

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

Plant Breeding Reviews
 Conservation Strategies
 The Mediterranean Genetic Code
 10th International Conference on Grapevine Breeding and Genetics : 1-5 August 2010, Geneva, New York
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[Plant Breeding Reviews](#) Springer

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.

Conservation Strategies Springer Nature

Grapevine is a crop of major economical interest, and wine represents a multicultural heritage which has been growing since several milleniums. Yet, modern viticulture must face several challenges. Global climate has increased berry sugar content (and alcohol in the wine) whereas phenolic and aromatic ripeness are not always achieved. Water supply is becoming shorter. New varieties better adapted to new climatic conditions might have to be planted, which may affect wine typicity. Phytochemical treatments are more controlled, and the consumer pays increasing attention to environmentally safe practices. New methods reducing pesticide use, but maintaining yield and typicity, must be designed. The present book illustrates the recent progress made in ecophysiology, molecular and cell biology, and pathology of grapevine, as well as in precision viticulture and berry composition. Combination of these new tools with field observations will undoubtedly make it easier to face the challenges described above. These multidisciplinary contributions will be of interest to anyone involved in grapevine and wine activities.

The Mediterranean Genetic Code Springer Science & Business Media

Shows grape growers how to incorporate organic methods.

[10th International Conference on Grapevine Breeding and Genetics : 1-5 August 2010, Geneva, New York](#) Grapevine Breeding Programs for the Wine Industry

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

[Integrated Pest Control in Viticulture](#) Academic Press

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

[A Guide to Organic Viticulture](#) Frontiers Media SA

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.

[Germplasm Regeneration, Preservation and Prospects](#) Springer Science & Business Media

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.

[Managing Wine Quality](#) Springer Science & Business Media

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.

Plant Physiology John Wiley & Sons

The field of plant physiology includes the study of all chemical and physical processes of plants, from the molecular-level interactions of photosynthesis and the diffusion of water, minerals, and nutrients within the plant, to the larger-scale processes of plant growth, dormancy and reproduction. This new book covers a broad array of topics within the field. Plant Physiology focuses on the study of the internal activities of plants, including research into the molecular interactions of photosynthesis and the internal diffusion of water, minerals, and nutrients. Also included are investigations into the processes of plant development, seasonality, dormancy, and reproductive control. The chapters focus on various aspects of plant physiology, including phytochemistry; interactions within a plant between cells, tissues, and organs; ways in which plants regulate their internal

functions; and how plants respond to conditions and variations within the environment. Given the environmental crises brought about by pollution and climate change, this is a particularly vital area of study, since stress from water loss, changes in air chemistry, or crowding by other plants can lead to changes in the way a plant function. Readers of this book will gain the information they need to stay current with the latest research being done in this essential field of study.

[Grapevine Viruses: Molecular Biology, Diagnostics and Management](#) Lavoisier

Grapes (*Vitis* spp.) are economically the most important fruit species in the world. Over the last decades many scientific advances have led to understand more deeply key physiological, biochemical, and molecular aspects of grape berry maturation. However, our knowledge on how grapevines respond to environmental stimuli and deal with biotic and abiotic stresses is still fragmented. Thus, this area of research is wide open for new scientific and technological advancements. Particularly, in the context of climate change, viticulture will have to adapt to higher temperatures, light intensity and atmospheric CO₂ concentration, while water availability is expected to decrease in many viticultural regions, which poses new challenges to scientists and producers. With Grapevine in a Changing Environment, readers will benefit from a comprehensive and updated coverage on the intricate grapevine defense mechanisms against biotic and abiotic stress and on the new generation techniques that may be ultimately used to implement appropriate strategies aimed at the production and selection of more adapted genotypes. The book also provides valuable references in this research area and original data from several laboratories worldwide. Written by 63 international experts on grapevine ecophysiology, biochemistry and molecular biology, the book is a reference for a wide audience with different backgrounds, from plant physiologists, biochemists and graduate and post-graduate students, to viticulturists and enologists.

[The World Wheat Book](#) CRC Press

Grapevine is a highly valuable crop worldwide, both from a cultural as well as a commercial point of view. One of its major advantages is that it is well adapted to scarce water conditions. The main object of grapevine breeding is to develop varieties that are resistant to pathogens and at the same time well-adapted to a changing environment. Since the beginning of the 21st century, there has been a concerted effort by the international scientific community to develop genomic tools and resources for grapevine, culminating in its complete genome sequence. The book reviews these efforts and their usefulness for grapevine breeding and viticulture improvement.

[Viticulture and Winemaking under Climate Change](#) BoD - Books on Demand

"The Grapes of New York" by U. P. Hedrick. Published by Good Press. Good Press publishes a wide range of titles that encompasses every genre. From well-known classics & literary fiction and non-fiction to forgotten—or yet undiscovered gems—of world literature, we issue the books that need to be read. Each Good Press edition has been meticulously edited and formatted to boost readability for all e-readers and devices. Our goal is to produce eBooks that are user-friendly and accessible to everyone in a high-quality digital format.

Synthetic Seeds MDPI

This book introduces the reader to synthetic or artificial seeds, which refer to alginate encapsulated somatic embryos, vegetative buds or any other micropropagules that can be used as seeds and converted into plantlets after propagating under in vitro or in vivo conditions. Moreover, synthetic seeds retain their potential for regeneration even after low-temperature storage. The production of synthetic or artificial seeds using micropropagules opens up new vistas in agricultural biotechnology. Encapsulated propagules could be used for in vitro regeneration and mass multiplication at reasonable cost. In addition, these propagules may be used for germplasm preservation of elite plant species and the exchange of plant materials between national and international laboratories. This book offers state-of-the-art findings on methods, applications and prospects of synthetic or artificial seeds.

[Vascular Plants and Paleobotany](#) Chelsea Green Publishing

Grapevine is one of the most widely cultivated plant species worldwide. With the publication of the grapevine genome sequence in 2007, a new horizon in grapevine research has unfolded. Thus, we felt that a new edition of 'Molecular Biology & Biotechnology of the Grapevine' could expand on all the latest scientific developments. In this edition and with the aid of 73 scientists from 15 countries, ten chapters describe new aspects of Grapevine Molecular Physiology and Biotechnology and eleven chapters have been revised and updated. This book is intended to be a reference book for researchers, scientists and biotechnological companies, who want to be updated in viticultural research, but also it can be used as a textbook for graduate and undergraduate students, who are interested in the Molecular Biology and Biotechnology of Plants with an emphasis on the Grapevine.

[Grapes and Wines](#) Academic Press

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.

The Grapes of New York Elsevier

In order to function and survive, plants produce a wide array of chemical compounds not found in other organisms. Photosynthesis requires a large array of pigments, enzymes, and other compounds to function, and these chemicals have multiple practical uses in the human world as well, with applications to agriculture, forestry, and horticulture. This book presents an important collection of research and studies on the physiology of photosynthesis.

[Grapevine and Olive](#) Springer

With the appearance of methods for the sequencing of genomes and less expensive next generation sequencing methods, we face rapid advancements of the -omics technologies and plant biology studies: reverse and forward genetics, functional genomics, transcriptomics, proteomics,

metabolomics, the movement at distance of effectors and structural biology. From plant genomics to plant biotechnology reviews the recent advancements in the post-genomic era, discussing how different varieties respond to abiotic and biotic stresses, understanding the epigenetic control and epigenetic memory, the roles of non-coding RNAs, applicative uses of RNA silencing and RNA interference in plant physiology and in experimental transgenics and plants modified to specific aims. In the forthcoming years these advancements will support the production of plant varieties better suited to resist biotic and abiotic stresses, for food and non-food applications. This book covers these issues, showing how such technologies are influencing the plant field in sectors such as the selection of plant varieties and plant breeding, selection of optimum agronomic traits, stress-resistant varieties, improvement of plant fitness, improving crop yield, and non-food applications in the knowledge based bio-economy. Discusses a broad range of applications: the examples originate from a variety of sectors (including in field studies, breeding, RNA regulation, pharmaceuticals and biotech) and a variety of scientific areas (such as bioinformatics, -omics sciences, epigenetics, and the agro-industry) Provides a unique perspective on work normally performed 'behind closed doors'. As such, it presents an opportunity for those within the field to learn from each other, and for those on the 'outside' to see how different groups have approached key problems Highlights the criteria used to compare and assess different approaches to solving problems. Shows the thinking process, practical limitations and any other considerations, aiding in the understanding of a deeper approach

The Grape Grower Good Press

Grape Man of Texas is the first biography of Thomas Volney Munson (1843-1913), the internationally recognized horticulturist who developed over 300 new varieties of grapes, some of which are still grown today on almost every continent. He is perhaps best known for his work in fighting the phylloxera epidemic of the late nineteenth century, which nearly destroyed the world's vineyards. His solution—grafting vinifera onto certain resistant native rootstocks from Texas—earned him the Chevalier du Merite Agricole in the French Legion of Honor and numerous accolades. This second edition introduces new insights into the phylloxera period, Munson's many papers and publications, and his far-sighted grasp of the needs of twentieth century agriculture and transportation. It details the continuing influence of both his research and his hybrid grapes on modern viticulture

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and new varieties of vitis that have been bred from them around the world.

Advances in Production, Processing, Analysis and Valorization BoD – Books on Demand

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

Photosynthesis John Wiley & Sons

Due to rapid population growth, climate change, and decreasing natural resources, growing sufficient crops with high productivity, resistance to abiotic and biotic stresses, and other attractive traits is a major challenge. Conventional breeding methods require time-consuming genetic crosses between different parents for multiple generations. By contrast, plant transformation is defined as the insertion of DNA from any organism into the genome of a plant species, and it is considered to be a powerful tool in plant breeding. This book aims to provide professional state-of-the-art information for basic and applied scientists and plant breeders, focusing on key crop plants. Papers related to the principle and application of Agrobacterium-mediated transformation, step-by-step protocols of DNA delivery to the important crop Brassica oleracea and higher-plant chloroplasts, current progress and prospects of virus-induced gene silencing (VIGS) in higher plants, improvement of grapevine through biotechnology, and public concern of biosafety issues regarding genetically modified organisms (GMOs) are all included in this book. It should be useful for students, breeders, and researchers in the field of transgenic crops around the world.