submitted to *Frontiers in Ecology and the Environment*.
- Hanssen SV, Duden AS, Junginger HM, Dale VH, van der Hilst F. (In review) Wood pellets, what else? Greenhouse gas parity times of European electricity from wood pellets that are produced in the south-eastern United States-- using different softwood feedstocks. *GCB Bioenergy*.

CBES Forum

August 9: A presentation on “Using Landscape typologies to model socioecological systems: Application to agriculture of the United States Gulf Coast” was made by Sujithkumar Surendran Nair of ORNL.

Presentations

Aug. 1: In the BETO monthly Analysis and Sustainability teams webinar, Kline presented "Science-based approaches to improve understanding of land-use change (LUC) and guide decisions toward positive outcomes."

Aug 7-12: Natalie Griffiths and co-authors presented at the Ecological Society of America meeting in Florida on “Evaluating the water quality effects of short-rotation pine production for bioenergy using a watershed-scale experiment.”

Aug. 21-25: Yetta Jager presented at the modeling of water quality results associated with bioenergy for two large river basins in the Mississippi River Basin as part of a Symposium on ‘Inland Drivers of Hypoxia’ at the Annual meeting of the American Fisheries Society in Kansas City. Coauthors included Latha Baskaran, Gangsheng Wang, and Jasmine Kreig.

Aug 23: Tim Theiss gave a presentation on ORNL’s core competencies, successes and future in bioenergy at the Inaugural DOE National Laboratory / USDA Research Collaboration Meeting in Golden, Co. Matt Langholtz, Tony Palumbo and Virginia Dale also attended the meeting.



Aug 29-30: The “Bioenergy Solutions to Gulf Hypoxia Workshop” was hosted by the U.S. Department of Energy’s Bioenergy Technologies Office in Washington, DC and organized by Yetta Jager with partners from ANL and INL. Rebecca Efrogmson attended and presentations were made by

- Yetta Jager: *Modeling Water Quality in the Mississippi and Atchafalaya River Basins: I. Arkansas-White-Red and Tennessee River Basins*
- Virginia Dale: *An ecologist’s perspective - From Indicators to Ecosystem Services: Challenges and Opportunities*
- Matt Langholtz: *An economist’s perspective - From Indicators to Ecosystem Services: Challenges and Opportunities*
- Yetta Jager: *Downstream Aquatic Ecosystem Services Generated by Upstream Perennial Feedstocks*

Photo: Virginia Dale (foreground), Richard Hess and Leslie Ovard (INL), Doug Karlen (USDA) and Kevin Comer (ANTARES)



Photo: Jonathan Males (DOE BETO), Shyam Nair (INL), Kristen Johnson (BETO), Joe Ralbovski (BCS), Leslie Ovard (INL), and Cristina Negri (ANL).



Photo: Yetta Jager (ORNL) presenting at the hypoxia workshop



Other ORNL Activities

Aug 11: Yetta Jager participated in a conference call focus of modeling efforts pertaining to the Hypoxia Taskforce Federal Mississippi-Atchafalaya River Basin (MARB).

Aug 24: Esther Parish and Rebecca Efrogmson attended the Appalachian Wood Energy Innovations Conference tour of the DuPont State Recreational Forest in Asheville, NC, in order to gain a better understanding of the relationships between wildlife abundance and residual logging debris following timber harvests.

Photo: Professor Chris Moorman and master’s student April Boggs of North Carolina State University described their search for small mammals, salamanders and invertebrates amongst logging debris piles.



Aug 25: Virginia Dale participated in the Water-Energy-Food Nexus Roundtable at the White House Office of Science and Technology Policy (OSTP) that discussed innovative strategies for addressing opportunities related to alternative water and water reuse, biofuels, flexible grid technologies, food waste, and wastewater treatment.

Photo: attendees at the Water-Energy-Food Nexus Roundtable at the White House



Upcoming ORNL Visits/Events

Sept: 11-17: Keith Kline will participate in the meeting of the National Science Foundation (NSF) Research Coordination Network on Pan American Biofuels/Bioenergy Sustainability (Argentina).

Sept 20-22: Keith Kline along with others will participate in the National Biodiesel Foundation: strategies to better address Indirect Land-Use Change (ILUC) (St. Louis).

Sept. 24: Virginia Dale will contribute to a symposium on “The value of a tree” at Appalachian State University in Boone, NC, organized by Eric Marland.

Sept 28: Matt Langholtz will contribute to the Workshop on Sustainable Bioenergy Supply in Berlin organized by IEA Bioenergy and International Renewable Energy Agency (IRENA) to update and align global estimates of available biomass supplies.

Sept. 28-29: Virginia Dale has been invited to give a talk at the Symposium on Watershed Scale Sustainability of Forest-Based Bioenergy Production in the Southeastern United States to be held in Raleigh, NC. The goal of this symposium is to synthesize results from the Operational Scale Pine/Switchgrass Intercropping Project, initiated by Catchlight Energy, LLC and Weyerhaeuser Company, with additional funding from DOE; and to put the results into a scientific, operations and policy context. Keith Kline, Natalie Griffiths, Yetta Jager, and Craig Brandt will also attend the symposium.

Sept. 28-30: Maggie Davis will attend the International Biofuels and Bioproducts Conference to present on the Billion Ton 2016, in session on “What's Your Feedstock?” (Chair: Bob Hurter, Hurter Consult Inc.).

Oct. 19: ORNL CBES will celebrate the 4th Annual National Bioenergy Day in conjunction with the University of Tennessee’s (UT’s) Center for Renewable Carbon (CRC), Oak Ridge Associated Universities (ORAU) and Genera Energy. These three organizations are planning a family-oriented after-school (3-5 p.m.) hands on STEM and career fair to be held at the beautiful UT Arboretum Auditorium. The event is designed to increase general awareness of the potential jobs and educational opportunities associated with the Southeastern US Bioeconomy.

Oct. 2016: Rebecca Efrogmson will speak at the Algae Biomass Summit in Phoenix, Arizona, on “*The Billion Ton 2016 Algae Resource Analysis: Prices to Procure the Biomass.*” Susan Schoenung will present a poster “*Algae Co-location Resources of Carbon Dioxide and Effective Transport Distances.*”

Nov. 2-6: Maggie Davis will attend the 2016 Society of American Foresters National Convention (Madison Wisconsin) to present on the Billion Ton 2016 report and to showcase potential biomass production strategies, including county-level results of short rotation woody crop production simulations at the farmgate or roadside.

Dec 12-16: Virginia Dale and Keith Kline will participate in American Geophysical Union (AGU) Fall Meeting in San Francisco in the session titled "Biofuel-induced land use change impacts on hydrology, water quality, and carbon and evapotranspiration dynamics." Virginia will speak on "Effects on Environmental and Socioeconomic Sustainability of Producing Ethanol from Perennial Grasses," and Keith will speak on "Land-Use Change and the Billion Ton 2016 Resource Assessment: Understanding the Effects of Land Management on Environmental Indicators."

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