

Postharvest Biology And Technology Of Tropical And Subtropical Fruits Fundamental Issues Woodhead Publishing Series In Food Science Technology And Nutrition

Preharvest Modulation of Postharvest Fruit and Vegetable Quality is the first book to focus on the potential yield quality, quantity and safety benefits of intervention during growth. Of the many factors responsible for overall quality of produce, about 70 percent comes from pre-harvest conditions. Written by an international team of experts, this book presents the key opportunities and challenges of pre-harvest interventions. From selecting the most appropriate growing scenario, to treating plants during the maturation process, to evaluating for quality factors to determine appropriate interventions, this book provides an integrated look at maximizing crop yield through preventative means. In fact, with the very best of postharvest knowledge and technologies available, the best that can be achieved is a reduction in the rate at which products deteriorate as they progress through their normal developmental pattern of maturation, ripening and senescence. Therefore, it is very important to understand what pre-harvest factors influence the many important harvest quality attributes that affect the rate of postharvest deterioration and, subsequently, the consumers' decision to purchase the product in the marketplace. Presents the important pre-harvest factors that influence harvest quality Includes up-to-date information on pre-harvest factors that modulate post-harvest biology Identifies potential methodologies and technologies to enhance pre-harvest interventions

Written by noted experts in the field, Handbook of Mango Fruit: Production, Postharvest Science, Processing Technology and Nutrition offers a comprehensive resource regarding the production, trade, and consumption of this popular tropical fruit. The authors review the geographic areas where the fruit is grown and harvested, including information on the ever-expanding global marketplace that highlights United States production, imports and exports, and consumption, as well as data on the outlook for the European market. Handbook of Mango Fruit outlines the postharvest handling and packaging techniques and reviews the fruit's processed products and byproducts that are gleaned from the processing of waste. The authors include information on the nutritional profile of the mango and review the food safety considerations for processing and transport of mangoes. This comprehensive resource: Reviews global mango production trends and countries that are the major exporters and importers of mangoes Explores the burgeoning marketplace for mangoes with special emphasis on the US and European marketplace Assesses latest trends in packaging of and shipping of mangoes Provides in depth coverage on value-added processing and by-products utilization Offers vital information on the innovative processing technologies and nutritional profile of popular tropical fruit

Written for anyone involved in the production, marketing, postharvest handling, processing and by-products of mangoes, Handbook of Mango Fruit is a vital resource offering the most current information and guidelines on the burgeoning marketplace as well as the safe handling, production, and distribution of mangoes.

While products such as bananas, pineapples, kiwifruit and citrus have long been available to consumers in temperate zones, new fruits such as lychee, longan, carambola, and mangosteen are now also entering the market. Confirmation of the health benefits of tropical and subtropical fruit may also promote consumption further. Tropical and subtropical fruits are particularly vulnerable to postharvest losses, and are also transported long distances for sale. Therefore maximising their quality postharvest is essential and there have been many recent advances in this area. Many tropical fruits are processed further into purees, juices and other value-added products, so quality optimisation of processed products is also important. The books cover current state-of-the-art and emerging post-harvest and processing technologies. Volume 1 contains chapters on particular production stages and issues, whereas Volumes 2, 3 and 4 contain chapters focused on particular fruit. Chapters in Volume 4 review the factors affecting the quality of different tropical and subtropical fruits from mangosteen to white sapote. Important issues relevant to each product are discussed, including means of maintaining quality and minimising losses postharvest, recommended storage and transport conditions and processing methods, among other topics. With its distinguished editor and international team of contributors, Volume 4 of Postharvest biology and technology of tropical and subtropical fruits, along with the other volumes in the collection, are essential references both for professionals involved in the postharvest handling and processing of tropical and subtropical fruits and for academics and researchers working in the area. Along with the other volumes in the collection, Volume 4 is an essential reference for professionals involved in the postharvest handling and processing of tropical and subtropical fruits and for academics and researchers working in the area. Reviews factors affecting the quality of different tropical and subtropical fruits, concentrating on postharvest biology and technology. Important issues relevant to each particular fruit are discussed, such as postharvest physiology, preharvest factors affecting postharvest quality and pests and diseases.

Postharvest; Biology; Harvesting; Preparation for fresh market; Packages; Cooling operations; Storage; Modified atmospheres; Ethylene; Disease by handling practices and strategies for control; Insect control; Transportation.

With the increasing need and demand for fresh fruits and vegetables, the field of postharvest science is continuously evolving. Endeavors are being made by scientists involved in postharvest research for maintenance of the quality and safety of fresh horticultural produce to enhance the postharvest life and to extend the availability of the produce in both time and space. This volume, Emerging Postharvest Treatment of Fruits and Vegetables, addresses the demand for the

development and application of effective technologies for preservation of perishable food products, particularly fresh fruits and vegetables. It provides an abundance of up-to-date information about postharvest treatments. The chapters discuss a number of innovative technologies to prolong and enhance postharvest fruits and vegetables. This book will be valuable for those concerned with horticulture and postharvest technology. It provides essential information for students, teachers, professors, scientists, and entrepreneurs engaged in fresh horticultural produce handling related to this field.

Eco-Friendly Technology for Postharvest Produce Quality presents the scope of emerging eco-friendly technologies to maintain the postharvest quality of fresh produce in terms of safety and nutrition. The book covers an analysis of the alternative and traditional methodologies pointing out the significant advantage and limitations of each technique. It provides a standard reference work for the fresh produce industry in postharvest management to extend shelf life by ensuring safety first and then nutritional or sensory quality retention. Fruits and vegetables are a huge portion of the food supply chain and are depended on globally for good health and nutrition. The supply of good food, however, greatly depends on good postharvest handling practices. Although substantial research has been carried out to preserve the quality of fresh horticultural produce, further research—especially on safety—is still required. This book provides foundational insights into current practices yielding best results for produce handling. Includes appropriate approaches, technologies, and control parameters necessary to achieve shelf-life extension without compromising produce quality Presents successful food safety methods between the time produce is harvested to consumption Includes the latest information on preservation technologies using novel chemical methods, active packaging, and monitoring the effect of environmental stresses on quality and shelf life of agricultural produce The ultimate goal of crop production is to provide quality produce to consumers at reasonable rates. Most fresh produce is highly perishable, and postharvest losses are significant under the present methods of management in many countries. However, significant achievements have been made during the last few years to curtail postharvest losses in fr

Here is an abundance of valuable information on different sensing techniques for fruits and vegetables. The volume covers emerging technologies, such as NMR, MRI, wireless sensor networks (WSN), and radio-frequency identification (RFID) and their potential for industrial applications. Key features of the volume:

- Provides an inclusive review of the developments of sensors for quality analysis and inspection of fresh fruits and vegetables
- Fosters an understanding of the basic sensing techniques for quality assessment of fresh fruits and vegetables
- Covers advanced sensing technologies, including computer vision, spectroscopy, X-rays, magnetic resonance, mechanical contact, wireless sensor networks, and radio-frequency identification sensors
- Reviews the significant progress in sensor development of noninvasive techniques for quality assessment of fruits and vegetables

Focusing on new technological interventions involved in the postharvest management of fruits, this volume looks at the research on maintaining the quality of fruits from farm to table. The volume examines the factors that contribute to shortening shelf life as well as innovative

solutions to maintaining quality while increasing the length of time fruit remains fresh, nutritious, and edible. The volume considers the different needs of the diversity of fruits and covers a variety of important topics, including: • factors affecting the postharvest quality of fruits • microbial spoilage • decontamination of fruits by non-thermal technologies • new kinds of packaging and edible coatings • ozone as shelf-life extender of fruits. Emerging Technologies for Shelf-Life Enhancement of Fruits considers the fundamental issues and will be an important reference on shelf-life extension of fruits. Highlighting the trends in future research and development, it will provide food technologists, food engineers, and food industry professionals with new insight for prolonging the shelf life of fruits.

This book presents a selection of innovative postharvest management practices for vegetables. It covers technologies in harvesting, handling, and storage of vegetables, including strategies for low-temperature storage of vegetables, active and smart packaging of vegetables, edible coatings, application of nanotechnology in postharvest technology of vegetable crops, and more. It considers most of the important areas of vegetable processing while maintaining nutritional quality and addressing safety issues. Fruits and vegetables are important sources of nutrients such as vitamins, minerals, and bioactive compounds, which provide many health benefits. However, due to poor postharvest management—such as non-availability of cold chain management and low-cost processing facilities, large quantities of vegetables perish before they reach the consumer. Furthermore, higher temperatures in some regions also contribute to an increased level of postharvest losses. With chapters written by experts in the postharvest handling of vegetable, this volume addresses these challenges. It is devoted to presenting both new and innovative technologies as well as advancements in traditional technologies.

This book presents several pre- and postharvest strategies that have been developed to modify these physiological activities, resulting in increased shelf life. The book also discusses the best technologies that positively influence quality attributes of the produce, including senescence changes and, afterwards, the consumers' decision to purchase the product in the marketplace. With contributions from experts with experience in both developed and developing regions, the book includes chapters covering thorough discussions on postharvest management strategies of fresh horticultural commodities.

While products such as bananas, pineapples, kiwifruit and citrus have long been available to consumers in temperate zones, new fruits such as lychee, longan, carambola, and mangosteen are now also entering the market. Confirmation of the health benefits of tropical and subtropical fruit may also promote consumption further. Tropical and subtropical fruits are particularly vulnerable to postharvest losses, and are also transported long distances for sale. Therefore maximising their quality postharvest is essential and there have been many recent advances in this area. Many tropical fruits are processed further into purees, juices and other value-added products, so quality optimization of processed products is also important. The books cover current state-of-the-art and emerging post-harvest and processing technologies. Volume 1 contains chapters on particular production stages and issues, whereas Volumes 2, 3 and 4 contain chapters focused on particular fruit. Chapters in Volume 2 review the factors affecting the quality of different tropical and subtropical fruits from açai to citrus fruits. Important issues relevant to each product are discussed, including means of maintaining quality and minimizing losses postharvest, recommended storage and transport conditions and processing methods, among other topics. With its distinguished editor and international team of contributors, Volume 2 of Postharvest biology and technology of tropical and subtropical fruits, along with the other volumes in the collection, will be an essential reference both for professionals involved in the postharvest handling and processing of tropical and subtropical fruits and for academics and researchers working in the area. Along with the other volumes in the collection, Volume 2 is an essential reference for professionals involved in the postharvest

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handling and processing of tropical and subtropical fruits and for academics and researchers working in the area Reviews the factors affecting the quality of different tropical and subtropical fruits from açai to citrus fruits Important issues relevant to each particular fruit are discussed, including means of maintaining quality and minimising losses postharvest, recommended storage and transport conditions

Fresh-Cut Fruits and Vegetables: Technologies and Mechanisms for Safety Control covers conventional and emerging technologies in one single source to help industry professionals maintain and enhance nutritional and sensorial quality of fresh-cut fruits and vegetables from a quality and safety perspective. The book provides available literature on different approaches used in fresh-cut processing to ensure safety and quality. It discusses techniques with the aim of preserving quality and safety in sometimes unpredictable environments. Sanitizers, antioxidants, texturizers, natural additives, fortificants, probiotics, edible coatings, active and intelligent packaging are all presented. Both advantages and potential consequences are included to ensure microbial safety, shelf-life stability and preservation of organoleptic and nutritional quality. Industry researchers, professionals and students will all find this resource essential to understand the feasibility and operability of these techniques in modern-day processing to make informed choices. Provides current information on microbial infection, quality preservation, and technology with in-depth discussions on safety mechanisms Presents ways to avoid residue avoidance in packaging and preservation Includes quality issues of microbial degradation and presents solutions for pre-harvest management

Post harvest biology and technology of citrus fruits is gaining importance as the therapeutic value of citrus fruits is realized and supported by the increase in health awareness among the general public. This book is the most comprehensive reference on citrus fruit biology, biotechnology and quality. Basic and applied scientific information is interwoven to serve the researcher, marketer, scientist, nutritionist, or dietician. With discussions of fruit morphology, anatomy, physiology and biochemistry and chapters on growth phases, maturity standards, grades and physical and mechanical characteristics of citrus trees, this book provides the foundation for understanding growth, harvest and post harvest aspects of these important plants. Insect-pests and diseases, irrigation, nutrition and rootstocks are also addressed. * Provides practical tips for post harvest management. * Includes all aspects of citrus fruit biology, technology and quality evaluation. * Discusses biotechnological applications and potential fresh citrus fruit quality improvement * Evaluates medicinal and therapeutic applications and recent clinical findings * Exhaustive glossary included

The urgent need for sustainability within the food producing industries and agriculture has turned the interest of research to investigate new non-thermal technologies, nanotechnologies and other practices in postharvest treatment of crops and fruits. Subsequently, there is a need for a new guide covering the latest developments in this particular direction. **Food Losses, Sustainable Postharvest and Food Technology** provides solutions to postharvest treatment technologies. It explores modern non-thermal technologies, focusing on postharvest losses and quality of fresh-cut products. In addition, it discusses the implications for postharvest technology research, policies and practices. It also focuses on the most recent advances in the field, while it explores the potentiality and sustainability of already commercialized processes and products. Aimed at professionals working in the food industry and agriculture, it could also be utilized as a handbook for anyone dealing with sustainability issues of food production in spite of postharvest treatment. Thoroughly explores modern non-thermal technologies in postharvest treatment Discusses the implications for postharvest technology research, policies and practices Analyzes the potentiality and sustainability of already commercialized processes and products

Consumption of fresh fruits and vegetables has increased dramatically in the last several decades. This increased consumption has put a greater burden on the fresh produce industry

to provide fresher product quality, combined with a high level of food safety. Therefore, postharvest handling, storage and shipment of horticultural crops, including fruit and vegetable products has increased in importance. Novel Postharvest Treatments of Fresh Produce focuses mainly on the application of novel treatments for fruits and vegetables shipping and handling life. A greater emphasis is placed on effects of postharvest treatments on senescence and ripening, bioactive molecule contents and food safety. The work presented within this book explores a wide range of topics pertaining to novel postharvest treatments for fresh and fresh-cut fruits and vegetables including applications of various active agents, green postharvest treatments, physical treatments and combinations of the aforementioned.

This book, chock full of color illustrations, addresses the main postharvest physiological disorders studied in fruits and vegetables. For a wide variety of fruits and vegetables, Postharvest Physiological Disorders in Fruits and Vegetables describes visual symptoms, triggering and inhibiting mechanisms, and approaches to predict and control these disorders after harvest. Color photographs illustrate the disorders, important factors, physiology, and management. The book includes a detailed description of the visual symptoms, triggering and inhibiting mechanisms, and possible approaches to predict and control physiological disorders. The mechanisms triggering and inhibiting the disorders are discussed in detail in each chapter, based on recent studies, which can help readers better understand the factors regulating each disorder. The description of possible approaches to predict and control each disorder can help growers, shippers, wholesalers, and retailers to determine the best management practices to reduce disorder incidence and crop losses. Features: Presents visual symptoms of postharvest physiological disorders that will help readers to precisely identify the disorders in fruits and vegetables Details mechanisms triggering and inhibiting the postharvest disorders Explains possible approaches to predict and control these disorders Suggests the best postharvest management approaches for each crop Although there are many scientific publications on postharvest physiological disorders, there are no recent reviews or books putting together the most recent information about the mechanisms regulating, as well as about the possible approaches to predict and control these disorders.

This book contains 14 chapters focusing on the usefulness of controlled atmosphere (CA) storage in the reduction of postharvest losses and maintenance of the nutritive value and organoleptic characteristics of various fruits and vegetables and extend their season of availability by making good eating quality fruits and vegetables available for extended periods at reasonable costs. The efficacy and shortcomings of various CA storage techniques and their potential as alternatives to the application of preservation and pesticide chemicals are also discussed.

This new volume shares a plethora of valuable information on the recent advances in packaging and storage technologies used for quality preservation of fresh fruits and vegetables. This book, with chapters from eminent researchers in the field, covers several essential aspects of packaging and storage methods and techniques generally used in fruit and vegetables. Important considerations on selection and characteristics of packaging materials, new packaging methods, storage hygiene and sanitation issues along with recent trends in storage technology are discussed in this volume. Key features: Provides an inclusive overview of fruit and vegetable requirements and available packaging materials and storage systems Imparts an understanding of the fundamentals of the impact of packaging on the evolution of quality and safety of fruits and vegetables Includes examples of mathematical modeling and mechanical and engineering properties of packaging materials Provides an in-depth discussion of innovative packaging and storage technologies, such as MA/CA packaging, active packaging, intelligent packaging, eco-friendly materials, etc., applied to fruit and vegetables Packaging and Storage of Fruits and Vegetables: Emerging Trends will be useful for graduate and postgraduate students and teaching professionals of horticultural

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science, food science and technology, packaging technology etc. It will also provide valuable scientific information to the academic scientific research community as well as to the packaging and storage industries for preservation of quality characteristics of fruits and vegetables. The professional community involved in handling processing and commercialization of horticultural crops will benefit as well.

Postharvest Technology of Perishable Horticultural Commodities describes all the postharvest techniques and technologies available to handle perishable horticultural food commodities. It includes basic concepts and important new advances in the subject. Adopting a thematic style, chapters are organized by type of treatment, with sections devoted to postharvest risk factors and their amelioration. Written by experts from around the world, the book provides core insights into identifying and utilizing appropriate postharvest options for maximum results. Presents the most recent developments in processing technologies in a single volume Includes a wide range of perishable products, thus allowing for translational insight Appropriate for students and professionals Written by experts as a reference resource

The world population has been increasing day by day, and demand for food is rising. Despite that, the natural resources are decreasing, and production of food is getting difficult. At the same time, about one-quarter of what is produced never reaches the consumers due to the postharvest losses. Therefore, it is of utmost importance to efficiently handle, store, and utilize produce to be able to feed the world, reduce the use of natural resources, and help to ensure sustainability. At this point, postharvest handling is becoming more important, which is the main determinant of the postharvest losses. Hence, the present book is intended to provide useful and scientific information about postharvest handling of different produce.

An increased understanding of the developmental physiology, biochemistry, and molecular biology during early growth, maturation, ripening, and postharvest conditions has improved technologies to maintain the shelf life and quality of fruits, vegetables, and flowers. Postharvest Biology and Technology of Fruits, Vegetables, and Flowers provides a comprehensive introduction to this subject, offering a firm grounding in the basic science and branching out into the technology and practical applications. An authoritative resource on the science and technology of the postharvest sector, this book surveys the body of knowledge with an emphasis on the recent advances in the field.

Interest in the postharvest behavior of fruits and vegetables has a history as long as mankind's. Once we moved past mere survival, the goal of postharvest preservation research became learning how to balance consumer satisfaction with quantity and quality while also preserving nutritional quality. A comprehensive overview of new postharvest techno

This book mainly deals with pre- and postharvest management practices of the strawberry to ensure that high-quality fruits are delivered to the consumer. The influence of climatic variables, cultural practices, harvesting techniques, and use of chemicals and other natural compounds on fruit quality are discussed. Factors affecting fruit growth and development and processes regarding maturation and biochemical changes during fruit ripening are also presented in one of the chapters of this book. Some chapters provide information regarding harvesting, storing, packaging, transporting, and also selling that affect strawberry quality greatly. Enhancement of yield and antioxidant contents in the strawberry by various natural products, including chitosan and probiotic bacterial, are also included in this book. The final chapter states that antioxidants present in strawberry fruit play a dietary role in alleviating oxidative stress in experimental liver models. This book focuses on the postharvest quality management of the strawberry and provides a useful resource to educationists, traders, and commercial strawberry growers.

Completely revised, updated and enlarged, now encompassing two volumes, this third edition of Fruit and Vegetables reviews and evaluates, in comprehensive detail, postharvest aspects of a very wide international range of fresh fruit and vegetables as it applies to their physiology,

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quality, technology, harvest maturity determination, harvesting methods, packaging, postharvest treatments, controlled atmosphere storage, ripening and transportation. The new edition of this definitive work, which contains many full colour photographs, and details of species not covered in the previous editions, provides key practical and commercially-oriented information of great use in helping to ensure that fresh fruit and vegetables reach the retailer in optimum condition, with the minimum of deterioration and spoilage. With the constantly increasing experimental work throughout the world the book incorporates salient advances in the context of current work, as well as that dating back over a century, to give options to the reader to choose what is most relevant to their situation and needs. This is important because recommendations in the literature are often conflicting; part of the evaluation of the published results and reviews is to guide the reader to make suitable choices through discussion of the reasons for diverse recommendations. Also included is much more on the nutritional values of fruit and vegetables, and how these may vary and change postharvest. There is also additional information on the origin, domestication and taxonomy of fruit and vegetables, putting recommendations in context. *Fruits and Vegetables 3e* is essential reading for fruit and vegetable technologists, food scientists and food technologists, agricultural scientists, commercial growers, shippers, packhouse operatives and personnel within packaging companies. Researchers and upper level students in food science, food technology, plant and agricultural sciences will find a great deal of use within this popular book. All libraries in research establishments and universities where these subjects are studied and taught should have copies readily available for users.

Tropical and subtropical fruits are popular products, but are often highly perishable and need to be transported long distances for sale. The four volumes of *Postharvest biology and technology of tropical fruits* review essential aspects of postharvest biology, postharvest technologies, handling and processing technologies for both well-known and lesser-known fruits. Volume 1 contains chapters on general topics and issues, while Volumes 2, 3 and 4 contain chapters focused on individual fruits, organised alphabetically. Volume 1 provides an overview of key factors associated with the postharvest quality of tropical and subtropical fruits. Two introductory chapters cover the economic importance of these crops and their nutritional benefits. Chapters reviewing the postharvest biology of tropical and subtropical fruits and the impact of preharvest conditions, harvest circumstances and postharvest technologies on quality follow. Further authors review microbiological safety, the control of decay and quarantine pests and the role of biotechnology in the improvement of produce of this type. Two chapters on the processing of tropical and subtropical fruit complete the volume. With its distinguished editor and international team of contributors, Volume 1 of *Postharvest biology and technology of tropical and subtropical fruits*, along with the other volumes in the collection, will be an essential reference both for professionals involved in the postharvest handling and processing of tropical and subtropical fruits and for academics and researchers working in the area. Along with the other volumes in the collection, Volume 1 is an essential reference for professionals involved in the postharvest handling and processing of tropical and subtropical fruits and for academics and researchers working in the area. Focuses on fundamental issues of fruit physiology, quality, safety and handling relevant to all those in the tropical and subtropical fruits supply chain. Chapters include nutritional and health benefits, preharvest factors, food safety, and biotechnology and molecular biology.

Postharvest is an important element of getting fresh, high-quality fruit to the consumer and technological advances continue to outpace infrastructure. This book provides valuable, up-to-date information on postharvest handling of seven fruit and nut crops: almond, fig, peach, persimmon, pistachio, pomegranate and table grape. These crops are of particular importance in the Mediterranean region, but also to those countries that export and import these crops, where intensive economic resources are dedicated to developing information to understand

and solve their postharvest problems. Written by a team of internationally-recognized postharvest experts, this manual collates and verifies essential, but often difficult to access, information on these important crops, that is pertinent to the world's agricultural economy and affects agricultural communities.

This edited volume provides insight into temperate fruits, with an emphasis on postharvest physiology, storage, packaging and technologies for maintaining fruit quality. Chapters are devoted to individual fruits and focus on fundamental issues such as methods for maintaining or enhancing quality, minimizing postharvest losses, and recommended technologies to boost demand. Contributions come from experts in the field, making this a key reference for all aspects of postharvest management of temperate fruits. The volume is unique in its focus on the biodiversity, nutritional and health benefits, and postharvest technologies for shelf life enhancement of temperate fruits. Contributing authors address the postharvest biology and technology of individual temperate fruits such as plum, cherry, peach, apricot, apple, pear, quince, loquat, kiwi, persimmon and berries. There has been tremendous growth in the research and development of new techniques to maintain the quality of temperate fruits from farm to table. Contributions from experts in the field cover these recent advances, providing up-to-date and relevant information for researchers, postharvest/fruit technologists, food scientists, postgraduate students, and others working in the industry.

Post-harvest handling is the stage of crop production immediately following harvest, including cooling, cleaning, sorting and packing. The instant a crop is removed from the ground, or separated from its parent plant, it begins to deteriorate. Post-harvest treatment largely determines final quality, whether a crop is sold for fresh consumption, or used as an ingredient in a processed food product. This book covers post-harvest factors affecting fruit and vegetable quality, waste management, safety factors, and processing methods. The conventional as well as modern post-harvest technologies are described in details. This book will be an invaluable resource for research professionals, quality control personnel and postharvest biology students anyone involved in the technology for handling and storing fresh fruits, vegetables, and ornamentals. While products such as bananas, pineapples, kiwifruit and citrus have long been available to consumers in temperate zones, new fruits such as lychee, longan, carambola, and mangosteen are now also entering the market. Confirmation of the health benefits of tropical and subtropical fruit may also promote consumption further. Tropical and subtropical fruits are particularly vulnerable to postharvest losses, and are also transported long distances for sale. Therefore maximising their quality postharvest is essential and there have been many recent advances in this area. Many tropical fruits are processed further into purees, juices and other value-added products, so quality optimization of processed products is also important. The books cover current state-of-the-art and emerging post-harvest and processing technologies. Volume 1 contains chapters on particular production stages and issues, whereas Volumes 2, 3 and 4 contain chapters focused on particular fruit. Chapters in Volume 3 of this important collection review factors affecting the quality of different tropical and subtropical fruits, concentrating on postharvest biology and technology. Important issues relevant to each specific product are discussed, such as postharvest physiology,

preharvest factors affecting postharvest quality, quality maintenance postharvest, pests and diseases and value-added processed products, among other topics. Along with the other volumes in the collection, Volume 3 is an essential reference for professionals involved in the postharvest handling and processing of tropical and subtropical fruits and for academics and researchers working in the area. Covers current state-of-the-art and emerging post-harvest and processing technologies. Important issues relevant to each particular fruit are discussed, such as postharvest physiology, preharvest factors affecting postharvest quality and pests and diseases.

International trade in high value perishables has grown enormously in the past few decades. In the developed world consumers now expect to be able to eat perishable produce from all parts of the world, and in most cases throughout the year. Perishable plant products are, however, susceptible to physical damage and often have a potential storage life of only a few days. Given their key importance in the world economy, *Crop Post-Harvest Science and Technology: Perishables* devotes itself to perishable produce, providing current and comprehensive knowledge on all the key factors affecting post-harvest quality of fruits and vegetables. This volume focuses explicitly on the effects and causes of deterioration, as well as the many techniques and practices implemented to maintain quality through correct handling and storage. As highlighted throughout, regular losses caused by post-harvest spoilage of perishable products can be as much as 50%. A complete understanding, as provided by this excellent volume, is therefore vital in helping to reduce these losses by a significant percentage. Compiled by members of the world-renowned Natural Resources Institute at the United Kingdom's University of Greenwich, with contributions from experts around the world, this volume is an essential reference for all those working in the area. Researchers and upper-level students in food science, food technology, post-harvest science and technology, crop protection, applied biology and plant and agricultural sciences will benefit from this landmark publication. Libraries in all research establishments and universities where these subjects are studied and taught should ensure that they have several copies for their shelves.

A comprehensive introduction to the physiology, biochemistry, and molecular biology of produce growth, paired with cutting-edge technological advances in produce preservation. Revised and updated, the second edition of *Postharvest Biology and Nanotechnology* explores the most recent developments in postharvest biology and nanotechnology. Since the publication of the first edition, there has been an increased understanding of the developmental physiology, biochemistry, and molecular biology during early growth, maturation, ripening, and postharvest conditions. The contributors—*noted experts in the field*—review the improved technologies that maintain the shelf life and quality of fruits, vegetables, and flowers. This second edition contains new strategies that can be implemented to remedy food security issues, including but not limited to phospholipase D inhibition technology and ethylene inhibition via 1-MCP.

technology. The text offers an introduction to technologies used in production practices and distribution of produce around the world, as well as the process of senescence on a molecular and biochemical level. The book also explores the postharvest value chain for various produce, quality evaluation techniques, and the most current nanotechnology applications. This important resource:

- Expands on the first edition to explore in-depth postharvest biology with emphasis on developments in nanotechnology
- Contains contributions from leaders in the field
- Includes the most recent advances in postharvest biology and technology, including but not limited to phospholipase D and 1-MCP technology
- Puts the focus on basic science as well as technology and practical applications
- Applies a physiology, biochemistry, and biotechnology approach to the subject

Written for crop science researchers and professionals, horticultural researchers, agricultural engineers, food scientists working with fruits and vegetables, *Postharvest Biology and Nanotechnology, Second Edition* provides a comprehensive introduction to this subject, with a grounding in the basic science with the technology and practical applications.

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