1. Record Nr. UNINA9910131029603321

Titolo	Renewable raw materials [[electronic resource]] : new feedstocks for the chemical industry / / edited by Roland Ulber, Dieter Sell and Thomas Hirth
Pubbl/distr/stampa	Weinheim, Germany, : Wiley-VCH Chichester, : John Wiley [distributor], c2011
ISBN	3-527-63420-7 1-283-37050-6 9786613370501 3-527-63421-5 3-527-63419-3
Descrizione fisica	1 online resource (245 p.)
Altri autori (Persone)	UlberRoland SellDieter HirthThomas
Disciplina	621.042 660
Soggetti	Biotechnology Feedstock Renewable natural resources Renewable energy sources Electronic books.
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	Renewable Raw Materials: New Feedstocks for the Chemical Industry; Contents; List of Contributors; 1: Introduction to Renewable Resources in the Chemical Industry; 2: Plants as Bioreactors: Production and Use of Plant-Derived Secondary Metabolites, Enzymes, and Pharmaceutical Proteins; 2.1 Introduction; 2.2 Renewable Resources in the Chemical Industry; 2.2.1 Commodity Production; 2.2.2 Production Problems; 2.2.3 Natural Rubber as Compared to Synthetic Rubber; 2.2.4 Cellulose and Other Fibers; 2.2.5 Paper Production; 2.2.6 Starch Production 2.2.7 Sugar Production and Improvement of Yield by Genetic

Engineering2.3 Fine Chemicals and Drugs; 2.3.1 Plant Cell Culture; 2.3.2 Terpenoids; 2.3.3 Amino Acids; 2.3.4 Fatty Acid Derivatives; 2.3.5 Plant Protection; 2.3.6 Small Molecule Drugs; 2.3.7 Polyphenols and Resveratrol; 2.4 Plant-Made Pharmaceuticals; 2.4.1 Vaccines; 2.4.2 Monoclonal Antibodies; 2.4.3 Other Therapeutic Proteins; 2.4.4 Methodologies for PMP Production; References; 3: World Agricultural Capacity; 3.1 Petrochemicals Today; 3.2 Renewable Chemicals; 3.2.1 Traditional Uses; 3.2.2 Potential Raw Materials
3.2.3 Scope for Substitution3.3 Agricultural Production; 3.3.1 Current Situation; 3.3.2 Increasing Production; 3.3.3 Increasing Availability; 3.3.4 Future Prospects; 3.4 Supplying the Chemical Industry; 3.5 Summary; References; 4: Logistics of Renewable Raw Materials; 4.1 Introduction; 4.2 Determining Factors for the Logistics of Industrial Utilization Chains for Renewable Raw Materials; 4.2.1 Operating in a Natural Environment; 4.2.2 Characterization of Selected Renewable Raw Materials; 4.2.2.1 Oil Crops; 4.2.2.2 Sugar Crops; 4.2.2.3 Starch Crops; 4.2.2.4 Lignocellulosic Biomass
4.2.2.5 Other Biogenic Residues4.2.2.6 Algae; 4.2.3 Actors and Stakeholders-Mobilization of the Renewable Raw Materials; 4.3 Processing Steps of Renewable Raw Material Logistic Chains; 4.3.1 Cultivation and Harvesting for Selected Types of Renewable Raw Materials; 4.3.1.1 Agricultural Production; 4.3.1.2 Forest Production; 4.3.2 Transport; 4.3.3 Storage; 4.4 Design and Planning of Renewable Raw Material Logistic Chains; 4.4.1 Determining Plant Sizes: Economies of Scale vs. Minimization of Transport Load
4.4.2 Facility Location Planning and Determining the Logistical Structure of a Renewable Raw Material Utilization Chain4.4.3 Consideration of Competing Utilization Pathways; 4.4.4 Demand for Integrated Assessment and Planning Methods for Renewable Raw Material Logistic Chains; 4.5 Summary and Conclusions; References; 5: Existing Value Chains; 5.1 Industrial Biotechnology Today-Main Products, Substrates, and Raw Materials; 5.2 White Biotechnology-Future Products from Today's Raw Materials?; 5.3 Effects of Feedstock and Process Technology on the Production Cost of Chemicals; 5.3.1 Introduction
5.3.2 Simplified Procedure for Cost Estimation

Sommario/riassunto

One of the main challenges facing the chemical industry is the transition to sustainable operations. Industries are taking initiatives to reduce resource intensities or footprints, and by adopting safer materials and processes. Such efforts need to be supported by techniques that can quantify the broad economic and environmental implications of industrial operations, retrofi t options and provide new design alternatives. This contemporary overview focuses on cradle-to-grave life cycle assessments of existing or conceptual processes for producing valueadded fuels, chemicals, and/or material