

## **Bioenergy, Sustainability, and Land-Use Change Report Oak Ridge National Laboratory (ORNL) July 2014**

### **ORNL Presentations:**

July 19 - Laurence Eaton presented "Enhanced National Feedstock Supply Modeling of Woody Crops for Bioenergy and Bioproducts" at the 10<sup>th</sup> Biennial Short Rotation Woody Crops Conference in Seattle, WA. The presentation covered the woody crops mapping activities with the Sun Grant Regional Feedstock Partnership Woody Crops and Resource Assessment Teams and featured recent work that mapped potential facility distribution according to the feedstock quality specifications outlined in the 2017 Thermochemical Pathway Design Report. Co-authors of the presentation were Matt Langholtz, Craig Brandt, (ORNL) Chris Daly, Mike Halbleib (Oregon State University), Danny Inman (NREL), Tim Rials and Jessica McCord (University of Tennessee), Tim Volk (SUNY-ESF), Bill Berguson and Bernie McMahon (University of Minnesota), Ray Miller (Michigan State University), Jeff Wright (Arborgen), Rich Shuren (Greenwood Resources), Bryce Stokes (CNJV, LLC), and Marilyn Buford (USDA-FS).

July 17-19 - Natalie Griffiths attended the Short-Rotation Woody Crop Operations Working Group meeting in Seattle, and gave an overview presentation on their project titled 'Environmental sustainability of woody biomass production for bioenergy in the southeastern United States' along with project co-authors C.R. Jackson, M. Bitew, E. Du, K.B. Vache, J.J. McDonnell, J. Klaus, and C.C. Trettin.

July 22-25 – Virginia Dale, Keith Kline and Maggie Davis presented at the Conference on Pan American Biofuels and Bioenergy Sustainability in Recife, Brazil, which was organized by the PanAm Research Coordination Network (RCN). [Virginia participated via her University of Tennessee affiliation]. Keith and Maggie also participated in the NSF-PIRE "Sustainability, Ecosystem Services and Bioenergy Development across the Americas" annual project meeting in Belem (17-21 July) and sustainability indicator meetings in Campinas (28 July-01 Aug).

### **Other ORNL Activities:**

July 12 – Esther Parish participated in a National Bioenergy Day planning call organized by Carrie Annand of the Biomass Power Association. A follow-up planning call was held on July 9<sup>th</sup> with University of Tennessee collaborators Jessica McCord and Miriam Davis.

July 29-30 – Several ORNL scientists participated in the Biomass 2014 at the Washington Convention Center in Washington, D.C.

July 30-31 – Esther Parish participated in a workshop hosted by ORNL to scope the new National Extreme Events Database and Research Center (NEED) that will be developed and housed within ORNL's Climate Change Science Institute (CCSI). The initial focus on cataloging and forecasting extreme weather events such as ice storms, floods, and droughts as well as the development of new extreme event indices will be relevant to bioenergy supply chain modeling.

July 31-Aug 1 – Virginia Dale presented "Including Bioenergy in Sustainable Landscape Designs" and Matt Langholtz gave an overview of the "Human Systems" thrust area at the annual meeting of Northeast Woody/Warm-season Biomass Consortium (NEWBio) [AFRI-CAP project]  
<http://www.newbio.psu.edu/>

July 31 – Erin Webb hosted the Biomass Industry Panel on Codes and Standards (BIPCS) Working Meeting in Washington, DC. The Biomass Industry Panel on Codes and Standards (BIPCS) is an initiative

of the DOE Bioenergy Technologies Office managed by ORNL. Its membership includes biomass and fire code experts from the INL, American Society of Agricultural and Biological Engineers, California State Fire Marshal's office and bioenergy industry [recent invitations: Abengoa, DuPont (accepted), POET, Antares (accepted), and Genera Energy (accepted)]. The BIPCS conducts analysis of existing national fire and building codes and prepares proposed code changes to facilitate development of a commercial-scale biomass industry while maintaining a focus on safety. The objectives of the working meeting planned for July 31, 2014 are to 1) introduce new committee members and review structure of the BIPCS, 2) develop plans for biomass commodity testing in FY15, and 3) facilitated discussions about how to address gaps and discrepancies in 2015 version of NFPA fire code for biomass-handling facilities.

Summer intern David Gorelick (UNC, undergraduate) conducted a study of multi-objective spatial optimization using SWAT-derived derivatives to project changes in water quality and land rents to estimate farmer profit. The title of his paper and poster is "Spatial optimization of bioenergy feedstock introductions in the Arkansas White-Red River Basin: trade-offs between nutrient loadings and farm profit", D. Gorelick and H. Jager.

### **Upcoming ORNL Visits/Events:**

Aug 6 – Virginia Dale presented at ORNL's Bioenergy Technologies program at the UTIA (UT Institute of Agriculture) Familiarization Workshop and Poster Session held in the D.J. Nelson auditorium at ORNL, hosted by Division Director, Jay Gulledege.

Aug 12 – Laurence Eaton will host a 1 day interactive workshop at ORNL to explore the POLYSYS modeling framework and its application to biomass and bioenergy analysis. The day will be structured to provide a high-level introduction to new users and in depth review of model executions, input and output data, and scenario development. It is targeted towards those who are currently collaborating with the ORNL Feedstock Supply and Logistics team, but is available to the entire bioenergy community at ORNL and collaborators who are interested in gaining a better understanding of the model.

Aug 12-14 – Yetta Jager is invited to attend the Mississippi/Gulf Hypoxia Landscape conservation Design Workshop organized by Gwen Shite, US Fish and Wildlife Service. Yetta will participate by webinar.

Sept 23 - Laurence Eaton and Matt Langholtz are hosting a day-long meeting with forestry supply modelers to review, discuss, and coordinate ongoing resource assessment strategies to quantify potential primary forest resources for bioenergy. The meeting will be held in Charlotte, NC in September. For more information, please contact Laurence at [eatonlm@ornl.gov](mailto:eatonlm@ornl.gov)

Oct 5-11 – Virginia Dale will speak on "Opportunities to Design Sustainable Bioenergy Systems" at the International Union of Forest Research Organization World Congress in Salt Lake City, Utah. A side meeting will occur with IEA collaborators on landscape design for sustainable bioenergy and potential contributions to the IEA case studies.

Oct 10-31 – Keith Kline will serve as invited lecturer in the "São Paulo Advanced School on the Present and Future of Bioenergy" at University of Campinas (10-17 Oct), participate in the 2nd Brazilian Bioenergy Science and Technology Conference in Campos do Jordão (19-24) and collaborate on the Global Sustainable Bioenergy Project (Campinas Oct 25-31). More info at: <http://bbest.org.br/> and <http://www.nipe.unicamp.br/2013/eventos-detalle.php?id=95>

Oct 8-10 – The 3<sup>rd</sup> annual meeting of the Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) will take place at the University of Tennessee Institute of Agriculture (UTIA) campus in Knoxville.

Oct 20-24 –Virginia Dale will participate in the launch of the SCOPE Synthesis Volume at the 2nd Brazilian Bioenergy Science and Technology Conference (BBEST2014) in Sao Paulo, Brazil

Oct 22 –National Bioenergy Day will be celebrated at ORNL. Events will include an information booth at the ORNL Cafeteria during lunchtime (10 am-2 pm) with pop-up displays highlighting ongoing collaboration with the Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) and the University of Tennessee’s Center for Renewable Carbon (CRC). At 3:30 pm, Esther Parish will present a CBES seminar entitled, “Assessing Bioenergy Sustainability: Application of a Suite of Environmental and Socioeconomic Indicators to a Cellulosic Biofuel Production System in East Tennessee.”

November 2-5 – Esther Parish will speak on "Designing Bioenergy Systems for Multiple Environmental Services and Socioeconomic Benefits" at the symposium on “Plants Helping Plants: Bioenergy Feedstock Based Systems for Sustainable Production Environments” at the -American Society of Agronomy International Annual Meeting held in Long Beach, CA.

November 19-20 –Workshop on Biofuels and Food Security Interactions, at the International Food Policy Research Institute (IFPRI), Washington DC. Keith Kline is serving on the workshop Science Committee. The workshop aims to examine current and future interactions between biofuels and food security and elaborate learnings from analysis and field experience relevant for project developers, researchers and policy-makers.

Dec 2-5 - Virginia Dale will participate in the Advisory Committee review of the Energy Biosciences Institute (EBI) in California.