

Grapevine Breeding Programs For The Wine Industry Woodhead Publishing Series In Food Science Technology And Nutrition

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Molecular Biology & Biotechnology of the Grapevine - Kalliopi Apostolos Roubelakis-Angelakis 2001
Grapevine is one of the major cultivated plant crops. As with most woody plant species, molecular biology and biotechnology have progressed at a slow pace, due to several obstacles which have had to be overcome. However, substantial progress has now been made and useful information has been accumulated in the literature; numerous genes have been characterized from grapevine and significant progress has been made in the molecular and non-molecular biotechnological applications. In an effort to collect and present the state of the art on grapevine molecular biology and biotechnology, 41 scientists from 12 countries worked jointly on the preparation of this book. It is intended as a reference book for viticulturists, graduate and undergraduate students, biotechnological companies, and any scientist who is interested in molecular biology and biotechnology of plants with emphasis on grapevine.

Innovative Food Processing Technologies - Kai Knoerzer 2016-06-29

Innovative Food Processing Technologies: Extraction, Separation, Component Modification and Process Intensification focuses on advances in new and novel non-thermal processing technologies which allow food producers to modify and process food with minimal damage to the foodstuffs. The book is highly focused on the application of new and novel technologies, beginning with an introductory chapter, and then detailing technologies which can be used to extract food components. Further sections on the use of technologies to modify the structure of food and the separation of food components are also included, with a final section focusing on process intensification and enhancement. Provides information on a variety of food processing technologies Focuses on advances in new and novel non-thermal processing technologies which allow food producers to modify and process food with minimal damage to the foodstuffs Presents a strong focus on the application of technologies in a variety of situations Created by editors who have a background in both the industry and academia

Routledge Handbook of Wine Tourism Saurabh Kumar Dixit 2022-11-25

Wine tourism or enotourism or oenotourism or winery tourism or vinitourism is a special interest tourism that empowers local culture and spawns business opportunities for the local community. The comprehensive Routledge Handbook of Wine Tourism offers a thorough inquiry into both regular and emerging issues of wine tourism. Modern wine tourism extends beyond the mere cultivation of grapes and the production and selling of wine. The Routledge Handbook of Wine Tourism examines the complex interplay of market profiling, sustainable regional development, and innovative experiential marketing constructs which, when successful, contribute to the growth and sustainable evolution of global wine tourism. This handbook examines how the success of various enotourism events such as vineyard visits, winery tours, wine festivals and wine trails can stimulate the development of wine-producing regions and territories. Incorporating the latest philosophies and research themes, this handbook will be an essential reference for students, researchers, academics and industry practitioners of hospitality and tourism, gastronomy, management, marketing, cultural studies, development studies, international business and for encouraging dialogue across disciplinary boundaries.

Genomic Designing of Climate-Smart Fruit Crops Chittaranjan Kole 2020-03-30

This edited book provides a comprehensive overview of modern strategies in fruit crop breeding in the era of climate change and global warming. It demonstrates how advances in plant molecular and genomics-assisted breeding can be utilized to produce improved fruit crops with climate-smart traits. Agriculture is facing a number of challenges in the 21st century, as it has to address food, nutritional, energy and environmental security. Future fruit varieties must be adaptive to the varying scenarios of climate change, produce higher yields of high-quality food, feed, and fuel and have multiple uses. To achieve these goals, it is imperative to employ modern tools of molecular breeding, genetic engineering and genomics for 'precise' plant breeding to produce 'designed' fruit crop varieties. This book is of interest to scientists working in the fields of plant genetics, genomics, breeding, biotechnology, and in the disciplines of agronomy and horticulture.

Handbook on Natural Pigments in Food and Beverages - Reinhold Carle 2016-04-20

Handbook on Natural Pigments: Industrial Applications for Improving Food Colour is unique in its approach to the improvement of food colors. The book is written with industrial applications in mind, with each chapter focusing on a color solution for a specific commodity that will provide food scientists with a one-stop, comprehensive reference on how to improve the color of a particular food product. The first section of the book looks at the legal frameworks which underpin natural food colorings, also investigating the consumer expectations of food color. The second section of the book focuses on specific industrial applications of natural colorants with chapters covering the use of natural colorants in aqueous food products, cereal-based foods, and meat products, amongst many other topics. The various pigments which can be used to effectively color these commodities are presented with information on safety and testing included throughout. The final section in the book looks at recent developments and future perspectives in natural food colorings. There are chapters which cover the health benefits of natural pigments, the use of novel fruits and vegetables in pigments, and stable natural solutions for blue colorings. Presents recent advances in consumer demand and worldwide legislation regarding natural food colorants Discusses the use of natural food colorants for one specific product category per chapter rather than one pigment class per chapter - this makes the book extremely useable for industrialists working in a specific sector Contains a comprehensive array of product-specific coloration approaches, from using pigment-enriched feed additives to the direct addition of color formulations

Handbook of Food Powders - Bhesh Bhandari 2013-08-31

Many food ingredients are supplied in powdered form, as reducing water content increases shelf life and aids ease of storage, handling and transport. Powder technology is therefore of great importance to the food industry. The Handbook of food powders explores a variety of processes that are involved in the production of food powders, the further processing of these powders and their functional properties. Part one introduces processing and handling technologies for food powders and includes chapters on spray, freeze and drum drying, powder mixing in the production of food powders and safety issues around food powder production processes. Part two focusses on powder properties including surface composition, rehydration and techniques to analyse the particle size of food powders. Finally, part three highlights

speciality food powders and includes chapters on dairy powders, fruit and vegetable powders and coating foods with powders. The Handbook of food powders is a standard reference for professionals in the food powder production and handling industries, development and quality control professionals in the food industry using powders in foods, and researchers, scientists and academics interested in the field. Explores the processing and handling technologies in the production of food powders Examines powder properties, including surface composition, shelf life, and techniques used to examine particle size Focuses on speciality powders such as dairy, infant formulas, powdered egg, fruit and vegetable, and culinary and speciality products

Viticulture and Winemaking under Climate Change - Helder Fraga 2019-12-19

The importance of viticulture and the winemaking socio-economic sector is acknowledged worldwide. The most renowned winemaking regions show very specific environmental characteristics, where climate usually plays a central role. Considering the strong influence of weather and climatic factors on grapevine yields and berry quality attributes, climate change may indeed significantly impact this crop. Recent trends already point to a pronounced increase in growing season mean temperatures, as well as changes in precipitation regimes, which have been influencing wine typicity across some of the most renowned winemaking regions worldwide. Moreover, several climate scenarios give evidence of enhanced stress conditions for grapevine growth until the end of the century. Although grapevines have high resilience, the clear evidence for significant climate change in the upcoming decades urges adaptation and mitigation measures to be taken by sector stakeholders. To provide hints on the abovementioned issues, we have edited a Special Issue entitled "Viticulture and Winemaking under Climate Change". Contributions from different fields were considered, including crop and climate modeling, and potential adaptation measures against these threats. The current Special Issue allows for the expansion of scientific knowledge in these particular fields of research, as well as providing a path for future research.

A Complete Course in Canning and Related Processes - Susan Featherstone 2015-02-07

A Complete Course in Canning and Related Processes, Fourteenth Edition: Fundamental Information on Canning provides readers with a complete course on canning. This latest edition continues the tradition for both professionals in the canning industry and students who have benefitted from this collection for over 100 years. It contains extensively revised and expanded coverage, and the three-title set is designed to cover all phases of the canning process, including planning, processing, storage, and quality control. Major changes for the new edition include new chapters on regulation and labeling that contrast the situation in different regions worldwide, updated information on containers for canned foods, and new information on validation and optimization of canning processes, among other topics. Continues the tradition of the series that has educated professionals and students for over 100 years Covers all aspects of the canning process, including planning, processing, storage, and control Analyzes worldwide food regulations, standards, and food labeling Incorporates processing operations, plant location, and sanitation

Electron Beam Pasteurization and Complementary Food Processing Technologies - Suresh Pillai 2014-11-28

Food safety is a constant challenge for the food industry, and food irradiation technology has developed significantly since its introduction, moving from isotope irradiation to the use of electron beam technology. Electron Beam Pasteurization and Complementary Food Processing Technologies explores the application of electron beam pasteurization in conjunction with other food processing technologies to improve the safety and quality of food. Part one provides an overview of the issues surrounding electron beam pasteurization in food processing. Part two looks at different thermal and non-thermal food processing technologies that complement irradiation. Finally, a case study section on the commercial applications of e-beam processing provides examples from industry.

Improving the Safety and Quality of Nuts - Linda J Harris 2013-10-31

As tree nuts and peanuts become increasingly recognised for their health-promoting properties, the provision of safe, high quality nuts is a growing concern. Improving the safety and quality of nuts reviews key aspects of nut safety and quality management. Part one explores production and processing practices and their influence on nut contaminants. Chapters discuss agricultural practices to reduce microbial contamination of nuts, pest control in postharvest nuts, and the impact of nut postharvest handling, de-

shelling, drying and storage on quality. Further chapters review the validation of processes for reducing the microbial load on nuts and integrating Hazard Analysis Critical Control Point (HACCP) and Statistical Process Control (SPC) for safer nut processing. Chapters in part two focus on improving nut quality and safety and highlight oxidative rancidity in nuts, the impact of roasting on nut quality, and advances in automated nut sorting. Final chapters explore the safety and quality of a variety of nuts including almonds, macadamia nuts, pecans, peanuts, pistachios and walnuts. Improving the safety and quality of nuts is a comprehensive resource for food safety, product development and QA professionals using nuts in foods, those involved in nut growing, nut handling and nut processing, and researchers in food science and horticulture departments interested in the area. Reviews key aspects of nut safety and quality management and addresses the influences of production and processing practices on nut safety Analyses particular nut contaminants, safety management in nut processing and significant nut quality issues, such as oxidative rancidity Places focus on quality and safety in the production and processing of selected types of nuts

Plant Abiotic Stress Physiology - Khalid Rehman Hakeem 2022-02-17

This two-volume set highlights the various innovative and emerging techniques and molecular applications that are currently being used in plant abiotic stress physiology. Volume 1: Responses and Adaptations focuses on the responses and adaptations of plants to stress factors at the cellular and molecular levels and offers a variety of advanced management strategies and technologies. Volume 2: Molecular Advancements introduces a range of state-of-the-art molecular advances for the mitigation of abiotic stress in plants. With contributions from specialists in the field, Volume 1 first discusses the physiology and defense mechanisms of plants and the various kinds of stress, such as from challenging environments, climate change, and nutritional deficiencies. It goes on to discuss trailblazing management techniques that include genetics approaches for improving abiotic stress tolerance in crop plants along with CRISPR/CAS-mediated genome editing technologies. Volume 2 discusses how plants have developed diverse physiological and molecular adjustments to safeguard themselves under challenging conditions and how emerging new technologies can utilize these plant adaptations to enhance plant resistance. These include using plant-environment interactions to develop crop species that are resilient to climate change, applying genomics and phenomics approaches from the study of abiotic stress tolerance and more. Agriculture today faces countless challenges to meet the rising need for sustainable food supplies and guarantees of high-quality nourishment for a quickly increasing population. To ensure sufficient food production, it is necessary to address the difficult environmental circumstances that are causing cellular oxidative stress in plants due to abiotic factors, which play a defining role in shaping yield of crop plants. These two volumes help to meet these challenges by providing a rich source of information on plant abiotic stress physiology and effective management techniques.

Metabolomics in Food and Nutrition - Bart C Weimer 2013-10-31

Metabolomics enables valuable information about the biochemical composition of foods to be rapidly obtained. Since the biochemical profile of food largely determines key food properties such as flavour and shelf life, the information gained using metabolomics-based methods will enable greater control of food quality and also help to determine the relationship between diet and health. Metabolomics in food and nutrition provides an overview of their current and potential use in the food industry. Part one reviews equipment, methods and data interpretation in metabolomics including the use of nuclear magnetic resonance (NMR), statistical methods in metabolomics, and metabolic reconstruction databases and their application to metabolomics research. Part two explores applications of metabolomics in humans, plants and food. Chapters discuss metabolomics in nutrition, human samples for health assessments, and current methods for the analysis of human milk oligosaccharides (HMOs) and their novel applications. Further chapters highlight metabolomic analysis of plants and crops, metabolomics for the safety assessment of genetically modified (GM) crops, and applications of metabolomics in food science including food composition and quality, sensory and nutritional attributes. With its distinguished editors and team of expert contributors, Metabolomics in food and nutrition is a technical resource for industrial researchers in the food and nutrition sectors interested in the potential of metabolomics methods and academics and postgraduate students working in the area. Provides an overview of the current and potential future use of metabolomics in the food industry Chapters focus on key applications and review the analytical methods

used and the bioinformatics techniques involved in processing the results Discusses metabolomics in nutrition, human samples for health assessments, and current methods for the analysis of human milk oligosaccharides (HMOs) and their novel applications

North American Crop Wild Relatives, Volume 1 - Stephanie L. Greene 2018-12-11

The plant species that humans rely upon have an extended family of wild counterparts that are an important source of genetic diversity used to breed productive crops. These wild and weedy cousins are valuable as a resource for adapting our food, forage, industrial and other crops to climate change. Many wild plant species are also directly used, especially for revegetation, and as medicinal and ornamental plants. North America is rich in these wild plant genetic resources. This book is a valuable reference that describes the important crop wild relatives and wild utilized species found in Canada, the United States and Mexico. The book highlights efforts taken by these countries to conserve and use wild resources and provides essential information on best practices for collecting and conserving them. Numerous maps using up-to-date information and methods illustrate the distribution of important species, and supplement detailed description on the potential value these resources have to agriculture, as well as their conservation statuses and needs. There is broad recognition of the urgent need to conserve plant diversity; however, a small fraction of wild species is distinguished by their potential to support agricultural production. Many of these species are common, even weedy, and are easily overshadowed by rare or endangered plants. Nevertheless, because of their genetic proximity to agriculturally important crops or direct use, they deserve to be recognized, celebrated, conserved, and made available to support food and agricultural security. This comprehensive two-volume reference will be valuable for students and scientists interested in economic botany, and for practitioners at all levels tasked with conserving plant biodiversity. The chapters 'Public Education and Outreach Opportunities for Crop Wild Relatives in North America' and 'Genetic Resources of Crop Wild Relatives - A Canadian Perspective' are open access under a CC BY 4.0 license via link.springer.com.

Wine Science - Ronald S. Jackson 2008-04-30

Wine Science, Third Edition, covers the three pillars of wine science - grape culture, wine production, and sensory evaluation. It takes readers on a scientific tour into the world of wine by detailing the latest discoveries in this exciting industry. From grape anatomy to wine and health, this book includes coverage of material not found in other enology or viticulture texts including details on cork and oak, specialized wine making procedures, and historical origins of procedures. Author Ronald Jackson uniquely breaks down sophisticated techniques, allowing the reader to easily understand wine science processes. This updated edition covers the chemistry of red wine color, origin of grape varieties, wine language, significance of color and other biasing factors to wine perception, various meanings and significance of wine oxidation. It includes significant additional coverage on brandy and ice wine production as well as new illustrations and color photos. This book is recommended for grape growers, fermentation technologists; students of enology and viticulture, enologists, and viticulturalists. NEW to this edition: * Extensive revision and additions on: chemistry of red wine color, origin of grape varieties, wine language, significance of color and other biasing factors to wine perception, various meanings and significance of wine oxidation * Significant additional coverage on brandy and ice wine production * New illustrations and color photos

Grapevine Viruses: Molecular Biology, Diagnostics and Management - Baozhong Meng 2017-07-05

The domestication of grapes dates back five thousand years ago and has spread to nearly all continents. In recent years, grape acreage has increased dramatically in new regions, including the United States of America, Chile, Asia (China and India), and Turkey. A major limiting factor to the sustained production of premium grapes and wines is infections by viruses. The advent of powerful molecular and metagenomics technologies, such as molecular cloning and next generation sequencing, allowed the discovery of new viruses from grapes. To date, grapevine is susceptible to 64 viruses that belong to highly diverse taxonomic groups. The most damaging diseases include: (1) infectious degeneration; (2) leafroll disease complex; and (3) rugose wood complex. Recently, two new disease syndromes have been recognized: Syrah decline and red blotch. Losses due to fanleaf degeneration are estimated at \$1 billion annually in France alone. Other diseases including leafroll, rugose wood, Syrah decline and red blotch can result in total crop loss several years post-infection. This situation is further exacerbated by mixed infections with multiple viruses and

other biotic as well as adverse abiotic environmental conditions, such as drought and winter damage, causing even greater destruction. The book builds upon the last handbook (written over twenty years ago) on the part of diagnostics and extensively expands its scope by inclusion of molecular biology aspects of select viruses that are widespread and economically most important. This includes most current information on the biology, transmission, genome replication, transcription, subcellular localization, as well as virus-host interactions. It also touches on several novel areas of scientific inquiry. It also contains suggested directions for future research in the field of grapevine virology.

Grapevine Breeding Programs for the Wine Industry - Andrew G. Reynolds 2015-04-20

Grapevine Breeding Programs for the Wine Industry: Traditional and Molecular Techniques summarizes recent trends in grapevine breeding, both in terms of research and practical programs. The first group of chapters covers the challenges faced by breeders and existing and emerging techniques used to combat them. Two further groups of chapters focus on grapevine breeding programs in different wine-producing countries around the world. With authoritative contributions from experts across the world's winemaking regions, this book will be an essential reference for all those involved in viticulture and oenology wanting to explore new methods, understand different approaches and refine existing practices. Covers challenges faced by breeders Highlights grapevine breeding programs in different wine-producing countries Contributions from experts across the world's winemaking regions

The Grape Genome - Dario Cantu 2019-11-13

This book describes the current state of international grape genomics, with a focus on the latest findings, tools and strategies employed in genome sequencing and analysis, and genetic mapping of important agronomic traits. It also discusses how these are having a direct impact on outcomes for grape breeders and the international grape research community. While *V. vinifera* is a model species, it is not always appreciated that its cultivation usually requires the use of other *Vitis* species as rootstocks. The book discusses genetic diversity within the *Vitis* genus, the available genetic resources for breeding, and the available genomic resources for other *Vitis* species. Grapes (*Vitis vinifera* spp. *vinifera*) have been a source of food and wine since their domestication from their wild progenitor (*Vitis vinifera* ssp. *sylvestris*) around 8,000 years ago, and they are now the world's most valuable horticultural crop. In addition to being economically important, *V. vinifera* is also a model organism for the study of perennial fruit crops for two reasons: Firstly, its ability to be transformed and micropropagated via somatic embryogenesis, and secondly its relatively small genome size of 500 Mb. The economic importance of grapes made *V. vinifera* an obvious early candidate for genomic sequencing, and accordingly, two draft genomes were reported in 2007. Remarkably, these were the first genomes of any fruiting crop to be sequenced and only the fourth for flowering plants. Although riddled with gaps and potentially omitting large regions of repetitive sequences, the two genomes have provided valuable insights into grape genomes. Cited in over 2,000 articles, the genome has served as a reference in more than 3,000 genome-wide transcriptional analyses. Further, recent advances in DNA sequencing and bioinformatics are enabling the assembly of reference-grade genome references for more grape genotypes revealing the exceptional extent of structural variation in the species.

Managing Wine Quality - Andrew G. Reynolds 2021-12-17

Managing Wine Quality, Volume 2: Oenology and Wine Quality, Second Edition, brings together authoritative contributions from experts across the world's winemaking regions who cover yeasts, fermentation, enzymes, and stabilization, amongst other topics. A new chapter covers, in detail, extraction technologies and wine quality. Other sections cover the management of wine sensory quality, with new chapters covering the management of fortified wines, of Botrytized wines, and of wines produced from dried grapes. In addition, an updated section on insect taints in wine has been widened to cover all insects. With a focus on recent studies, advanced methods, and a look to future technologies, this fully updated edition is an essential reference for anyone involved in viticulture and oenology who wants to explore new methods, understand different approaches, and refine existing practices. Reviews our current understanding of yeast and fermentation management, as well as the effects of aging on wine quality Details alternatives to cork in bottle closing and the latest developments in the stabilization and clarification of wines Includes new chapters covering extraction technologies for wine quality and on

managing the quality of a wide range of wine types, including fortified and Botryzied wines Provides extensively expanded coverage of insect taints and their effects on wine quality

Handbook of Antioxidants for Food Preservation - Fereidoon Shahidi 2015-02-25

Lipid oxidation in food leads to rancidity, which compromises the sensory properties of food and makes it unappealing to consumers. The growing trend towards natural additives and preservatives means that new antioxidants are emerging for use in foods. This book provides an overview of the food antioxidants currently available and their applications in different food products. Part one provides background information on a comprehensive list of the main natural and synthetic antioxidants used in food. Part two looks at methodologies for using antioxidants in food, focusing on the efficacy of antioxidants. Part three covers the main food commodities in which antioxidants are used. Reviews the various types of antioxidants used in food preservation, including chapters on tea extracts, natural plant extracts and synthetic phenolics Analyses the performance of antioxidants in different food systems Compiles significant international research and advancements

Wine Science- Ronald S. Jackson 2020-04-04

Wine Science: Principles and Applications, Fifth Edition, delivers in-depth information and expertise in a single, science-focused volume, including all the complexities and nuances of creating a quality wine product. From variety, to the chemistry that transforms grape to fruit to wine, the book presents sections on the most important information regarding wine laws, authentication, the latest technology used in wine production, and expert-insights into the sensory appreciation of wine and its implications in health. This book is ideal for anyone seeking to understand the science that produces quality wines of every type. Presents thorough explanations of viticulture and winemaking principles from grape to taste bud Addresses historical developments in wine production, notably sparkling wines Provides techniques in grapevine breeding, notably CRISPR Compares production methods in a framework that provides insights into the advantages and disadvantages of each

Water Scarcity and Sustainable Agriculture in Semiarid Environment - Ivan Francisco Garcia Tejero 2018-01-03

Water Scarcity and Sustainable Agriculture in Semiarid Environment: Tools, Strategies and Challenges for Woody Crops explores the complex relationship between water scarcity and climate change, agricultural water-use efficiency, crop-water stress management and modeling water scarcity in woody crops. Understanding these cause- and effect relationships and identifying the most appropriate responses are critical for sustainable crop production. The book focuses on Mediterranean environments to explain how to determine the most appropriate strategy and implement an effective plan; however, core concepts are translational to other regions. Informative for those working in agricultural water management, irrigation and drainage, crop physiology and sustainable agriculture. Focuses on semi-arid crops including olive, vine, citrus, almonds, peach, nectarine, plum, subtropical fruits and others Explores crop physiological responses to drought at plant, cellular and/or molecular levels Presents tool options for assessing crop-water status and irrigation scheduling

Grapevine Breeding Programs for the Wine Industry - Andrew G. Reynolds 2015-04-22

Grapevine Breeding Programs for the Wine Industry: Traditional and Molecular Techniques summarizes recent trends in grapevine breeding, both in terms of research and practical programs. The first group of chapters covers the challenges faced by breeders and existing and emerging techniques used to combat them. Two further groups of chapters focus on grapevine breeding programs in different wine-producing countries around the world. With authoritative contributions from experts across the world's winemaking regions, this book will be an essential reference for all those involved in viticulture and oenology wanting to explore new methods, understand different approaches and refine existing practices. Covers challenges faced by breeders Highlights grapevine breeding programs in different wine-producing countries Contributions from experts across the world's winemaking regions

Resilience of Grapevine to Climate Change: From Plant Physiology to Adaptation Strategies - Chiara Pastore 2022-09-20

Environmentally Sustainable Viticulture - Chris Gerling 2015-03-20

This title includes a number of Open Access chapters.As climate change becomes a growing reality, more industries must grapple with how to implement sustainable business practices at every step of the production process. This is especially true for viticulture, where every step of production can take years to come to fruition, and any decision made

Advances in Food Rheology and Its Applications - Jamil Ahmed 2016-09-13

Advances in Food Rheology and Its Applications presents the latest advances in the measurement and application of food rheology, one of the most important tools for food companies when characterizing ingredients and final products, and a predictor of product performance and consumer acceptance. Split into two main focuses, the book gives in-depth analysis of the general advances in the field, with coverage of the relationship between food microstructure and rheology, the use of tribology in the study of oral processing, the use of large amplitude oscillatory shear (LAOS) measurement and Fourier-transform rheology in food, and the influence of fibers and particle size distribution on food rheology, as well as many other advances. Written by a leading international team of authors, the book provides an in-depth and state-of-the-art coverage of this essential topic on the consumer acceptance of food. Brings together top researchers in the field of rheology, providing in-depth and state-of-the-art coverage on an area of study essential for managing the quality of foods and gaining consumer acceptance Presents in-depth coverage of advances in rheology, many of which have never been featured before, including tribology, large amplitude oscillatory shear measurement, and the influence of fibers and particle size distribution on food rheology Contains information that is highly relevant to the industrialist who wants to improve the rheological properties of the foods with which they are working

Improving Sustainable Viticulture and Winemaking Practices - J. Miguel Costa 2022-03-19

Improving Sustainable Practices in Viticulture and Enology provides an up-to-date view on the major issues concerning the sustainability of the wine supply chain. The book describes problems and solutions on the use of inputs (e.g., water, energy) and emphasizes the roles and limitations of implementing circularity in the sector. It identifies some of the most relevant metrics while pinpointing the most critical issues concerning the environmental impacts of wine's supply chain (vineyards, wineries, trading). This is a novel reference to help the industry excel in production while improving current environmental practices. Professionals in industry, academics, environmentalists and anyone interested in gaining knowledge in sustainable solutions and practices in viticulture and wine production will find this resource indispensable. Suggests and discusses solutions to overcome challenges imposed by adverse climate conditions Presents innovative technologies that have an impact on the efficiency of resources and recycling Includes technological tools for more precise monitoring and management in the wine supply chain

Specialty Oils and Fats in Food and Nutrition - Geoff Talbot 2015-06-29

Specialty Oils and Fats in Food and Nutrition: Properties, Processing and Applications examines the main specialty oils and fats currently in use in food processing, as well as those with significant potential. Specialty oils and fats have an increasing number of applications in the food industry, due to growing consumer interest in "clean label functional foods and the emerging markets in "free-from and specialist foods. Part One of this book covers the properties and processing of specialty oils and fats, with a focus on the chemistry, extraction, and quality of different fats and oils, including chapters on shea butter, tropical exotic oils, and structured triglycerides. Part Two looks at the applications of specialty oils and fats in different food and nutraceutical products, such as confectionary, ice cream, and margarine. Specialty Oils and Fats in Food and Nutrition is a key text for R&D managers and product development personnel working in the dairy, baking, and dairy analogue sectors, or any sector using fats and oils. It is a particularly useful reference point for companies reformulating their products or developing new products to alter fat content, as well as academics with a research interest in the area, such as lipid scientists or food scientists. Authored by an industry expert with 35 years of experience working for Unilever and Loders Croklaan Broad coverage encompasses tropical exotic oils, tree nut oils, algal oils, GM vegetable oils, and more Addresses growing application areas including nutraceuticals, infant formula, and ice cream and confectionery

Handbook of Food Allergen Detection and Control - Simon Flanagan 2014-09-25

Allergens in food and their detection, management and elimination constitute a key issue for food

manufacturers, especially in terms of safety. This book reviews current and emerging technologies for detecting and reducing allergens, as well as issues such as traceability, regulation and consumer attitudes. Following an introductory chapter by a distinguished expert, part one covers allergen management throughout the food chain. Part two details current and emerging methods of allergen detection in food, and part three covers methods for reducing and eliminating allergens in food. Finally, part four focuses on the control and detection of individual food allergens and the risks each one presents in food manufacture. Reviews current and emerging technologies for detecting and reducing allergens, as well as issues such as traceability, regulation and consumer attitudes Covers allergen management throughout the food chain and reviews current and emerging methods of allergen detection Examines methods for reducing and eliminating allergens in food and provides a detailed overview of the control and detection of individual food allergens

Advances in Grape and Wine Biotechnology Antonio Morata 2019-09-04

Advances in Grape and Wine Biotechnology is a collection of fifteen chapters that addresses different issues related to the technological and biotechnological management of vineyards and winemaking. It focuses on recent advances in the field of viticulture with interesting topics such as the development of a microvine model for research purposes, the mechanisms of cultivar adaptation and evolution in a climate change scenario, and the consequences of vine water deficit on yield components. Other topics include the metabolic profiling of different *Saccharomyces* and non-*Saccharomyces* yeast species and their contribution in modulating the sensory quality of wines produced in warm regions, the use of new natural and sustainable fining agents, and available physical methods to reduce alcohol content. This volume will be of great interest to researchers and vine or wine professionals.

Grape Rootstocks and Related Species - Alireza Rahemi 2022-06-02

This book covers about 20 grape species that are vitally important in breeding programs and provide information on approximately 150 of the most familiar grape rootstocks in the world. Today, grape rootstocks play a fundamental role in resistance to biotic and abiotic stresses and adaptation of grapevine to different environmental conditions, a factor that has opened commercial grape growing up to regions that might otherwise be overlooked. Grape rootstocks can be used for adaptation to a variety of soil conditions, including soil texture, depth, nutrient availability, pH, salinity, lime content, water availability (drought), and water drainage. Rootstocks can also be used to shift scion cultivar; the timing of various key phenological events and indirectly affects vineyard design. There are around 1500 grape rootstocks developed in the world, of which around 50 are commonly used as commercial rootstock. North American species account for around 30 species, and two-third of them have already been used for rootstock breeding at one time or another. However, the most commonly available rootstocks are derived from just three American species (*V. berlandieri*, *V. rupestris*, and *V. riparia*). Therefore, the most common grape rootstocks have a narrow genetic base, and efforts to extend the gene pools for breeding programs by using the other species are of ongoing importance to the industry and scientific community.

Conservation and Utilization of Horticultural Genetic Resources Rajasekharan 2019-06-25

The conservation of crop genetic resources is one of the important elements in efforts to sustainably increase agricultural production in low-income countries, and to guarantee long-term food security, especially for the low-income population groups in these countries. Horticultural crops, as high-value crops, have an important role to play in revitalizing rural economies and can add significantly to national economies. Moreover, horticulture provides more than twice the number of jobs compared to traditional cereal crop production, and the shifting of conventional agriculture towards high-value horticulture has increased employment opportunities in developing countries. To exploit this potential, researchers need a vast array of horticultural genetic resources and information on new traits. Horticultural crops, which are only a part of PGRFA (Plant Genetic Resources for Food and Agriculture), are characterized by a wide and varied range of species. In fact, there are five major horticultural crop groups: fruit and nut crops, vegetables, food legumes, roots and tubers, and lastly the ornamental and medicinal group. In this context, the present book provides a comprehensive overview of the current state of conservation and utilization of horticultural genetic resources, addressing contemporary approaches to conservation in connection with different technologies, including biotechnological approaches as practised in India and in some cases,

globally. It includes a brief chapter on the unique nature of horticultural genetic resources, providing a rationale for viewing them as being distinct from field crop genetic resources. Subsequent chapters share insights on protocols for the conservation of selected horticultural crops *ex situ*, and focus on the increased need to complement these efforts with *in situ* conservation approaches. Geospatial tools are also briefly described, emphasizing their utility with regard to mapping and managing resources. The book also explores the wild gene pool in horticulture crops; discusses legal aspects related to horticultural genetic resources and biotechnological aspects; and describes the key aspects of sustainable management and replenishment. Given its scope, the book offers a valuable resource for all horticulturists, graduate students, researchers, policymakers, conservationists, and NGOs engaged in horticulture in particular and biodiversity in general.

Identification and Characterization of Contrasting Genotypes/Cultivars to Discover Novel Players in Responses to Abiotic/Biotic Stresses Basilio Antonio Sperotto 2022-02-24

Plant Breeding Reviews Irwin Goldman 2019-10-07

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High Throughput Screening for Food Safety Assessment - Arun K. Bhunia 2014-09-06

Recent advances in array-based detectors and imaging technologies have provided high throughput systems that can operate within a substantially reduced timeframe and other techniques that can detect multiple contaminants at one time. These technologies are revolutionary in terms of food safety assessment in manufacturing, and will also have a significant impact on areas such as public health and food defence. This book summarizes the latest research and applications of sensor technologies for online and high throughput screening of food. The book first introduces high throughput screening strategies and technology platforms, and discusses key issues in sample collection and preparation. The subsequent chapters are then grouped into four sections: Part I reviews biorecognition techniques; Part II covers the use of optical biosensors and hyperspectral imaging in food safety assessment; Part III focuses on electrochemical and mass-based transducers; and finally Part IV deals with the application of these safety assessment technologies in specific food products, including meat and poultry, seafood, fruits and vegetables. Summarises the latest research on sensor technologies for online and high-throughput screening of food Covers high-throughput screening and the current and forecast state of rapid contaminant detection technologies Looks at the use of optical and electrochemical biosensors and hyperspectral imaging in food safety assessment and the application of these technologies in specific food products

A Handbook for Sensory and Consumer-Driven New Product Development Maurice O'Sullivan 2016-09-16

A Handbook for Sensory and Consumer Driven New Product Development explores traditional and well established sensory methods (difference, descriptive and affective) as well as taking a novel approach to product development and the use of new methods and recent innovations. This book investigates the use of these established and new sensory methods, particularly hedonic methods coupled with descriptive methods (traditional and rapid), through multivariate data analytical interfaces in the process of optimizing food and beverage products effectively in a strategically defined manner. The first part of the book covers the sensory methods which are used by sensory scientists and product developers, including established and new and innovative methods. The second section investigates the product development process and how the application of sensory analysis, instrumental methods and multivariate data analysis can improve

new product development, including packaging optimization and shelf life. The final section defines the important sensory criteria and modalities of different food and beverage products including Dairy, Meat, Confectionary, Bakery, and Beverage (alcoholic and non-alcoholic), and presents case studies indicating how the methods described in the first two sections have been successfully and innovatively applied to these different foods and beverages. The book is written to be of value to new product development researchers working in large corporations, SMEs (micro, small or medium-sized enterprises) as well as being accessible to the novice starting up their own business. The innovative technologies and methods described are less expensive than some more traditional practices and aim to be quick and effective in assisting products to market. Sensory testing is critical for new product development/optimization, ingredient substitution and devising appropriate packaging and shelf life as well as comparing foods or beverages to competitor's products. Presents novel and effective sensory-based methods for new product development—two related fields that are often covered separately Provides accessible, useful guidance to the new product developer working in a large multi-national food company as well as novices starting up a new business Offers case studies that provide examples of how these methods have been applied to real product development by practitioners in a wide range of organizations Investigates how the application of sensory analysis can improve new product development including packaging optimization

Lockhart and Wiseman's Crop Husbandry Including Grassland - Steve Finch 2014-07-19

Increased yields, markets, and profitability have led to changes in crop husbandry. Since its first publication in 1966, revised editions of Lockhart & Wiseman's Crop Husbandry Including Grassland have upheld and increased the book's good reputation. This ninth edition maintains its status as the standard textbook for many agricultural courses. Part one covers the principles of crop production with chapters concerning plants, climate, soil management, fertilizers, manures, weeds, and diseases threatening farm crops. Part two surveys crop husbandry techniques. Environmental impact has been addressed in greater detail in this edition. This section looks at issues such as sustainable crop management, precision farming, and organic crop husbandry. The way these general techniques apply to individual crops is explained in part three. This part considers a range of cereals, combinable break crops, root crops, industrial crops, and fresh produce crops. Part four looks at the use of grassland and forage crops, with chapters considering arable forage crops, the characteristics of grassland, and the corresponding methods for establishing and improving grassland. This part also includes information regarding equine grassland management and conservation of grass and forage crops. This ninth edition of Lockhart and Wiseman's Crop Husbandry Including Grassland is relevant for students throughout the United Kingdom and Europe. It is a useful reference book for agriculture National Diploma courses, Foundation Degrees, and BSc degrees, and is important for Masters level students entering agriculture from another discipline. The previous edition has been widely expanded and remains the standard text for general agriculture, land management, and agribusiness courses Includes new chapters on cropping techniques, integrated crop management and quality assurance, seed production and selection, and the influence of climate Discusses basic conditions for crop growth, how techniques are applied to particular crops, the influence of weather, and the use of grassland

Genomic Designing for Biotic Stress Resistant Fruit Crops - Chittaranjan Kole 2022

This book presents deliberations on the molecular and genomic mechanisms underlying the interactions of crop plants with the biotic stresses caused by insects, bacteria, fungi, viruses, and oomycetes, etc. important to develop resistant crop varieties. Knowledge on the advanced genetic and genomic crop improvement strategies including molecular breeding, transgenics, genomic-assisted breeding and the recently emerging genome editing for developing resistant varieties in fruit crops is imperative for addressing FPNEE (food, health, nutrition, energy and environment) security. Whole genome sequencing of these crops followed by genotyping-by-sequencing have facilitated precise information about the genes conferring resistance useful for gene discovery, allele mining and shuttle breeding which in turn opened up the scope for 'designing' crop genomes with resistance to biotic stresses. The nine chapters, each dedicated to a fruit crop in this volume, deliberate on different types of biotic stress agents and their effects on and

interaction with the crop plants; enumerate the available genetic diversity with regard to biotic stress resistance among available cultivars; illuminate on the potential gene pools for utilization in interspecific gene transfer; present brief on the classical genetics of stress resistance and traditional breeding for biotic stress resistance; depict the success stories of genetic engineering for developing biotic stress resistant varieties; discuss on molecular mapping of genes and QTLs underlying biotic stress resistance and their marker-assisted introgression into elite varieties; enunciate different emerging genomics-aided techniques including genomic selection, allele mining, gene discovery and gene pyramiding for developing resistant crop varieties with higher quantity and quality of yield; and also elaborate some case studies on genome editing focusing on specific genes for generating disease and insect resistant crops.

Heat Treatment for Insect Control - Dave Hammond 2014-09-18

Stored product insects and other pests represent a major hygiene and safety issue to many industries, from food production to building infestation, and issues for timber pallets and packaging. Bed bugs are rapidly becoming a public health issue in hotels, hostels and houses in many parts of the world. While fumigation has been one of the prevalent routes for pest control, there remain issues with the toxicity of the chemicals used and potential exposure to humans therefore heat treatment has proven to be a successful alternative when used correctly. It is well known that excessive heat is dangerous to life. There is a difference between the amount of heat required to kill microbes such as bacteria and viruses and that required to kill larger life forms such as insects or mammals. This book focuses on the use of heat to kill insects and mites in food production, storage and other facilities. Heat Treatment for Insect Control examines how controlled heat treatment kills all stages of pest insect life across species and without causing damage to surrounding structures or electronics. The advantages of heat treatment include no health & safety hazards, a completely controllable and environmentally friendly process, reduced treatment time of fumigation (hours verses days), as well as no factory shutdown or exclusion of staff from adjacent areas during treatment. Part I reviews the principles of heat treatment, with chapters covering the fundamentals, planning, best practice and costs of integrated pest management. Part II looks at heat treatment applications in food production, storage, food materials and fresh produce. Part III examines the other applications in clothing, small rooms, buildings, and transportation. Provides a comprehensive and systematic reference on the heat treatment for insect control Reviews the development of heat treatment processes and technology as part of integrated pest management approaches

Satiation, Satiety and the Control of Food Intake - John F. Blundell 2013-09-30

With growing concerns about the rising incidence of obesity, there is interest in understanding how the human appetite contributes to energy balance and how it might be affected by the foods we consume, as well as other cultural and environmental factors. Satiation, satiety and the control of food intake provides a concise and authoritative overview of these areas. Part one introduces the concepts of satiation and satiety and discusses how these concepts can be quantified. Chapters in part two focus on biological factors of satiation and satiety before part three moves on to explore food composition factors. Chapters in part four discuss hedonic, cultural and environmental factors of satiation and satiety. Finally, part five explores public health implications and evaluates consumer understanding of satiation and satiety and related health claims. Provides a concise and authoritative overview of appetite regulation Focuses on the effects of biological factors, food composition and hedonic, cultural and environmental factors affecting appetite control Discusses implications for public health

Advances in Fermented Foods and Beverages - Wilhelm Holzapfel 2014-09-20

Fermentation is used in a wide range of food and beverage applications, and the technology for enhancing this process is continually evolving. This book reviews the use of fermentation in foods and beverages and key aspects of fermented food production. Part one covers the health benefits of fermented foods. Part two includes chapters on fermentation microbiology, while part three looks at ways of controlling and monitoring the quality and safety of fermented foods. Part four covers advances in fermentation technology. Finally, part five covers particular fermented food products.