

**Bioenergy Sustainability and Land-Use Change Report
Oak Ridge National Laboratory (ORNL) August 2011**

ORNL Publications:

Efroymsen RA, Dale VH, Kline KL, McBride AC, Bielicki JM, Smith RL, Parish ES, Schweizer PE, Shaw DM. submitted August 2011. Environmental indicators of biofuel sustainability: What about context? Environmental Management

ORNL Presentations:

August 1 - Andy Lawson (supported by Keith Kline, Allen McBride and Laurence Eaton) presented an overview on “How U.S. biofuel policies have affected land use trends in the U.S” to the bioenergy bi-weekly meeting.

August 11- Andy Lawson presented his poster on "How U.S. Biofuel Policies Have Effectuated Land Use Trends in the U.S" at the annual ORNL Summer Poster Session attended by approximately 350 people.

August 14-18 – Keith Kline presented "Indicators to support environmental sustainability of agricultural production and bioenergy crops" at the Brazilian Bio-Energy Science and Technology (BBEST) Conference in São Paulo, Brazil.

August 21-25 – Virginia Dale presented “Integrating climate change with land-use change” at the 4th World Conference on Ecological Restoration of the Society for Ecological Restoration (SER) in Mérida, Mexico.

ORNL CBES Forum:

Aug 3 – Audrey Mayer of Michigan Tech visited ORNL and UT to discuss her work related to regional-scale impacts of bioenergy and carbon sequestration policies for nonindustrial private forests in Michigan and Tennessee. Mayer gave a talk entitled, "Using agent-based models to understand the impact of Non Industrial Private Forest (NIPF) owner preferences and bioenergy policies on forested landscapes” at a special CBES forum. This presentation can be accessed at the CBES website under forums: http://www.ornl.gov/sci/ees/cbes/forums/CBES_Aug5_11.pdf

Aug 18 - Neal Gutterson President, CEO & COB of Mendel Biotechnology Inc. he has been involved in technology discovery and development, intellectual property, regulatory and business issues in the industry for the past 27 years. Neal presented "Mendel's seeded miscanthus system: a sustainable and scalable bioenergy feedstock solution". This presentation can be accessed at the CBES website under forums: http://www.ornl.gov/sci/ees/cbes/forums/Slides_Aug11.pdf

Other ORNL Activities:

August 1 - Esther Parish provided a newly formed K-12 educational organization, the Tennessee Youth Environmental Network (TennYEN), with information about general and ORNL-specific resources related to bioenergy and climate change. TennYEN's overall goal is to empower Tennessee's youth to transition their communities towards sustainability.

August 1, 8 and 15 – Keith Kline participated in conference calls led by Kathy Halvorsen (Michigan Tech University) on the Research Coordination Network on Pan American Biofuels

and Bioenergy Sustainability (RCN). The RCN project is supported by an NSF grant approved July 2011 and aims to: develop coordinated research programs and new knowledge on social, environmental, and economic sustainability implications of large-scale biofuels/bioenergy production in the Americas.

August 2, 11, 23 and 29 – Keith Kline and Maggie Stevens participated in planning and management of International Standards Organization (ISO) Project Committee 248 (Sustainable Criteria for Bioenergy) Work Group 4 webinars, developing a draft sub-report and accompanying annotated bibliography to help determine how to address food-fuel issues and direct versus indirect effects. On August 31, a draft biofuels and food-security report was completed with significant ORNL contributions.

August 2-3 – Virginia Dale attended the Environmental Protection Agency’s National Center for Environmental Assessment (NCEA) workshop on Scenario Workshop for Development of Future Scenarios for Biofuels to 2050 in Arlington, VA.

August 4 – Virginia Dale participated in conference calls with Steve Kelly (of North Carolina State University) and others who are a part of the Southeastern Partnership for Integrated Biomass Supply Systems (IBIS) project regarding ways to implement measures of environmental sustainability and to incorporate them into models as part of the project.

August 5 – Keith Kline participated as an invited expert in a renewable fuel strategy discussion with representatives from industry, academia, government and civil society, focusing on research needs and publications that could be “additive and influential” in the evolving debate about 2nd generation biofuel technologies. The current state of sustainability science and key gaps related to analysis of emerging empirical data, food/fuel issues, and international development, were discussed.

August 9 – Keith Kline and Virginia Dale talked with Myrna Lopez regarding her interest in energy and environmental security in Latin America. Ms. Lopez is a part of the US Southern Command (SOUTHCOM), which directs US military activities throughout Central and South America and much of the Caribbean.

August 9-11 – Mark Downing attended the 6th Annual Southeast Bioenergy Conference at Tifton, Georgia (<http://www.sebioenergy.org/>). Mark also attended the side meeting on August 11 regarding the organization of the USDA SE Regional Biomass Research Center.

August 10 – Matt Langholtz organized a demonstration of a bio baler at the UT Arboretum.

August 18 – Steve Kelly (of North Carolina State University) visited ORNL and met with Virginia Dale, Esther Parrish and Allen McBride as well as Tim Rials (of UT) to discuss plans for the Southeastern Partnership for Integrated Biomass Supply Systems (IBIS) project.

August 16 – Virginia Dale, Matt Langholtz, and Esther Parish met with John Schwartz, Sam Jackson, and Tim Rials (of UT) to discuss a proposal for analyzing watershed implications of bioenergy. Jon Philipsborn participated via a conference call and will help in drafting the ideas.

August 14-18 – in conjunction with the Brazilian Bio-Energy Science and Technology (BBEST) Conference in São Paulo, Brazil, Keith Kline participated in parallel meetings of the Executive Committee of the Global Sustainable Bioenergy Project; met with Jose Goldemberg of University Sao Paulo to brief him prior to meetings related to the US-Brazil Strategic Energy Dialogue (<http://energy.gov/articles/us-and-brazil-launch-strategic-energy-dialogue>); and met with Luis Cortez, Marcelo Galdos, and other potential Brazilian partners about proposed collaboration a bilateral Biofuel Sustainability agreement.

August 31: Gangsheng Wang and Keith Kline submitted written comments regarding issues of uncertainty and data confidentiality for Work Group 2 (Greenhouse Gas (GHG) methods) for the International Organization for Standardization (ISO) draft working standard on criteria for sustainable bioenergy.

Upcoming ORNL Visits/Events:

Rebecca Efroymson will be leading the development of an issue paper on the identification and use of ecological endpoints for a biofuel feedstock ecological risk assessment. The work will be done for Versar, Inc. and, along with EPA's conceptual models for assessing ecological risk from biofuel feedstock production, will form the basis of an upcoming EPA workshop.

September 7-9 – Keith Kline will participate in the National Wildlife Federation/Roundtable on Sustainable Biofuels (RSB) workshop on the Role of Commodity Roundtables & Avoided Forest Conversion in Subnational Reducing Emissions from Deforestation and Forest Degradation (REDD) – Agriculture, Food Security & Greenhouse Gas (GHG) Accounting; San Diego, California.

September 12-15 – Keith Kline (as technical expert) and Maggie Stevens (as Official WG4 Secretary) will travel to Argentina for the International Organization for Standardization (ISO) WG4 Meeting on Indirect Effects to be held in Buenos Aires September 13-15 and will present to the Argentinian National Standards Organization (IRAM).

September 16 - Allen McBride will give a presentation on "Sustainability Indicators for Bioenergy" at the US-China Advanced Biofuels Forum at Idaho National Laboratory

September 19-21 – Virginia Dale, Keith Kline, and Maggie Stevens will present at the International Energy Agency (IEA) Joint Task 38/40/43 Workshop on "Quantifying and managing land use impacts of bioenergy" in Campinas, Brazil.

September 27 – One of ORNL scientists associated with CBES will give a talk at the China-US 2011 Joint Symposium at Purdue University on "Landscape Design for Bioenergy Cropping Systems."

October 18-19 – Keith Kline is invited to speak at The Coordinating Research Council (CRC) Lifecycle Analysis Workshop in the "Land Use Change and GHG Emissions" session at Argonne National Laboratory.

October 25 - Virginia Dale will give a presentation on environmental stewardship in bioenergy crop production during the Biomass Production Field Day in Vonore, TN. This event is sponsored by the University of Tennessee, the US Dept. of Energy, Genera Energy, Ceres Inc.,

and Dupont Danisco Cellulosic Ethanol. A detailed preliminary agenda, along with other field day information, can be found at <http://www.biomassfieldday.com>.

November 10-11 – Virginia Dale will visit Michigan Technological University as a Distinguished Ecologist lecturer in the School of Forest Resources and Environmental Science.

November 13-16 – Mike Hilliard will give a presentation at the Annual Meeting of the Institute for Management Science and Operations Research (INFORMS) in Charlotte, NC, on the Biomass Location for Optimal Sustainability Model (BLOSM) --Balancing Profit and Water Quality in a Watershed. His presentation will use data from the watershed surrounding a cellulosic ethanol refinery in Tennessee; an optimization model paired with results from a water quality model demonstrates that planting switchgrass in the right locations can improve nitrogen, phosphorus and sediment levels with a moderate impact on revenue. A web-based interface communicates the results.

<https://informaticsmeetingsonline.com/emeetings/formbuilder/clustersessiondtl.asp?csnno=15781&mmnno=206&ppnno=57555>

November 17-18 – Virginia Dale will give a plenary talk on infrastructure sustainability and resilience at the National Science Foundation Emerging Frontiers in Research Innovation, Resilient and Sustainable Infrastructures Program (NSF-EFRI RESIN) Workshop in Champaign, IL. <http://ict.illinois.edu/conferences/RESINworkshop2011/>

February 22-24, 2012 – Virginia Dale will speak on “Environmental and socioeconomic indicators for bioenergy sustainability as applied to Eucalyptus” at symposium on “Assessment and Management of Environmental Issues Related to Eucalyptus Culture in the Southern United States”. The symposium is being organized by the USDA Forest Service and the National Council for Air and Stream Improvement, Inc. (NCASI) in Charleston, SC. Matt Langholtz is assisting in the preparation of this paper.