

CONTENTS

Commentary

- 909 **Resolving regulatory uncertainty: legislative language for potentially invasive bioenergy feedstocks**
Lauren D. Quinn, Elise C. Scott, A. Bryan Endres, Jacob N. Barney, Thomas B. Voigt and James McCubbins

Invited Research Review

- 916 **Bioenergy and climate change mitigation: an assessment**
Felix Creutzig, N. H. Ravindranath, Göran Berndes, Simon Bolwig, Ryan Bright, Francesco Cherubini, Helena Chum, Esteve Corbera, Mark Delucchi, Andre Faaij, Joseph Fargione, Helmut Haberl, Garvin Heath, Oswaldo Lucon, Richard Plevin, Alexander Popp, Carmenza Robledo-Abad, Steven Rose, Pete Smith, Anders Stromman, Sangwon Suh and Omar Masera

Original Research Articles

- 945 **Abatement cost of wood-based energy products at the production level on afforested and reforested lands**
Puneet Dwivedi and Madhu Khanna
- 958 **Water use and yield of bioenergy poplar in future climates: modelling the interactive effects of elevated atmospheric CO₂ and climate on productivity and water use**
Rebecca J. Oliver, Eleanor Blyth, Gail Taylor and Jon W. Finch
- 974 **Offsetting high water demands with high productivity: Sorghum as a biofuel crop in a high irradiance arid ecosystem**
Patricia Y. Oikawa, G. Darrel Jenerette and David A. Grantz
- 984 **A comparison of the global warming effects of wood fuels and fossil fuels taking albedo into account**
Bjart Holtsmark
- 998 **Influence of soil texture and crop management on the productivity of miscanthus (*Miscanthus x giganteus* Greef et Deu.) in the Mediterranean**
Neri Roncucci, Nicoletta Nassi O di Nasso, Enrico Bonari and Giorgio Ragalini
- 1009 ***Miscanthus x giganteus* nutrient concentrations and uptakes in autumn and winter harvests as influenced by soil texture, irrigation and nitrogen fertilization in the Mediterranean**
Neri Roncucci, Nicoletta Nassi O di Nasso, Cristiano Tozzini, Enrico Bonari and Giorgio Ragalini
- 1019 **Life cycle analysis of biochemical cellulosic ethanol under multiple scenarios**
Colin W. Murphy and Alissa Kendall
- 1034 **Cattle feed or bioenergy? Consequential life cycle assessment of biogas feedstock options on dairy farms**
David Styles, James Gibbons, Arwel Prysor Williams, Heinz Stichnothe, David Robert Chadwick and John Robert Healey
- 1050 **Short-term harvesting of biomass from conservation grasslands maintains plant diversity**
Jacob M. Jungers, Craig C. Sheaffer, Joseph Fargione and Clarence Lehman
- 1062 **Soil and greenhouse gas responses to biochar additions in a temperate hardwood forest**
Tara E. Sackett, Nathan Basiliko, Genevieve L. Noyce, Carolyn Winsborough, Jonathan Schurman, Chihiro Ikeda and Sean C. Thomas
- 1075 **Agronomic factors in the establishment of tetraploid seeded *Miscanthus x giganteus***
Eric K. Anderson, Dokyoung Lee, Damian J. Allen and Thomas B. Voigt
- 1084 **Biochar amendment of soil improves resilience to climate change**
Roger T. Koide, Binh T. Nguyen, R. Howard Skinner, Curtis J. Dell, Matthew S. Peoples, Paul R. Adler and Patrick J. Drohan
- 1092 **The effect of biomass harvesting on greenhouse gas emissions from a rewetted temperate fen**
Anke Günther, Vytas Huth, Gerald Jurasinski and Stephan Glatzel
- 1107 **Enhancing tree belt productivity through capture of short-slope runoff water**
Richard G. Bennett, Daniel Mendham, Gary Ogden and John Bartle
- 1118 **Bioenergy futures in Sweden – system effects of CO₂ reduction and fossil fuel phase-out policies**
Martin Börjesson, Dimitris Athanassiadis, Robert Lundmark and Erik O. Ahlgren
- 1136 **Comparing annual and perennial crops for bioenergy production – influence on nitrate leaching and energy balance**
Siri Pugesgaard, Kirsten Scheide, Søren Ugilt Larsen, Poul Erik Lærke and Uffe Jørgensen
- 1150 **Biochar mineralization and priming effect on SOM decomposition in two European short rotation coppices**
Maurizio Ventura, Giorgio Alberti, Maud Viger, Joseph R. Jenkins, Cyril Girardin, Silvia Baronti, Alessandro Zaldei, Gail Taylor, Cornelia Rumpel, Franco Miglietta and Giustino Tonon
- 1161 **Biochar – synergies and trade-offs between soil enhancing properties and C sequestration potential**
Kyle Crombie, Ondřej Mašek, Andrew Cross and Saran Sohi
- 1176 **An economic analysis of sweet sorghum cultivation for ethanol production in North China**
Huihui Liu, Lantian Ren, Huub Spiertz, Yongbin Zhu and Guang Hui Xie