

Bioenergy, Sustainability, and Land-Use Change Report Oak Ridge National Laboratory (ORNL) July 2013

ORNL Publications:

Oladosu GA, Kline KL. In press. A dynamic simulation of the ILUC effects of biofuel use in the USA. Energy Policy <http://www.sciencedirect.com/science/article/pii/S0301421513006319>

Ridley, CE, HI Jager, RA Efrogmson, C Kwit, DA. Landis, ZH Leggett, DA Miller, CM Clark. 2013. Debate: Can bioenergy be produced in a sustainable manner that protects biodiversity and avoids the risk of invaders? Ecological Society of America Bulletin 94(3): 277-290.

Langholtz M, Webb E, Preston B, Turhollow A, Breuer N, Eaton L, King A, Sokhansanj S, Nair S, Downing M. Submitted. Advancing Climate Risk Management for the U.S. Cellulosic Biofuels Supply Chain. Climate Risk Management.

ORNL Presentations:

July 1 – Maggie Davis made a presentation for the weekly forum held at ORNL’s Climate Change Science Institute (CCSI). This talk focused on *Future Sustainable Bioenergy Research and Strategic Collaborations with Brazil*, including the US-Brazil Strategic Energy Dialogue and the Global Sustainable Bioenergy (GSB) Project.

July 23 - ORNL made three presentations for a USDA/DOE Biomass Feedstocks Coordination Meeting and webinar. Keith Kline, Laurence Eaton, Gbadebo Oladosu, Nagendra Singh and Matt Langholtz shared recent research about factors affecting how land area and "land-use change" are attributed to bioenergy production. Presentations: "Land Use Allocations Associated with Billion-Ton Update Projections" (Laurence Eaton and Matt Langholtz), "Overview of Modeling and Findings on the Land Use Implications of US Biofuel Policy" (Debo Oladosu), and "LUC: Assessment Challenges and Research Needs" (Keith Kline and Nagendra Singh).

July 24-27 - Jamie Smedsmo attended the DOE Computational Sciences Graduate Fellowship Annual Program Review in Washington D.C. Jamie presented a poster entitled "The sustainability of cellulosic biofuel crop production in a changing climate" co-authored by Henriette Jager, Latha Baskaran, Moetasim Ashfaq, Bibi Naz, and Shih-Chieh Kao.

July 21-26 – Nagendra Singh presented at the annual IEEE International Geoscience and Remote Sensing Symposium.

July 30 – Nagendra Singh participated in the Winrock International public webinar, "Can we monitor the impacts of bioenergy on grasslands in the U.S.?" In the debate moderated by Winrock International, Nagendra noted many limitations affecting recent studies published on grassland change and questionable results that arise due to the inappropriate use and interpretation of the CDL datasets on "grassland" area. "The Challenges in Mapping Grassland" (by Singh and Kline) and video of the debate can be accessed at: <https://www.youtube.com/watch?v=t6OmZ1UuagQ&feature=c4-overview&list=UUjVUBKibLf9fePUM5oFYHog>

July 31 - Esther Parish presented a poster on "Designing Bioenergy Cropping Systems to Optimize Sustainability Objectives" at BETO’s Biomass 2013 conference in DC

Other ORNL Activities:

Keith Kline and Maggie Davis distributed the Report on the Global Sustainable Biofuels (GSB) Future Research Workshop. The report and related publications are available here: <http://web.ornl.gov/sci/ees/cbes/workshop.shtml>

Kline and Davis received funding under a call for joint research from ORNL and the Brazilian Research Institute of Sao Paulo (FAPESP). The project, Development of Common Indicators of Bioenergy Production, will contribute to collaborations with Brazil's Bioethanol Science and Technology Laboratory (CTBE) on sustainability indicators.

Kline and Davis contributed to the metrics portion of an annual report to the National Science Foundation (NSF) on the Program for International Research and Education (PIRE) "Sustainability Ecosystem Services and Bioenergy Development Partnerships across the Americas." PIRE will continue through FY17 and ORNL's contribution is on selected sustainability indicators and procedures to collect baseline and contextual data. Research sites are in Argentina, Brazil, Mexico, the US, and Canada.

Kline and Davis reviewed the second committee draft (CD2) for ISO (International Organization for Standardization) Project Committee 248, Sustainability Criteria for Bioenergy and assembled a preliminary comment table. Final comments need to be reviewed and approved by the US "mirror committee" prior to submission to ISO. Comments and voting are due to ISO by 10 September in preparation for the plenary meeting in Stockholm beginning 30 September.

July 4-5 - Laurence Eaton hosted a group of agronomists from the Sun Grant Regional Feedstock Partnership CRP team in Memphis, TN.

July 22 – Shahab Sokhansanj was awarded the 2013 Standards Developer Award of the American Society of Agricultural and Biological Engineers (ASABE). This award is given specifically in recognition of his exemplary leadership and work in revision of ASAE S269.5, Densified Products for Bulk Handling – Definitions and Methods.

July 31 - Davis finalized submissions of literature on indirect effects from ISO PC248 Working Group 4 members that will contribute to the updated annotated bibliography and an update on the state of the science of indirect effects.

July 31-Aug 1 – Mark Downing, Esther Parish, Laurence Eaton and Tim Theiss attended the U.S. Department of Energy Biomass 2013 Conference in Washington, D.C.

Upcoming ORNL Visits/Events:

August 13-15 – Martin Schweitzer will be attending the International Energy Program Evaluation Conference in Chicago, IL.

August to January – ORNL (Melanie Mayes, Keith Kline, Maggie Davis and Shujiang Kang) will host Helio Joris, a PhD student from the Institute of Agronomy of Campinas, Sao Paulo Brazil. As a visiting researcher at ORNL for six months, Helio will collaborate with Mayes on techniques for assessing biological N fixation, and with other staff on studies related to nutrient requirements for bioenergy crops, global crop modeling, and sustainability indicator assessments.

Aug 21 - Matt Langholtz and Laurence Eaton will lead a webinar with North Carolina State University Forestry Extension on the topic of Projections of Agricultural Land Use for Bioenergy Production. The webinar will be hosted at <http://www.forestrywebinars.net/>. The audience will be natural resource professionals, private landowners, and the general public.

Sept 17-18 – Virginia Dale has been invited to present “Opportunities to design biofuel systems for multiple environmental services” at the symposium on “Sustainable Biofuels in the Nearer Term” at the University of Minnesota.

Sept 25-27 – Virginia Dale has been invited to co-chair the China-US Workshop on “Land Use Change: Turning challenges into Opportunities for Agricultural Sustainability” hosted by the Shenyang Agricultural University, Shenyang, China.

Sept 30-Oct 4 – Keith Kline and Maggie Davis will attend the International Organization for Standardization (ISO) PC 248 Plenary to review second committee draft of ISO 13065, Sustainability Criteria for Bioenergy.

Sept 30-Oct 3 - Rebecca Efroymsen will present a poster on sustainability indicators for algal biofuels at the Algae Biomass Summit in Orlando, FL.

Oct 15-17 – Debo Oladosu and Keith Kline are invited to present at the CRC Workshop on Life-Cycle Analysis of Transportation Fuels at Argonne National Lab.

Oct 24-25 – Virginia Dale has been invited to present at the Transatlantic Trade in Wood for Energy: A Dialogue on Sustainability Standards and Greenhouse Gas Emissions Workshop in Savannah Georgia hosted by the Pinchot Institute for Conservation.

Nov 18 - Virginia Dale will present "Risks and Opportunities Related to Energy Use and Development in Tennessee" at the North American meeting of the Society of Environmental Toxicology and Chemistry (SETAC) in a session on "Ecological Risk and Impacts Relevant to Tennessee and the Region."