

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

Publications

- Berndes, Göran, Bob Abt, Antti Asikainen, Annette Cowie, Virginia Dale, Gustaf Egnell, Marcus Lindner, Luisa Marelli, David Paré, Kim Pingoud and Sonia Yeh (2016) Forest biomass, carbon neutrality and climate change mitigation. From Science to Policy 3. European Forest Institute, Finland.
<http://www.alphagalileo.org/AssetViewer.aspx?AssetId=116589&CultureCode=en>
A ThinkForest brief of the report is posted at
http://www.efi.int/files/attachments/publications/efi_thinkforest-brief_carbon_neutrality.pdf
- Dale VH, Parish ES, Kline KL. (2016) Lessons from the Forest Pages 18-22 in World Biomass. DCM Productions, United Kingdom.
<http://www.dcm-productions.co.uk/flippages/flipbook/index.html?page=1>
- Efroymsen RA, Kline KL, Angelsen A, Verburg PH, Dale VH, Langeveld JWA, McBride A (2016) A causal analysis framework for land-use change and the potential role of bioenergy policy. Land Use Policy (59) 516–527 <http://dx.doi.org/10.1016/j.landusepol.2016.09.009>
- Forbes, Jager, et al. (Submitted) A framework for predicting impacts on ecosystem services from (sub)organismal responses to chemicals. Environmental Toxicology & Chemistry
- Pollesch N and Dale VH (2016) Normalization in sustainability assessment: Methods and implications. Ecological Economics 130:195-208.
<http://dx.doi.org/10.1016/j.ecolecon.2016.06.018>
- Schweizer, Jager, Eaton, Efroymsen, and Baskaran (Submitted) Hot spots for recreational fishing: mapping the value of ecosystem services at the confluence of fish diversity, water quality, and people with access to freshwater. Fisheries Research.

Outreach Activities



Oct. 19: Esther Parish organized ORNL's role in the first-ever Bioenergy Day family outreach event in conjunction with:

- University of Tennessee's Institute of Agriculture (UTIA) & Center for Renewable Carbon (CRC)
 - Oak Ridge Associated Universities (ORAU)
 - Genera Energy
 - US Forest Service Southern Research Station (USFS SRS)
 - Chattanooga Creative Discovery Museum
- The 7 exhibits and hands-on STEM activities were organized in celebration of the 4th Annual National Bioenergy Day.
 - Attendees (166+) came from 10 surrounding communities. They asked great questions and lingered for an hour or more. Responses were very positive.
 - WBIR's "Alive at Five" promoted the event through an interview with BESC's Brian Davison
 - "The Oak Ridger" highlighted the successful event on the front page of its Friday edition!



CBES Presentations

Oct. 17-21: Matt Langholtz presented “Billion-Ton Update” and “Economic and environmental analysis of tree crops on marginal lands in Florida” at the 2016 Short-Rotation Woody Crop Operations Working Group in Ft. Pierce, Florida.

Oct. 17-21: Virginia Dale was an invited speaker at a symposium in Iceland as part of a joint Nordic research effort/network aimed at using ecological restoration for mitigating/minimizing natural disasters (<http://ermond.land.is/>). She gave presentations on “*Ecological perspectives on managing natural disasters: Lessons from Mount St. Helens*” and “*Ecosystem response over 37 years to the 1980 eruption of Mount St. Helens.*”



Soil conservation’s field experiments of planting birch under different amounts of tephra deposition



Oct. 21: Mike Hilliard made a presentation to the Roane State Community College Honors Program on “Data Visualization as a Research Tool” using the Billion Ton 2016 project as an example.

Oct. 23-26: Rebecca Efroymsen spoke at the Algae Biomass Summit in Phoenix, Arizona, on “*The Billion Ton 2016 Algae Resource Analysis: Prices to Procure the Biomass.*” Susan Schoenung presented a poster “*Algae Co-location Resources of Carbon Dioxide and Effective Transport Distances.*”

Oct. 26: Paul Leiby gave an invited presentation at the 2nd International Transportation Energy Modeling (ITEM) workshop in Göteborg, Sweden on “The future of autonomous vehicles and implications for mobility, vehicle technology and energy.”

Oct. 27: Paul Leiby gave an invited presentation at Chalmers University, in Göteborg, Sweden on “The travel, energy and carbon impacts of highly automated vehicles.”

Other ORNL Activities

Oct. 4: Virginia Dale attended the Roundtable on Sustainable Biomaterials’ North America Business Forum in Chicago.

http://rsb.org/news-and-publications/events/rsbs-north-america-business-forum-chicago-usa/?utm_source=Reminder+to+key+contacts+Chicago+NA+TWG+Business+Forum+Invite+Sept+15+2016&utm_campaign=September+15+2016+Chicago+NA+Invite+to+key+contacts&utm_medium=email



Oct. 11: Virginia Dale and Keith Kline had a conference call with Bruno Gerard and Santiago Lopez Ridaura with the International Maize and Wheat Improvement Center (which goes under its Spanish acronym CIMMYT <http://www.cimmyt.org/>) to plan for the kick off their pending project on sustainable agriculture

Oct. 12: Virginia Dale met with Prasad Gupta, Technology Manager for DOE’s Bioenergy Technologies Office (BETO), to give him an update on the April 2016 Bioenergy Study Tour.

Oct. 12: Virginia Dale and Keith Kline joined a conference call organized by the IEA Bioenergy’s Sustainability Intertask activity on “Measuring, governing and gaining support for sustainable bioenergy

supply chains” that focused on Objective 3: Understanding and engaging with bioenergy stakeholder groups. Dale and Kline shared a table listing what ORNL is planning to contribute to the Intertask.



Oct. 12-13: Maggie Davis and Yetta Jager attended the FY17 Q1 BioEnergy Technologies Office quarterly meeting at PNNL and toured the Boeing Plant in Seattle, WA, to learn about Boeing’s progress in sourcing jet fuel from bioenergy produced in the western US.

Oct. 18: ASTM International issued a main Committee Ballot for Bioenergy and Industrial Chemicals from Biomass - E48 (16-03) which is open until NOV 17, 2016. The ballot presents revisions to improve ASTM International E3066 “Standard Practice for assessing the relative sustainability involving energy or chemical from biomass.”

Oct. 25-26: Virginia Dale participated in the Sustainable Forestry Initiative’s Conservation Impact Sounding Board in Washington, DC.

Upcoming CBES Forums

Nov. 9 @ 3:30 p.m.: CBES Forum entitled “Seeing the Path to Sustainable Bioenergy: Interactive Analytical Data Visualization in Research and Publication” by Michael Hilliard of ORNL.

Upcoming ORNL Visits/Events

Nov. 1: Shahab Sokhansanj will give a presentation on “Outlook for R&D in Biomass Engineer.”

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.

Nov. 6-8: Virginia Dale and Keith Kline will attend the 6th annual conference of the US Industrial Pellet Association (US IPA: <http://www.theusipa.org/conference/agenda>) in Miami, Florida.

Dec. 7: Keith Kline has been invited to give a talk at the ASTM D02 Meeting in Lake Buena Vista, Florida

Dec. 12-16: Virginia Dale, Keith Kline, and Latha Baskaran 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 present on “*Effects on Environmental and Socioeconomic Sustainability of Producing Ethanol from Perennial Grasses,*” and Keith will present on “*Land-Use Change and the Billion Ton 2016 Resource Assessment: Understanding the Effects of Land Management on Environmental Indicators.*” Latha Baskaran will present a poster on “*Exploring the Potential for Sustainable Future Bioenergy Production in the Arkansas-White-Red River Basin.*”

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