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3.2 Combustion; 3.2.1 Direct-Fired Combustion
3.2.2 Co-Fired Combustion3.3 Repowering; 3.4 Gasification; 3.5 Pyrolysis; 3.6 Direct Hydrothermal Liquefaction; 3.7 Anaerobic Digestion; 3.8 Integrated Biorefineries; 3.9 Summary; References; 4 Miscanthus Genetics and Agronomy for Bioenergy Feedstock; 4.1 Introduction; 4.2 Phylogeny, Growth, Yield and Chemical Composition; 4.2.1 Phylogeny; 4.2.2 Growth; 4.2.3 Genetic Diversity for Biomass Production; 4.2.4 Genetic Diversity for Biomass Composition; 4.3 Cultural Practices; 4.3.1 Establishment; 4.3.2 Fertilization; 4.3.3 Disease, Pest Control; 4.3.4 Invasiveness; 4.3.5 Harvest Management 4.4 Genetic Improvement4.4.1 Past and Current Projects; 4.4.2 Genetic Resources; 4.4.3 Traits and Varieties of Interest; 4.4.4 Tools for Genetic Studies Breeding and Phenotyping; 4.5 Conclusion; References; 5 Switchgrass; 5.1 Overview; 5.2 Phylogeny, Growth, Yield and Chemical Composition; 5.3 Cultural Practices; 5.3.1 Establishment and Weed Management; 5.3.2 Fertilization; 5.3.3 Disease and Pest Management; 5.3.4 Harvest Management; 5.4 Genetic Improvement; 5.5 Summary; References; 6 Sugarcane, Energy Cane and Napier Grass; 6.1 Sugar and Energy Cane
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7.3.5 Disease and Pest Control

Sommario/riassunto

Cellulosic Energy Cropping Systems presents a comprehensive overview of how cellulosic energy crops can be sustainably produced and converted to affordable energy through liquid fuels, heat and electricity. The book begins with an introduction to cellulosic feedstocks, discussing their potential as a large-scale sustainable energy source, and technologies for the production of liquid fuels, heat and electricity. Subsequent chapters examine miscanthus, switchgrass, sugarcane and energy cane, sorghums and crop residues, reviewing their phylogeny, cultural practices, and opportuni