

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

### Publications

- Kline KL, Msangi S, Dale VH, Woods J, Souza G, Osseweijer P, Clancy J, Hilbert J, Mugera H, McDonnell P, Johnson F (2016) Reconciling food security and bioenergy: priorities for action. *Global Change Biology Bioenergy* doi: 10.1111/gcbb.12366.
- Pollesch N and Dale VH (In press) Normalization in sustainability assessment: Methods and implications. *Ecological Economics*.

### CBES Presentations

**June 6-9:** Virginia Dale presented “Approaches to promote landscape management and design balancing multiple goals related to environmental and resource management” and Keith Kline presented “Promoting beneficial land-use change: improved methods to guide decisions toward positive outcomes” in a Workshop at EUBCE 2016 organized by IEA Bioenergy Task 43, IRENA, GBEP, World Agroforestry Center and others. The Workshop was titled, “The world needs more land-use change.” More information is at <http://www.eubce.com/parallel-events/workshops/the-world-needs-more-land-use-change.html>

### Other ORNL Activities

**June 6-10:** Keith Kline and Virginia Dale participated in several meetings in Amsterdam.

- 24<sup>th</sup> European Biomass Conference and Exhibition: <http://www.eubce.com/home.html>
- **June 6:** Keith met with IEA Task collaborators working on the “Reference System” manuscript led by Kati Koponen.
- **June 7:** Meeting with Bob Flach (USDA Foreign Agricultural Service) – ag specialist for the Netherlands and Nordic Countries ([biob.flach@fas.usda.gov](mailto:biob.flach@fas.usda.gov)) (joined by Helena Chum, NREL).
- **June 8:** Meeting the Pirmin Weghuis (Van Heuvelen Strategies) and Jurgen de Vries (Smeets, Stuger, De Vries) [Consultants to US Industrial Pellet Association (USIPA)] (Joined by Helena Chum, NREL, and Dan Neary, USDA).
- **June 8:** Discussion of sustainability requirements with Kees Kwant and Joyce de Wit of the Netherlands Enterprise Agency.
- **June 9:** IEA Bioenergy Intertask activity on sustainability
- **June 10:** Discussion with Floor Van Hilst and her students from Utrecht University (Gert Jonker and Anna Duden) about collaborations.
- **June 10:** Meeting with Hans Langeveld and Mirjam Breure
  - Shared meeting notes and discussed next steps following Workshop on “The world needs more land-use change” (the beneficial kind).
  - Keith and Hans discussed plans for IEA Bioenergy Task 43 WP3 “governing land use and bioenergy supply chains.”



**June 13:** Nate Pollesch successfully defended his PhD thesis in mathematics at the University of Tennessee. The title of this dissertation is “Mathematical Approaches to Sustainability Assessment and Protocol Development for the Sustainability Target Assessment Resource for Bioenergy (Bio-STAR).”

**June 14-16:** Representatives from the International Maize and Wheat Improvement Center (CIMMYT) visited ORNL to discuss methods to quantify progress toward sustainable agriculture. The group visited the United States Department of Agriculture (USDA) Forest Inventory Analysis (FIA) demonstration plot at the University of Tennessee Arboretum where Jeff Turner and Jason McHan explained the sampling procedures.



The following presentations were made by ORNL staff:

- Esther Parish - "Multimetric Sustainability of Switchgrass-to-Ethanol Production in East Tennessee."
- Virginia Dale - "Metrics & Indicators at Farm and Landscape level"
- Sarah Eichler-Inwood - "Evaluating sustainability and resilience in agricultural systems using an integrated, web-based app for on-farm self-assessment and resource discovery."

**June 17:** Virginia electronically joined a meeting led by Göran Berndes discussing development of a report on forest biomass sustainability for Europe to be published by the European Forest Institute (EFI).

**June 29:** Keith Kline attended the American Society for Testing and Materials (ASTM) International meeting (Bellevue, WA) contributing substantially to the workshop tasked with revising the draft standard in response to the recent ballot and comments. While the Standard Practice for Assessment of Relative Sustainability was approved in the June ballot, the sub-committee plans to produce an updated and revised version quickly and reissue the new version for ballot prior to the December ASTM meeting.

**June 21, 29, and 30:** Virginia joined conference calls discussing Objective 2 of the IEA Bioenergy Inter-task sustainability project. Objective 2 focuses on comparing and assessing the legitimacy, effectiveness, and efficiency of approaches to govern and verify sustainability of biomass and bioenergy supply chains in different conditions.

**June 30:** Virginia Joined a conference call organized by Luc Pelkmans that discussed "BioTrade2020plus: Supporting a Sustainable European Bioenergy Trade Strategy" being developed by Intelligent Energy Europe.

**June 30:** A media report, shared with BETO, reflected the broad Interest in the publication led by ORNL on food security and biofuel interactions. Media coverage was found in over 50 outlets across five continents in the first week following the June 14<sup>th</sup> publication.

## Upcoming CBES Forums

**July 20 @ 3:30 pm:** CBES Forum entitled "Creating a tool for visualizing progress toward bioenergy sustainability" by Nate Pollesch (UTK), Michael Hilliard (ORNL) and Virginia Dale (ORNL).

**August 9 @ 3:30 pm:** CBES Forum entitled "Using Landscape typologies to model socioecological systems: Application to agriculture of the United States Gulf Coast" by Sujithkumar Surendran Nair of ORNL.

## Upcoming ORNL Visits/Events

**July 11-13:** ORNL will be actively engaged in the Bioenergy 2016 conference in Washington DC: <http://www.energy.gov/eere/bioenergy/bioenergy2016>.

- The Billion Ton 2016, Volume 1, which quantifies potential biomass availability at particular prices, is to be released. Presentations on the Billion Ton study will be made by Matt Langholtz, Laurence Eaton, and Maggie Davis.
- Keith Kline will present in the Plenary IV: Policy for the Bioeconomy—Local, State, Federal, and

International Perspectives.

- Mike Hilliard and Tim Theiss will man the ORNL booth.
- Virginia Dale is invited to present an interactive poster on “Visualizing progress toward bioenergy sustainability.”

**July 27-28:** The Southeastern Partnership for Integrated Biomass Supply System (IBSS) Annual Meeting will be held at the UT Arboretum in Oak Ridge. Esther Parish and Virginia Dale will attend and Virginia will present on “Landscape Design.”

**Aug 7-12:** Natalie Griffiths and co-authors will present 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 will give an invited talk on ‘Inland Drivers of Hypoxia Symposium’ at the Annual meeting of the American Fisheries Society.

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

**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 and Natalie Griffiths will also attend the symposium.

**Oct. 19:** ORNL CBES will celebrate the 4<sup>th</sup> Annual Bioenergy Day. More details to come.

**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.*”

**Fall:** Presentation by Tim Volk at the International Poplar Commission meeting in Germany on “Incorporating shrub willow into multifunctional system using a landscape design approach” by T.A. Volk, J. Heavey, C. Negri, H. Ssegane, V. Dale, D. Daley, and M. Eisenbies.

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