

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

### Publications

Dale VH, KL Kline, MA Buford, TA Volk, CT Smith, I Stupak. 2016. Incorporating bioenergy into sustainable landscape designs. *Renewable & Sustainable Energy Reviews* 56:1158-1171.

<http://authors.elsevier.com/sd/article/S1364032115014215>

### ORNL Presentations

**Dec 1:** Virginia Dale give a presentation on “Using Sustainability Indicators to Support Good Practices” at the DOE Landscape Design Project kick-off meeting being held in Ames, IA.

**Dec 9:** Yetta Jager presented individual-based sturgeon modelling of mercury uptake to the USEPA Office of Pesticide Programs in Washington, DC. The EPA is interested in modeling the effects of agricultural contaminants in the Central Valley on ESA-listed sturgeons.

**Dec 10:** Keith Kline, Yetta Jager and others gave presentations on the chapters they are developing for the BT-16 Volume 2 on Sustainability, being coordinated by Rebecca Efroymsen.

### Other CBES Activities



Dec 1-3: Virginia Dale and Keith Kline attended the DOE Landscape Design Project kick-off meeting being held in Ames, IA. They also attended a stakeholder meeting and gathered information on issues, positions and local priorities for improving agricultural landscape management in the area.

Photos: Virginia Dale (right) and Kevin Comer (Left - Antares Project Director) presenting to meeting participants in Ames.



**Dec 3:** Esther Parish and Rebecca Efroymsen served on the panel, “Environmental aspects of aviation biofuels in Georgia” at the Sustainable Aviation Biofuels Workshop at Georgia Institute of Technology.

**Dec 4:** Virginia Dale and Keith Kline developed talking points related to the Food-Energy-Water (FEW) Nexus and bioenergy for Valerie Reed, Senior Advisor for Bioenergy, Office of the Chief Scientist of USDA for her to present at a FEW workshop being sponsored by the National Science Foundation.

**Dec 4:** Keith Kline and Virginia Dale drafted responses for B.Magill (Senior Science Writer, Climate Central) about the RFS program and greenhouse gas emissions from transportation fuels.

**Dec 8-9:** Keith participated in ASTM International Committee E48 meetings in Austin, TX and contributed to work on the sustainability guide and approval of a new standard for ethanol in low-cost cookstoves.

**Dec 9-10:** ORNL participated in the Billion Ton 2016 review meeting in Washington DC. Invited staff include: Matt Langholtz, Laurence Eaton, Erin Webb, Maggie Davis, Craig Brandt, Keith Kline, Anthony Turhollow, Aaron Myers, Yetta Jager, Rebecca Efroymsen, Tim Theiss, Mike Hilliard, and Virginia Dale.

**Dec 11:** Esther Parish and Natalie Griffiths participated in an off-site strategic planning exercise for the newly formed ORNL Environmental Sciences Division Aquatic Ecology Group (AEG). Led by Mark Peterson, AEG is in the process of developing a long-term plan to address research needs of DOE and other agencies.

**Dec 18:** An conference call with Dave James and Sarah Porter of the USDA ARS National Laboratory for Agriculture and the Environment (NLAE) highlighted valuable data (2000-2015) on field-scale crops, rotations, and surrounding land cover. See the Conservation Planning (ACPF) web site for more info: <https://data.nal.usda.gov/dataset/agricultural-conservation-planning-framework-acpf-toolbox>

## Upcoming ORNL Visits/Events:

**Jan 14:** Yetta Jager and May Wu (ANL) have been invited to address the Gulf of Mexico Hypoxia Taskforce at the next meeting on behalf of Taskforce members, USDA NRC. The purpose is to present joint BETO research to evaluate the future implications of growing bioenergy feedstocks for downstream nutrient loadings in the Gulf of Mexico.

**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://foodenergywater nexus.org/>. The USDA, DOE, and EPA are sponsors for this conference.



### The Food-Energy-Water Nexus

16<sup>th</sup> National Conference and Global Forum  
on Science, Policy and the Environment

January 19-21, 2016

Hyatt Regency Crystal City at the  
Washington, DC National Airport

**Jan 18-23:** Keith Kline is invited to participate in the Lorentz Center [www.lorentzcenter.nl](http://www.lorentzcenter.nl) workshop on “Bridging technological and social innovation for a biobased economy” in Leiden, NL. The event aims to develop a cooperative research agenda and identify lessons for communications that will help bioenergy overcome social acceptance barriers.

**Mar 1-3:** Yetta Jager is invited to attend the Mississippi River Basin / Gulf Hypoxia Initiative meeting in Indianapolis. This initiative, led by the USFWS, seeks to provide guidance and also involves developing a decision support modeling framework for farmers.

**Mar 8-11:** Virginia Dale is invited to participate in a workshop on EcoHealth Metrics for the Gulf of Mexico convened at the Harte Research Institute at Texas A&M University-Corpus Christi.

**Mar 14-18:** Chalmers University invited Keith Kline and Virginia Dale to contribute to meetings with the Swedish University of Agriculture Sciences in Stockholm and a workshop on “Landscape management and design for food, bioenergy and the bioeconomy: methodology and governance aspects” in Göteborg, Sweden. Virginia will serve as the invited Opponent at Oskar Englund's public defense of his PhD thesis: “On the sustainability of biomass for energy and the governance thereof” at Chalmers University of Technology.

**Mar 29-April 2:** Latha Baskaran will attend the 2016 American Association of Geographers (AAG) Annual Meeting in San Francisco, CA and present on “Identifying opportunities for sustainable bioenergy production in two southern tributary basins of the Mississippi River Basin: focus on water quality, quantity and biodiversity “. Her co-authors for this presentation are Yetta Jager, Jasmine Kreig, Gangsheng Wang and Craig Brandt.

**Apr 4-8:** The US Chapter of the International Association of Landscape Ecology (IALE) annual meeting in Asheville, NC, on April 4-6 (<http://www.usiale.org/asheville2016/>) will have three symposia that were organized by ORNL staff as follows:

- *Reshaping Landscapes: Bioenergy and Biodiversity II* – 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



**Apr 10-14:** ORNL and DOE are hosting a bioenergy study tour in the southeastern United States. Participants will include researchers associated with DOE and its national laboratories, the International Energy Agency (IEA), university staff and students, and industry. The goal of the tour is to have participants develop a better understanding of bioenergy systems in the southeastern United States.

**May 8-12:** Virginia Dale is invited to give a plenary lecture at the International Society of Ecological Modelling Global Conference in Baltimore, Maryland – see <http://www.isemconference.com/>. The title of her talk is "Tradeoffs in sustainability assessment."



**Jul 17-20:** Yetta Jager was invited to the Symposium, "Conservation of aquatic ecosystem connectivity: from planning to practice," at the Society of Conservation Biology in Madison, Wisconsin.