

Bioenergy, Sustainability, and Land-Use Change Report Oak Ridge National Laboratory (ORNL) October 2015

Publications

- Smith, CT et al. (including Kline KL, Parish ES, and Dale VH) (2015) Mobilizing Sustainable Bioenergy Supply Chain, Inter-Task Project Synthesis Report, *IEA Bioenergy ExCo:2015:04*
<http://www.ieabioenergy.com/publications/mobilizing-sustainable-bioenergy-supply-chains/>
- Kline KL, Mayer AL, Martinelli FS, Medeiros R, Oliveira COF, Sparovek G, Walter A, Venier L. (2015) Bioenergy and biodiversity: Key lessons from the Pan American region. *Environmental Management* 56: 1377-1396.

ORNL Presentations

Oct. 7-9: Virginia Dale gave a presentation on “*Food Energy Water Nexus: Approaches and Tools*” at the American Institute of Chemical Engineers (AIChE) workshop sponsored by the National Science Foundation on the Food Energy Water Nexus in Baltimore Maryland.

Oct. 15: Gangsheng Wang attended the 2015 Soil and Water Assessment Tools (SWAT) conference. He presented a paper entitled: “*Forecasting changes in water quality in the Tennessee River Basin with growing biofuels.*” Authors: Gangsheng Wang, Yetta. Jager, Latha Baskaran, Tyler F. Baker, Craig C. Brandt. (<http://swat.tamu.edu/conferences/2015-purdue>)

Oct. 16: A presentation was made by VH Dale, KL Kline, ES Parish and E Tobin to BETO staff on their research approach to assess progress toward sustainability for the production of wood-based pellets in the southeastern United States.



Oct. 19-20: Virginia Dale attended the National Science Foundation Food-Energy-Water (FEW) Nexus Workshop in Rapid City, South Dakota. Her talk was on “*Food Energy Water Nexus: Approaches and Tools.*” This workshop provided an opportunity for researchers, academics, industry, and governmental agencies to collectively discuss current and future challenges and solutions within the Food-Water-Energy (FEW) sectors for the upper Great Plains region.

Oct. 21: ORNL celebrated the 3rd Annual National Bioenergy Day by contributing several webinars to a week-long Bioenergy Week Web-a-thon being planned by the USDA-funded Southeastern Partnership for Integrated Biomass Supply Systems (IBSS). The webinars were planned to raise awareness of bioenergy and its potential benefits. To download the archived presentations go to www.bioenergywebinars.org. The ORNL speakers and the titles of their talks are:



- Matthew Langholtz and Rebecca Efrogmson - “*The 2016 Billion-ton Report: Towards Commercialization*”
- Maggie Davis - “*Indirect Effects of Bioenergy: International Standards and Science*” with coauthors F Ghatala, D Goldin, and K Kline.
- Esther Parish - “*Environmental and socioeconomic sustainability analysis of switchgrass-to-ethanol production in Eastern Tennessee*” with coauthors V Dale, B English, S Jackson, and D Tyler.
- Natalie Griffiths - “*Examining the effects of woody biomass production for bioenergy on water quality and hydrology in the southeastern United States*” with coauthors R Jackson, M Bitew, E Du, K Vaché, J. McDonnell, J Klaus, and B M. Rau

- Yetta Jager - *“Future bioenergy production in two southern tributary basins of the Mississippi River Basin is projected to improve water quality”* with coauthors L Baskaran, G Wang, J Kreig, and C Brandt

Oct 27-30: Virginia Dale and Keith Kline attended the IEA Bioenergy Conference in Berlin, German, on *Realizing the World’s Sustainable Bioenergy Potential*. The following presentations were given:

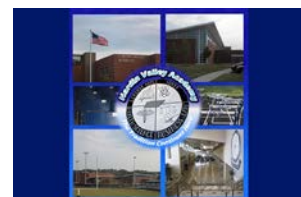
- A presentation by Virginia Dale on *“Integrating biomass supply systems into sustainable landscape designs”* with coauthors Keith Kline and Esther Parish.
- A poster by Virginia Dale, Keith Kline, Tim Volk, Tat Smith and Inge Stupak on *“Incorporating Bioenergy into Sustainable Landscape Designs”*
- A poster by Keith Kline, H. Langeveld, V. Dale and R. Efroymson on *“Understanding Indirect Effects of Bioenergy: Practices for Science-based ILUC Assessment”*
- A presentation by Virginia Dale describing *“The Bioenergy Innovations Study Tour in Southeast United States in April 10-14, 2016.”*
- A presentation by Virginia Dale on *“Sustainability Aspects of Production of Wood-Based Energy Pellets in the Southeastern United States”* to Tasks 38 and 43 (with coauthors K Kline, E Parish and E Tobin).



Other CBES Activities

Oct. 6-9: Virginia Dale and Keith Kline participated in the American Institute of Chemical Engineers (AIChE) Food-Energy-Water Nexus Workshop in Baltimore, Maryland. This workshop united experts in systems analysis and metrics to identify research needs and challenges to understanding the nexus along with the associated tradeoffs between food, energy, and water. The workshop was designed to help to define the roles of professional societies and how they can foster collaborations between government, industry, and academia.

Oct. 26: Esther Parish met with two high school students at Hardin Valley Academy to answer their questions about the potential impacts of biofuels on our environment and economy. The students are conducting recorded interviews as part of an English class project designed to bring major issues to the attention of the next US President.



Oct. 27. Yetta Jager is coauthoring the *“Biomass Production”* conservation practice for wildlife as part of the Mississippi River Basin / Gulf Hypoxia Initiative, which is a multi-LCC collaboration for wildlife, water quality & agriculture. Latha Baskaran is helping to support this effort by providing Billion Ton data needed for a spatial opportunity assessment.

Upcoming ORNL Visits/Events:

Nov. 2-6: Keith Kline, Maggie Davis, and Virginia Dale plan to attend the Society of American Foresters annual convention. Keith will present on *“Bioenergy Trade and Sustainability Assessment: Science, Truth and Consequences”*, and Maggie will present *“Indirect Effects of Bioenergy: International Standards and Science”* in a special session on *Sustainability of International Trade in Bioenergy*. Virginia will give a presentation on *“Using Landscape Design to Assess Sustainability of Wood Biomass Production from Southeast US Forests.”*

Nov. 16-29: Yetta Jager is invited to an Organisms-to-Ecosystems Working Group at the NSF National Institute of Mathematical and Biological Sciences. She will participate in developing production response curves to relate biological entities (i.e., fishes, nutrient reductions) to ecosystem services. For more about the NIMBioS working groups go to http://www.nimbios.org/workinggroups/WG_o2e

Dec. 1-3: Virginia Dale will attend the DOE Landscape Research Project kick-off meeting being held in Ames, IA.

Dec. 7-11: ORNL staff will participate in the Billion Ton 2016 review meeting in Washington DC.

Jan. 19-21: Virginia Dale, Donna Perla (EPA), and Doug Karlen (USDA) have organized two sessions on the bioeconomy for the Jan. 19-21 Conference in Washington, DC, of the National Council on Science and the Environment on the Food-Energy-Water Nexus: <http://www.ncseonline.org/2016-food-energy-water-nexus>. The USDA, DOE, and EPA are sponsors for this conference.

Jan 20-21: Yetta Jager is invited to attend the Mississippi River Basin / Gulf Hypoxia Initiative meeting in Iowa. This initiative seeks to provide guidance and also involves developing a decision support modeling framework for farmers.

April 4-8: The US Chapter of the International Association of Landscape Ecology will have three symposia that were organized ORNL staff as follows:

- *Reshaping Landscapes: Bioenergy and Biodiversity* – organized by Yetta Jager
- *Opportunities and Barriers for Sustainable Bioenergy* – organized by Keith Kline
- *Landscapes Designs that Incorporate Sustainable Wood-based Bioenergy: a Focus on the Southeastern United States* – organized by Virginia Dale