

Bioenergy Sustainability and Land-Use Change Report
Oak Ridge National Laboratory
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Publication:

Dale, VH, R Efroymsen, and K Kline. 2010. Using a Broad-scale Perspective to Address Changes in Land, Climate, and Energy. The Climate-Energy Nexus: Proceedings of the 2009 China-US Joint Research for Ecosystem and Environmental Change, pages 52-55, published by the Institute for a Secure and Sustainable Environment, University of Tennessee.

Invited Talks and Presentations:

November 29-December 6: Oak Ridge National Laboratory (ORNL) and Idaho National Laboratory (INL) organized a study tour for approximately 30 representatives of the China National Energy Administration and Chinese bioenergy companies. Tour stops included bioenergy related sites in Nebraska, Iowa, and Tennessee and meetings with the Department of Energy (DOE) and the United States Department of Agriculture (USDA) in Washington, D.C. Yun Wu of ORNL served as an official host and translator throughout the duration of the tour; Erin Webb co-lead organization of the study tour; Becky Bowman assisted with coordination of the tour and organized Tennessee events; Robin Graham, Brian Davison, Keith Kline, and Laurence Eaton gave technical presentations highlighting ORNL bioenergy research. Other Tennessee activities for the China delegation included a tour of the DuPont Danisco biorefinery and Genera Energy switchgrass production sites in Vonore.

December 6-9: Laurence Eaton attended the meeting of *A Community in Ecosystem Services* (ACES) in Phoenix, AZ, and presented a talk on “Economic impacts to gamefish production associated with biofuel feedstock production” (that was coauthored by Peter Schweizer and Yetta Jager). Betsy Smith (Environmental Protection Agency) presented the paper prepared by Virginia Dale, Richard Lowrance, Pat Mulholland, and Phil Robertson titled “Regional changes in water quality associated with switchgrass feedstock production.”

December 8: Yetta Jager participated in a quarterly USDA project PI meeting with Dr. Indrajeet Chaubey and other researchers from Purdue University. Purdue has asked ORNL to contribute to an informal collaboration in a comparison among Tennessee, Arkansas, and Indiana watersheds. Latha Baskaran will share Soil and Water Assessment Tool (SWAT) inputs for Vonore, Tennessee, which were originally created as part of an ORNL/Laboratory Directed Research and Development (LDRD) program (V. Dale, *et al.*), and these will be used with the National Agricultural Pesticide Risk Analysis (NAPRA) model.

December 8-9: Keith Kline presented, “Land Use Research at ORNL” and Virginia Dale presented “Bioenergy Sustainability Research at ORNL” for the participants in the Joint US-UK Biofuels Sustainability Workshop at the National Renewable Energy Laboratory (NREL). Dale and Kline discussed bioenergy sustainability research with visitors from the UK, DOE-Golden (Steve Thomas), and NREL (Andy Aden, Danny Inman, Garvin Heath, Helena Chum etc.) to identify potential areas for future collaborations, including methods for greenhouse gas emission accounting.

December 19: Virginia Dale was interviewed on the radio show, Garden Guys (96.9 FM out of Boston <http://www.garden-guys.com/>). She discussed the role of agriculture in hypoxic zones that occur in the Gulf of Mexico.

Other Activities:

A multi-disciplinary team of ORNL researchers – Rekha Pillai, Stuart Daw, Sirisha Nukala, Charles Finney, and Erin Webb - presented results of an FY10 project to model the feedstock supply and process operations of the biomass steam plant currently under construction to the leadership of the Facilities and Operations (F&O) Directorate who supported the project. The team has also received support from F&O for FY11 to further explore alternative feedstocks, biomass moisture and storage.

Rebecca Efroymsen has been appointed to serve on the new National Research Committee: Sustainable Development of Algal Biofuels. Rebecca's expertise in risk assessment, sustainability and biofuels will be an important contribution to this effort.

December 3: ORNL made substantive contributions to the 1st Webinar of Working Group 2 (WG2) for the International Standards Organization Project Committee 248 (ISO PC 248) to develop a standard for "Sustainable Criteria for Bioenergy." Members of WG2 approved resolutions that accepted definitions proposed by ORNL for "direct" and "indirect" effects and "science-based" methods for data sources. A series of webinars and meetings are scheduled to generate initial draft criteria for greenhouse gas emission accounting by March, 2011.

December 3-4: Virginia Dale participated in the meeting of the National Academy of Sciences Committee on Economic and Environmental Impacts of Increasing Biofuel Production in Washington.

December 7: ORNL scientists working on bioenergy resource analysis and sustainability research supported by DOE's Office of the Biomass Program (OBP) participated in an off-site retreat on strategic planning.

December 9: Kline and Dale contributed information to the Council on Sustainable Biomass Production (CSBP) during a Task Force conference call on accounting for greenhouse gas emissions under proposed approaches for certifying sustainable forest biomass production systems.

Upcoming ORNL Visits/Events:

January 19: OBP Analysis and Sustainability January Quarterly, Washington, D.C.

February 6-9: Keith Kline was invited to speak at the Advance 2011 Biodiesel Conference and Expo (see <http://www.biodieselconference.com/2011/>). He will contribute to a panel on "Views of Food and Fuel" from the perspectives of farm producers, environmental non-governmental organizations (NGOs) and scientific analysis. The session will highlight why food-fuel competition issues will likely remain important for any bioenergy crop in coming years.

April 5: OBP Sustainability Platform Peer Review, Washington, D.C.

May 2-5: 33rd Symposium on Biotechnology for Fuels and Chemicals, Seattle.