1. Record Nr. UNINA9910788820803321

Titolo	Sustainable biofuels : an ecological assessment of the future energy / / edited by Ajay Kumar Bhardwaj, Terenzio Zenone, Jiquan Chen
Pubbl/distr/stampa	Berlin ; ; Boston : , : Walter de Gruyter GmbH & Co. KG, , [2015] ©2015
ISBN	1-5231-0472-4 3-11-038133-8 3-11-027589-9
Descrizione fisica	1 online resource (366 p.)
Collana	Ecosystem science and applications, , 2196-6737
Classificazione	ZE 37000
Disciplina	662/.88
Soggetti	Biomass energy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front matter -- List of Contributors -- List of Abbreviations -- Preface -- Contents -- Chapter 1. The Sustainable Biofuels Paradigm -- Chapter 2 Switchgrass for Bioenergy: Agro-ecological Sustainability -- Chapter 3. Sugarcane as an Alternative Source of Sustainable Energy -- Chapter 4. Jatropha (Jatropha curcas L.) as a New Biofuel Feedstock for Semi-arid and Arid Regions and Its Agro-ecological Sustainability Issues -- Chapter 5. Environmental Aspects of Willow Cultivation for Bioenergy -- Chapter 6. Short Rotation Forestry for Energy Production in Italy: Environmental Aspects and New Perspectives of Use in Biofuel Industry -- Chapter 7. Populus and Salix Grown in a Short-rotation Coppice for Bioenergy: Ecophysiology, Aboveground Productivity, and Stand-level Water Use Efficiency -- Chapter 8. Afforestation of Salt-affected Marginal Lands with Indigenous Tree Species for Sustainable Biomass and Bioenergy Production -- Chapter 9. Bioenergy and Prospects for Phytoremediation -- Chapter 10. Eight Principles of Uncertainty for Life Cycle Assessment of Biofuel Systems -- Chapter 11. Energy and GHG Emission Assessments of Biodiesel Production in Mato Grosso, Brazil -- Chapter 12. Biomass Potential of Switchgrass and Miscanthus on the USA’s Marginal Lands -- Chapter 13. Global Agro-ecological Challenges in Commercial Biodiesel Production from Jatropha curcas: Seed Productivity to Disease Incidence -- Subject

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Sommario/riassunto	With oil resources approaching their limits, biofuels have become increasingly attractive. This book provides a detailed description of the ecological implications of second and third generation biofuel feedstock production systems, beginning with an introduction to the importance of ecological sustainability alongside economic viability. The book is divided into sections describing theoretical foundation and benefits of various biofuel cropping systems, and providing a description of practical ecological limitations to achieve those fundamental benefits. The book covers such critical issues as greenhouse gas emissions, carbon balance, water cycle components, other biogeochemical and socioeconomic interactions alongside life cycle analysis principals for achieving sustainability. These are some of the most important sustainability, environmental and economic issues which biofuel industry and scientific community is seeking answers to.