

Future Of Citrus And Sustainability

[#citrus sustainability](#) [#future of citrus](#) [#sustainable farming](#) [#eco-friendly citrus](#) [#citrus industry challenges](#)

Explore the critical intersection of citrus production and environmental sustainability, examining innovative practices and the long-term outlook for the global citrus industry. This comprehensive overview addresses current challenges and future opportunities to cultivate a more resilient and eco-conscious citrus supply chain for generations to come.

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The Future of Citrus and Sustainability

What is Agricultural Policy Agricultural policy describes a set of laws relating to domestic agriculture and imports of foreign agricultural products. Governments usually implement agricultural policies with the goal of achieving a specific outcome in the domestic agricultural product markets. How you will benefit (I) Insights, and validations about the following topics: Chapter 1: Agricultural policy Chapter 2: Common Agricultural Policy Chapter 3: Agricultural subsidy Chapter 4: Subsistence agriculture Chapter 5: Cash crop Chapter 6: Citrus production Chapter 7: 2001 United Kingdom foot-and-mouth outbreak Chapter 8: Trade and development Chapter 9: Citrus canker Chapter 10: Food security in Malawi Chapter 11: Agreement on Agriculture Chapter 12: Grain trade Chapter 13: Agriculture in Malawi Chapter 14: Agriculture in Turkey Chapter 15: Food vs. fuel Chapter 16: 2007-2008 world food price crisis Chapter 17: Foot-and-mouth disease Chapter 18: Agricultural diversification Chapter 19: Feminization of agriculture Chapter 20: Rice production in Haiti Chapter 21: Food prices (II) Answering the public top questions about agricultural policy. (III) Real world examples for the usage of agricultural policy in many fields. Who this book is for Professionals, undergraduate and graduate students, enthusiasts, hobbyists, and those who want to go beyond basic knowledge or information for any kind of Agricultural Policy.

Sustainable Business Systems for Development in the SA Citrus Industry

This text draws upon 'complex systems' thinking to introduce a policy-related integrative method for diagnosing and managing environmental change. This conveys how existing intellectual resources can be exploited to explore environmental decision issues without resorting to such devices as 'meta-methods' or 'meta-disciplines'.

IDO for Sustainable Business Systems for Development in the SA Citrus Industry (continuing Project CT03035)

An exploration of the lived experience of small-scale organic farmers in New England that unpacks how they balance their ideals with economic realities. In recent years, the popularity of organically grown produce has exploded. In 2014, organic fruits and vegetables accounted for 12% of all produce sales in the United States, with \$39 billion in consumer sales reported for 2015. As a federally recognized niche market within the agricultural mainstream, organic farming is increasingly on display in American grocery stores. Yet the organic food most Americans consume today is produced by an industrial food system at odds with the practices and ideals of small-scale farmers. Taking an ethnographic approach, the fieldwork by Connor Fitzmaurice and Brian Gareau at a small New England organic farm sheds light on how farmers navigate the difficult terrain between practices of sustainability and the economic realities of contemporary agriculture. Drawing on extensive research, Fitzmaurice and Gareau examine the historical context, complexities, and viability of nonconventional organic farming practices: practices that seek to balance ecology and community with the business of agriculture.

Agricultural Policy

Humanity will have to cope with many problems in the coming decades: for instance, the world population is likely to grow to 8.8 billion people by 2035. Also, changing climate conditions are negatively affecting the livelihoods of millions of people. In particular, environmental disasters are causing substantial damages to properties. From a social perspective, the inequalities between rich and poor nations are becoming even deeper, and in many countries, conflicts between national and international interest groups are intensifying. The above state of affairs suggest that a broader understanding of the trends which may lead to a more sustainable world is needed, especially those which may pave the way for future developments. In other words, we need to pave the way for sustainable futures. Consistent with this reality, the proposed Encyclopedia of Sustainability Futures aims to identify, document and disseminate ideas, experiences and visions from scientists, members of nongovernmental organisations, decision-makers, industry representatives and citizens, on themes and issues which will be important in pursuing sustainable future scenarios. In particular, the publication will focus on scientific aspects, as well as on social and economic ones, also considering matters related to financing and infra-structures, which are important in pursuing a sustainable future. The Encyclopedia of Sustainability Futures will involve the contributing authors in line with the principle of co-generation, from across a wide range of disciplines, e.g. education and social sciences, natural sciences, engineering, the arts, languages etc, with papers adopting a long-term sustainability perspective, with a time horizon until 2050. The focus will be on themes which are felt as important in the future, and the chapters are expected to interest and motivate a world audience. This book is part of the "100 papers to accelerate the implementation of the UN Sustainable Development Goals initiative".

Exploring Environmental Change Using an Integrative Method

Sustainable Food System has cutting-edge green & circular Technologies, food Safety & diversity that aims to provide quality and safe foods in an environmentally conscious and sustainable way. The book addresses both the theoretical and applied aspects of sustainable food diverse food systems. This concept of Sustainable Food System under SDG Goals is such a vast concept that, it has been impossible to highlight all the concepts in one volume. Therefore, the Editor have compiled this voluminous, comprehensive and compendious approach as balanced and organized structure of work as: Sustainable Food System Volume I & II. A Sustainable Food System (SFS) is a comprehensive food system and Volume II targets the Novel Sustainable Green Food Processing Technologies, Circular Strategies for Recovery & Valorization and the overall sustainable techniques for Food Safety & Food Diversity. The book has a very comprehensive outline, divided in 3 major sections and further 20 different chapters. All chapters in different sections will be written by key scientists with diverse backgrounds in either industry / R&D / academia, and will provide an update on emerging ideas and sustainable technologies as well as vision for the future. The Section 5: Novel Sustainable Green Food Processing Technologies primarily focusing on the novel green different food processing technologies in different food categories. The Section 6: Circular Strategies for Recovery & Valorization, deals with different circular strategies for valorization of the food products. The Section 7: Sustainable Techniques for Food Safety & Food Diversity, will cover the food safety trends and food diversities nationally & internationally.

Organic Futures

This book discusses modern technologies for utilizing various types of agricultural waste as a direct means of properly managing its abundance. It explores the potential of using waste materials obtained from the palm oil industry, used cooking oil, maize and tea plantations, as well as citrus-based plants for the production of useful, high-value materials such as pyroligenous acid and bio-oil (Chapter 1), ferulic acid (Chapter 4) and bio-control agents (Chapter 5-7, 9). It also includes case studies to further enhance readers' understanding. This comprehensive volume is useful to anyone involved in agricultural waste management, green chemistry and agricultural biotechnology. It is also recommended as a reference work for all agriculture and biotechnology libraries.

Sustainable Cultivated Land Use and Management

One of the most significant of the many challenges we face is how to sustain the production of food for a growing population without compromising the health of our planet. This book addresses the growing challenges of the interrelated issues of food security, social stability, and the increasing scarcity of the planet's resources to propose sophisticated modeling innovations leading to practical approaches and solutions to multiple facets of these challenges.

Land governance, integrated socio-ecosystem and sustainable development

A complete guide to the evolving methods by which we may recover by-products and significantly reduce food waste Across the globe, one third of cereals and almost half of all fruits and vegetables go to waste. The cost of such waste – both to economies and to the environment – is a serious and increasing concern within the food industry. If we are to overcome this crisis and move towards a sustainable future, we must do everything possible to utilize innovative new methods of extracting and processing valuable by-products of all kinds. Food Wastes and By-products represents a complete primer to this important and complex process. Edited and written by leading researchers, the text provides essential information on the supply of waste and its composition, identifies foods rich in valuable bioactive compounds, and explores revolutionary methods for creating by-products from fruit, vegetable, and seed waste. Other chapters discuss the nutraceutical properties of value-added by-products and their uses in the manufacturing of dietary fibers, food flavors, supplements, pectin, and more. This book: Explains how reconstituted by-products can best be used to radically reduce food waste Discusses the potential nutraceutical assets of recovered food waste Covers a broad range of by-product sources, such as mangos, cacao, flaxseed, and spent coffee grounds Describes novel extraction processes and the emerging use of nanotechnology A significant contribution to the field, Food Wastes and By-products is a timely and essential resource for food industry professionals, government agencies and NGOs involved in nutrition, agriculture, and food production, and university instructors and students in related areas.

Handbook of Sustainability Science in the Future

The world production of citrus fruit has risen enormously, leaping from forty-five million tons a year to eighty-five million in the last 30 years. Today, the potential applications of their essential oils are growing wider, with nearly 40% of fresh produce processed for industrial purposes. Citrus: The Genus Citrus offers comprehensive coverage on all aspects of the botany, cultivation, processing industry, chemistry and uses of Citrus and its oils. It describes the different citrus species; their environmental, geographical, and historical context; and their chemical composition and properties in detail. Following a chapter on citrus juice technology, the international panel of contributors describe the stages of preparation and processing methods of the juice, from cold extraction and distillation to the use of supercritical fluids, and the chemical reactions involved. The authors also discuss by-products, quality control, world markets, and regulations in the industry, and how analytical methods, such as mass spectrometry and HPLC, are used to characterize the Citrus essential oils. Citrus: The Genus Citrus explores the current and future applications of Citrus oils, which include flavorings for alcohol, soft drinks, food, as well as fragrances for cosmetics and beauty products. Authors also discuss the therapeutic properties of these oils in traditional medicine and modern pharmaceuticals. Anyone involved in food sciences, pharmaceutical sciences, cosmetics, and plant sciences will no doubt find this volume to be of great value and interest.

Sustainable Food Systems (Volume II)

This publication reveals that organic agriculture is disadvantaged by current agricultural support policies, and the proliferation of standards and labels has sometimes confused consumers and impeded trade.

Sustainable Technologies for the Management of Agricultural Wastes

Global demand for food is rising as a result of increases in the global population as well as dietary changes. Furthermore, climate change exerts additional pressure on the food supply, adversely affecting sustainable food production. Increased temperatures and drought stresses coupled with the migration of pests limit crop yields and affect their nutritional quality. Many staple crops are unable to adapt to these changing climatic conditions. To achieve the Sustainable Development Goals of the United Nations to end hunger and promote good health and well-being, concerted efforts need to be made to enhance food production while mitigating the effects of climate change through the promotion of climate-smart agricultural practices and the utilization of neglected and underutilized crop species. These species can be highly nutritious and well-adapted to different agroecologies and climatic conditions, meaning that they offer the possibility of improving food and nutritional security.

Novel Sustainable Process Alternatives for the Textiles and Fashion Industry

Together with Future Food Institute (FFI), FAO's eLearning Academy marked the 50th anniversary of Earth Day with a 24-hour multilingual digital global marathon on sustainability. Entitled "Food for Earth," the event brought together a diverse group of experts for a discussion on how sustainable food systems can play a transformative role in the way we live, and the impact we have on the planet. The publication aims at gathering all the multilingual work sessions spread out across the globe, all focused on the regenerative power of food systems. The online discussions moved from east to west, with the first sessions held in China, Japan and India, before moving on to the Middle East, Russian Federation, Europe, Africa and the Americas. Participants even had a chance to connect with Antarctica during one of the sessions, when scientists based at Concordia Research Station on the Antarctic Plateau joined in. The event featured participants from a number of backgrounds, providing diverse perspectives on how the transformation of food systems can play an important role in the health of the planet. Indigenous peoples, entrepreneurs, scientists, journalists, young leaders, policymakers and farmers all contributed. The marathon brought together more than 100 expert voices, who were joined by more than 100 000 viewers worldwide throughout the day.

Global Warming, Environmental Governance and Sustainability Issues

This valuable book, the third volume in the Research Advances in Sustainable Micro Irrigation series, focuses on sustainable micro irrigation management for trees and vines. It covers the principles as well as recent advances and applications of micro irrigation techniques. Specialists throughout the world share their expertise on:

- Automation of micro irrigation systems
- Service and maintenance of micro irrigation systems
- Evaluation of micro irrigation systems
- Scheduling of irrigation
- Using municipal wastewater for micro irrigation
- Micro-jet irrigation and other systems
- The effect of potassium, acid lime, and other elements

Food Wastes and By-products

Huanglongbing (HLB) or citrus greening, first observed more than a hundred years ago in Asia, is the most serious disease threat to the citrus-growing industry worldwide due to its complexity, destructiveness, and intractability to management. First detected in Florida in 2005, HLB is now widespread in the state and threatens the survival of the Florida citrus industry despite substantial allocation of research funds by Florida citrus growers and federal and state agencies. As the HLB epidemic raged in 2008, Florida citrus growers began allocating funds for HLB research in hopes of finding short-, medium-, and long-term solutions. This effort created the Citrus Research and Development Foundation (CRDF), an organization with oversight responsibility for HLB research and development efforts in Florida. This report provides an independent review of the portfolio of research projects that have been or continue to be supported by the CRDF. It seeks to identify ways to retool HLB research—which, despite significantly increasing understanding of the factors involved in HLB, has produced no major breakthroughs in controlling the disease—and accelerate the development of durable tools and strategies that could help abate the damage caused by HLB and prevent the possible collapse of the Florida citrus industry.

Citrus

Fungi are an understudied, biotechnologically valuable group of organisms. Due to their immense range of habitats, and the consequent need to compete against a diverse array of other fungi, bacteria, and animals, fungi have developed numerous survival mechanisms. However, besides their major basic positive role in the cycling of minerals, organic matter and mobilizing insoluble nutrients, fungi have other beneficial impacts: they are considered good sources of food and active agents for a number of industrial processes involving fermentation mechanisms as in the bread, wine and beer industry. A number of fungi also produce biologically important metabolites such as enzymes, vitamins, antibiotics and several products of important pharmaceutical use; still others are involved in the production of single cell proteins. The economic value of these marked positive activities has been estimated as approximating to trillions of US dollars. The unique attributes of fungi thus herald great promise for their application in biotechnology and industry. Since ancient Egyptians mentioned in their medical prescriptions how they can use green molds in curing wounds as the obvious historical uses of penicillin, fungi can be grown with relative ease, making production at scale viable. The search for fungal biodiversity, and the construction of a living fungi collection, both have incredible economic potential in locating organisms with novel industrial uses that will lead to novel products. Fungi have provided the world with penicillin, lovastatin, and other globally significant medicines, and they remain an untapped resource with enormous industrial potential. Volume 1 of *Industrially Important Fungi for Sustainable Development* provides an overview to understanding fungal diversity from diverse habitats and their industrial application for future sustainability. It encompasses current advanced knowledge of fungal communities and their potential biotechnological applications in industry and allied sectors. The book will be useful to scientists, researchers, and students of microbiology, biotechnology, agriculture, molecular biology, and environmental biology.

Organic Agriculture Sustainability, Markets and Policies

With collaboration between ten scientists from around the world, *Sustainable Futures* offers an approach to sustainable development issues in developing countries. It focuses on educating the next generation of young people about environmental issues, with water and forest management as major themes. Detailed case studies from Thailand, China, India, Mexico, Chile, Argentina, Georgia and Portugal, reveal the endeavours of local communities seeking to bring about a better way of life. *Sustainable Futures* covers cross-cultural understanding, environmental issues and sustainable lifestyles, and is a resource for teachers and students seeking to expand their knowledge of these areas. [Back cover, ed].

Neglected and Underutilized Crop Species for Sustainable Food and Nutritional Security: Prospects and Hidden Potential

Agriculture, mining and related rural industries have been central to the development of Australia's economy. This book details the role that the Australian Government has played in the making of rural and regional Australia, particularly since World War II. The book reviews these policies and evaluates them with regards the commitments undertaken by the Government to contribute towards vibrant, rural communities. Policy areas addressed include agriculture, water, education, welfare and population, natural resource management, resource extraction, Indigenous and affairs, localism, rural research and regional innovation, Youth Affairs and the devolution of regional governance. Overall two distinct policy strategies can be observed: one wherein the government saw its role as part of the entrepreneurial state and a sector wherein government has increasingly taken itself out of industry development, leaving this role to the market. Having considered these strategies and their impacts, the book concludes that policy over the past 40 years has not in fact contributed to a more vibrant, prosperous rural and regional Australia. *Rural and Regional Futures* concludes with several chapters looking to the future. One chapter explores what the role of the state can be within a social market economy while the final chapter gives consideration to the initial steps rural communities will need to take to begin the process of revitalisation. While these materials present as a case study of developments in Australia, the policy shift from the Government as entrepreneur to a focus on markets is an international one and as such, the insights offered by this book will have wide appeal.

24-hour Global Marathon for Sustainability – Food for Earth

This book offers a comprehensive collection of cutting-edge research on feed additives for a sustainable animal production, including insects and aquaculture. In five clearly structured sections, the sources

of feed additives, details on their biochemistry, feed security as well as specific applications for individual farm animal species, livestock health and product characteristics (meat, milk and eggs) find attention. International expert authors provide a full description on the use of aromatic plants, extracts and essential oils as feed additives alone or in combination with functional feeds of different categories. Readers will explore the potential of feed additives to tackle environmental issues. Practical examples include the use of local feedstuffs in combination with herbal additives and enzymes. Emphasis is placed on the consequences of using local feed sources versus imported feedstuffs on global warming potential, primary energy use, nutrient excretion and the feed additive influence on lessening the pollution from animal operations. The results presented will support realization of the Sustainable Development Goals, in particular SDG 12 which stands for Responsible Consumption and Production worldwide. The use of novel and different feed additives can be an important tool to enhance sustainability, support productivity, and match increased food demands around the globe. Animal production depends on feed efficiency to sustain growth and profitability. Along these lines, the present volume is an essential reading for all future-oriented veterinarians, animal nutritionists, agricultural scientists, and moreover the feed, food and plant industry.

Sustainable Micro Irrigation Management for Trees and Vines

This book presents the most recent innovative studies in the field of water resources for arid areas to move towards more sustainable management of the resources. It gathers outstanding contributions presented at the 2nd International Water Conference on Water Resources in Arid Areas (IWC), which was held online (Muscat, Oman) in November 2020. Papers discuss challenges and solutions to alleviate water resource scarcity in arid areas, including water resources management, the introduction of modern irrigation systems, natural groundwater recharge, construction of dams for artificial recharge, use of treated wastewater, and desalination technologies. As such, the book provides a platform for the exchange of recent advances in water resources research, which are essential to improving the critical water situation and to move towards more sustainable management of water resources.

A Review of the Citrus Greening Research and Development Efforts Supported by the Citrus Research and Development Foundation

Translating fundamental principles of irreversible thermodynamics into day-to-day engineering concepts, this reference provides the tools to accurately measure process efficiency and sustainability in the power and chemical industries-helping engineers to recognize why losses occur and how they can be reduced utilizing familiar thermodynamic principles. Compares the present industrial society with an emerging metabolic society in which mass production and consumption are in closer harmony with the natural environment. The first book to utilize classic thermodynamic principles for clear understanding, analysis, and optimization of work flows, environmental resources, and driving forces in the chemical and power industries.

Industrially Important Fungi for Sustainable Development

This book provides a comprehensive overview of the benefits of biofertilizers as an alternative to chemical fertilizers and pesticides. Agricultural production has increased massively over the last century due to increased use of chemical fertilizers and pesticides, but these gains have come at a price. The chemicals are not only expensive; they also reduce microbial activity in agricultural soils and accumulate in the food chain, with potentially harmful effects for humans. Accordingly, it is high time to explore alternatives and to find solutions to overcome our increasing dependence on these chemicals. Biofertilizers, which consist of plant remains, organic matter and microorganisms, might offer an alternative. They are natural, organic, biodegradable, eco-friendly and cost-effective. Further, the microbes present in the biofertilizers are important, because they produce nutrients required for plant growth (e.g., nitrogen, phosphorus, potassium), as well as substances essential for plant growth and development (e.g., auxins and cytokinins). Biofertilizers also improve the physical properties, fertility and productivity of soil, reducing the need for chemical fertilizers while maintaining high crop yield. This makes biofertilizers a powerful tool for sustainable agriculture and a sustainable environment. The book covers the latest research on biofertilizers, ranging from beneficial fungal, bacterial and algal inoculants; to microbes for bioremediation, wastewater treatment; and recycling of biodegradable municipal, agricultural and industrial waste; as well as biocontrol agents and bio-pesticides. As such, it offers a valuable resource for researchers, academics and students in the broad fields of microbiology and agriculture.

Sustainable Futures

This book reports on recent research and developments at the interface between the areas of production, logistics and traffic. Gathering the proceedings of the 6th ICPLT, held on March 22-23, 2023, at TU Dortmund University, in Germany, this volume gives a special emphasis to theories, trends and technologies for planning and operating freight transport systems in a sustainable and resilient way. The twenty-two contributions included in this book cover algorithms, models, and experimental methods to addresses challenges and knowledge gaps relating to traffic flows and logistic processes. They also report on advanced technologies, human factors research and strategies that should help better understand the interdependencies and conflicts of interest in the field of production, logistics and traffic, and to develop feasible solutions. All in all, this book provides a timely snapshot of research and developments concerning freight and public transport, cargo bikes, maritime and rail transport, electrical and hydrogen vehicles, simulation and optimization in production and logistics, production and supply chain management, sustainable logistics, and intralogistics and automation. It offers extensive information to researchers, engineers and other professionals, and public authorities that are active in all the above- mentioned fields.

Biodiversity Conservation and Sustainable Use

Fruit and Vegetable Waste Utilization and Sustainability presents strategies to address the fruit and vegetable waste generated from agriculture and industrial processing. Beginning with the introduction of waste management, this book is divided into three sections. Section one addresses the valorization of fruit and vegetable waste for high-value products. Section two focuses on the techno-economic and environmental impact assessment of fruit and vegetable waste biorefinery through real-life examples of the life cycle assessment. Section three presents integrated biorefineries, policies, and case studies. This book is a valuable resource for food scientists, nutrition researchers, food industry professionals, academicians, and students in related fields. Lists extensive definitions, case studies, and applications Includes information on the integration of processes and technologies for biorefinery conceptualization Addresses both agricultural and industrial fruit and vegetable waste

Rural and Regional Futures

This book discusses various aspects of bioactive natural products employed in the agrochemical and agriculture sectors. It covers the use of plants, microorganisms, and microbial metabolites as eco-friendly, cost-effective, and sustainable alternatives to chemicals in the field of agriculture. Written by active researchers and academics, the book highlights state-of-art products in the field, as well as the gaps, challenges, and obstacles associated with the use of plants, microbes and their products. Given its scope, it is a valuable resource for the scientific community and professionals in enterprises wanting insights into the latest developments and advances in the context of biological products, including their applications, traditional uses, modern practices, and strategies to harness their full potential.

Sustainable Use of Feed Additives in Livestock

This book gives a special emphasis to state-of-the-art descriptions of approaches, methods, initiatives, and projects from universities, stakeholders, organizations, and civil society across the world, regarding cross-cutting issues in sustainable development. There is a perceived need for mobilizing the various stakeholders when attempting to promote sustainability in higher education and to promote best practices, which may inspire further initiatives. But despite this need, there are a few publications handling this matter in a coherent way. In order to meet the pressing need for publications which may document and disseminate examples of best practice on sustainable development at university level, the “Handbook of Best Practices in Sustainable Development at University Level” is being published. This book is produced by the European School of Sustainability Science and Research (ESSSR), through the Inter-University Sustainable Development Research Programme (IUSDRP) and contains inputs from authors across all geographical regions. The book also discusses examples of initiatives coordinated by universities but involving civil society, the private sector, and public sector (including local, national, and intergovernmental bodies). In particular, it describes practical experiences, partnerships, networks, and training schemes for building capacity aimed at fostering the cause of sustainable development at institutions of higher education. Thanks to its design and the contributions by experts from various areas, it provides a welcome contribution to the literature on sustainable development, and it may inspire further works in this field.

Water Resources in Arid Lands: Management and Sustainability

The land holding of the farmer is decreasing day by day due to urbanisation and there is no chance for horizontal increase in agricultural land. To increase the income of the farmers, few steps for vertical increase in agricultural production have been discussed in this book. A detailed and comprehensive information regarding the historical background of farming system, farming system and its components, integrated farming system and allied enterprises, integrated farming system models in different agro-climatic zones, role of integrated farming system in agriculture and livelihood security, resource cycling and flow of energy in different farming systems, role of crop residues in agriculture, farming system of dryland agriculture, role of agroforestry in farming system, scope of organic farming in farming system have been given. A detailed information regarding the latest concepts of agronomy like conservation agriculture strategies in cropping system, sustainable agriculture, scope of hydroponics techniques in agriculture have also been discussed. In the end tools for determining production and efficiencies in cropping and farming system have also been given.

Efficiency and Sustainability in the Energy and Chemical Industries

This book provides an up-to-date assessment of sustainable agri-food systems and rural development in the Mediterranean countries. It examines and reviews the impact of EU and national policies on environmental and trade issues in agricultural and rural organizations in the southern and eastern Mediterranean region. The book also reflects key socio-economic and political issues such as resource management, income distribution, employment and migration trends, and sustainability aspects. It demonstrates technical and methodological tools used for the analysis and explains their application. The book presents the collective work of a research consortium funded by an EU (FP7) project.

Biofertilizers for Sustainable Agriculture and Environment

The most up-to-date reference on phytomicrobiomes available today The Plant Microbiome in Sustainable Agriculture combines the most relevant and timely information available today in the fields of nutrient and food security. With a particular emphasis on current research progress and perspectives of future development in the area, The Plant Microbiome in Sustainable Agriculture is an invaluable reference for students and researchers in the field, as well as those with an interest in microbiome research and development. The book covers both terrestrial and crop associated microbiomes, unveiling the biological, biotechnological and technical aspects of research. Topics discussed include: Developing model plant microbiome systems for various agriculturally important crops Defining core microbiomes and metagenomes in these model systems Defining synthetic microbiomes for a sustainable increase in food production and quality The Plant Microbiome in Sustainable Agriculture is written to allow a relative neophyte to learn and understand the basic concepts involved in phytomicrobiomes and discuss them intelligently with colleagues.

Advances in Resilient and Sustainable Transport

This volume reviews achievements in bioprocess and biosystems engineering, biosynthesis, food, agriculture, and biotechnology-related issues. Considering the fact that biological alternatives can replace harmful chemical products in order to maintain ecosystems for a sustainable future, the book covers the role of biotechnology in industrial products, environmental remediation, and agriculture biotechnology, with updated research and case studies.

The Reality of Sustainable Trade

This book features high-quality research papers presented at the 3rd International Conference on Sustainable Expert Systems (ICSSES 2022), held in Nepal during September 9–10, 2022. The book focuses on the research information related to artificial intelligence, sustainability and expert systems applied in almost all the areas of industries, government sectors and educational institutions worldwide. The main thrust of the book is to publish the conference papers that deal with the design, implementation, development, testing and management of intelligent and sustainable expert systems and also to provide both theoretical and practical guidelines for the deployment of these systems.

Sustainable Agricultural Systems

In the context of the world's pressing sustainability challenges this new Report to the Club of Rome presents a novel approach to navigating collaborative change in partnerships between governments, research institutions, corporations and civil society activists. With reference to the 17 Sustainable

Development Goals and the Planetary Boundaries it introduces the theory and practice of Collective Stewardship as a management tool that respects the integrity of human and natural systems. Drawing on the work of transdisciplinary scientific scholars and seasoned sustainability practitioners, it shows how transformative change can be built on life's inherent tendency to generate patterns of vitality and resilience. This ground-breaking monograph shows workable pathways to stewarding patterns of aliveness in social and ecological systems at all levels of the global society. As a highly regarded author and expert in collective leadership, Petra Kuenkel inspires academics and practitioners alike to explore new routes towards co-creating responsible futures in the era of the Anthropocene, where the human footprint has begun to change the course of planetary evolution. She invites decision-makers, researchers, planners and social activists to become stewards of systems patterns, enhance their collaborative competencies and guide life-enhancing socio-ecological interaction at scale. The conceptual architecture the author elaborates builds transformation literacy and boils down to a practical guidance for planning and implementing interventions across all sectors of society. It helps bring about change through a deliberate combination of enlivening narratives, empowering metrics, enabling processes, multi-level governance, guiding regulations, and life-supporting innovation. This comprehensive book sets a new direction in the field of sustainability transformations and will become a foundation for planning collective action and achieving impact at scale.

Fruit and Vegetable Waste Utilization and Sustainability

Natural Bioactive Products in Sustainable Agriculture