

## Postharvest Ripening Physiology Of Crops Flavor And

Fruit ripening is an important aspect of fruit production. The timing of it affects supply chains and buying behaviour, and for consumers ripeness not only affects perceptions of health but has nutritional effects too. Ripeness is closely related to spoilage which has a major financial impact on agricultural industries. Currently there are fast moving developments in knowledge of the factors affecting fruit ripeness, and this up-to-date monograph seeks to draw together the disparate research in this area. The aim of the book is to produce a comprehensive account covering almost every area related to fruit ripening including the latest molecular mechanisms regulating fruit ripening, its impact on human nutrition and emerging research and technologies.

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.

Food quality is becoming an ever-increasing important feature for consumers and it is well known that some food crops are perishable and have a very short shelf and storage life. An effective quality assurance system throughout the handling steps between harvest and retail display is essential to provide a consistently good quality supply of fresh food crops to the consumers and to protect the reputation of a given marketing label. Food manufacturing companies all over the world are increasingly focussing on quality aspect of food including minimally processed food to meet consumer demands for fresh-like and healthy food products. To investigate and control quality, one must be able to measure quality-related attributes. Quality of produce encompasses sensory attributes, nutritive values, chemical constituents, mechanical properties, functional properties and defects. Successful postharvest handling of crops requires careful coordination and integration of the various steps from harvest operations to consumer level in order to maintain the initial product quality. Maturity at harvest is one feature of quality of perishable products, it has great influence on their postharvest behavior during marketing. Safety assurance can be part of quality assurance and its focus on minimizing chemical and microbial contamination during production, harvesting, and postharvest handling of intact and fresh-cut of commodities. Essentially, electromagnetic (often optical) properties relate to appearance, mechanical properties to texture, and chemical properties to flavor (taste and aroma).

Global food losses are a result of a lack of necessary infrastructure, improper food safety handling procedures, and insufficient training for the personnel working in the cold chain. The development of a resource-efficient and energy-smart food supply chain requires a well-integrated evaluation and development of the cold chain. *Cold Chain Management for the Fresh Produce Industry in the Developing World* provides a comprehensive review of the benefits of an unbroken cold chain in developing countries and focuses on the critical role of extension education in the implementation of cold chain management. The unbroken cold chain is essential for all stakeholders in the fresh produce industry to maintain the quality and safety of food products during handling, transporting, and storing in their journey from producer to consumer. Appropriate cold chain management is crucial not only to reduce the postharvest losses and wastages, but also to increase farmers' income, generate employment opportunities, and improve the livelihood of stakeholders along the supply chain. Key Features: Includes case studies for promoting the expansion of existing technologies for cold chain development in Asian, Africa and the Caribbean nations. Assesses cold chain management as crucial to the growth of global trade in perishable products with contributions from international organizations, researchers and commercial experts. Articulates resilient, sustainable and creative concepts to develop cold chains to enhance food distribution. This book comprises of chapters contributed by the experts and practitioners of cold chain development in developing countries. The authors in the book provide the scenario of cold chain management in the world and discuss the importance of the cold chain as well as the different options and innovations of cooling systems. Chapters also include case studies, success stories, capacity building activities, and other opportunities in cold chain development.

*Postharvest Physiology and Biochemistry of Fruits and Vegetables* presents an updated, interrelated and sequenced view of the contribution of fruits and vegetables on human health, their aspects of plant metabolism, physical and chemical/compositional changes during the entire fruit development lifecycle, the physiological disorders and biochemical effects of modified/controlled atmospheres, and the biotechnology of horticultural crops. The book is written specifically for those interested in preharvest and postharvest crop science and the impact of physiological and biochemical changes on their roles as functional foods. Deals with the developmental aspects of the lifecycle in whole fruits Describes issues, such as the morphology and anatomy of fruits, beginning with the structural organization of the whole plant and explaining the fruit structure and its botanical classification Addresses biotechnological concepts that control firmness, quality and the nutritional value of fruits

Pineapple is the third most important tropical fruit in the world, with production occurring throughout the tropics. The demand for low acid fresh pineapples and its processed products is one of the fastest growing markets, especially in Europe and North America. This book provides an in depth and contemporary coverage of knowledge and practices in the value chain of this popular fruit, from production through to consumption. The chapters explore all the most recent developments in areas such as breeding, novel processing technologies, postharvest physiology and storage, packaging, nutritional quality and safety aspects. An outstanding team of authors from across the globe have contributed to make this the definitive pineapple handbook. *Handbook of Pineapple Technology: Production, Postharvest Science, Processing and Nutrition* is the ultimate guide for scientists in the food industries specializing in fruit processing, packaging and

manufacturing. It is also a useful resource for educators and students of food technology and food sciences as well as research centers and regulatory agencies around the world.

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.

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 technology Postharvest Handling: A Systems Approach introduces a new concept in the handling of fresh fruits and vegetable. Traditional treatments have been either physiologically based with an emphasis on biological tissue or technologically based with an emphasis on storage and handling. This book integrates all processes from production practices through consumer consumption with an emphasis on understanding market forces and providing fresh product that meets consumer expectations. Postharvest physiologists and technologists across the disciplines of agricultural economics, agricultural engineering, food science and horticulture along with handlers of minimally-processed products within the fresh produce fruit and vegetable processing industries will find this to be an invaluable source of information. Uses a systems approach that provides a unique perspective on the handling of fresh fruits and vegetables Designed with the applied perspective to complement the more basic perspectives provided in other treatments Provides the integrated, interdisciplinary perspective needed in research to improve the quality of fresh and minimally processed products Emphasizes that the design of handling systems should be market-driven rather than concentrating on narrow specifics 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.

Postharvest losses of fresh produce have always been an obstacle in agriculture. About one third of global fresh fruits and vegetables are lost because their quality has dropped below an acceptance limit. The postharvest quality and shelf life of fresh produce are also determined before harvest. However, postharvest quality is also affected by many practices during and after harvest such as temperature management, controlled and modified atmosphere, coatings, physical treatments, biocontrol, and more. This Special Issue on "Postharvest Disease Development: Pre and/or Postharvest Practices" gathers papers that deal with preharvest and postharvest factors that affect and maintain fresh produce quality after harvest.

The volume presents existing and novel management approaches that are in use or have a great potential to be used to maintain the postharvest quality of fresh produce in terms of microbiological safety, nutrition, and sensory quality. In comparison to traditional synthetic chemicals, these eco-friendly molecules are equally effective with respect to slowing the physiological and biochemical changes in harvested produce. Application of terpenic compounds, phenolic compounds, salicylic acid, methyl jasmonates, hydrogen peroxide, ethanol, sulphur compounds, polyamines, plant growth regulators, active carbohydrates, ozone, hexanal and nitric oxide have been proven effective in minimizing storage disorders like chilling injury, scald, fungal diseases like stem-end rot, blue mould rot, green mould rot, anthracnose, regulation of ripening and senescence, etc. This book will be a standard reference work for the management of shelf life in the fresh produce industry.

Starting in the 1940s, humans have aimed to increase agricultural productivity. However, along with the benefits gained, there have been several criticisms since the 1970s, especially about food security and environmental impacts.

Nowadays, the demand for food is increasing while the quantity and quality of agricultural production is declining due to human-induced environmental problems, i.e. climate change and water scarcity. Moreover, our modern fruit industry needs to improve quality and quantity of fruit production while also protecting ecosystems by reducing environmental impacts. Hence, this book intends to provide the reader with a comprehensive overview of the new and eco-friendly

technologies in the modern fruit industry.

Postharvest physiology; Regulation of ripening and senescence; Harvest and handling; Physiological disorders and diseases; Distribution and utilization.

Tropical and sub-tropical fruits have gained significant importance in global commerce. This book examines recent developments in the area of fruit technology including: postharvest physiology and storage; novel processing technologies applied to fruits; and in-depth coverage on processing, packaging, and nutritional quality of tropical and sub-tropical fruits. This contemporary handbook uniquely presents current knowledge and practices in the value chain of tropical and subtropical fruits world-wide, covering production and post-harvest practices, innovative processing technologies, packaging, and quality management. Chapters are devoted to each major and minor tropical fruit (mango, pineapple, banana, papaya, date, guava, passion fruit, lychee, coconut, logan, carambola) and each citrus and non-citrus sub-tropical fruit (orange, grapefruit, lemon/lime, mandarin/tangerine, melons, avocado, kiwifruit, pomegranate, olive, fig, cherimoya, jackfruit, mangosteen). Topical coverage for each fruit is extensive, including: current storage and shipping practices; shelf life extension and quality; microbial issues and food safety aspects of fresh-cut products; processing operations such as grading, cleaning, size-reduction, blanching, filling, canning, freezing, and drying; and effects of processing on nutrients and bioavailability. With chapters compiled from experts worldwide, this book is an essential reference for all professionals in the fruit industry.

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, 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.

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.

The purpose of this publication is to elucidate the biological aspect of the abiotic stress response from the field to the molecular level in horticultural plants. This book is unique in that it concerns the basic aspect of abiotic stress biology and research progress at the molecular level in model plants or major field crops, as it focuses mainly on the abiotic stress response in existing horticultural plants. Many readers interested in plant abiotic stress biology are aware of the application of the latest findings to agricultural production, and this book will have a special appeal for those readers. The book will be of interest to scientists and graduate students who are involved in the research, development, production, processing, and marketing of horticultural products, including those in developing countries who are interested in high tech and advanced science in this field. The application of the latest findings to agricultural production is particularly useful. Stress tolerance mechanisms in horticultural crops are gaining importance, because most agricultural regions are predicted to experience considerably more extreme environmental fluctuations due to global climate change. Further, because of recent progress in next-generation sequencing technologies, the postgenomic era is impending not only in model plants and major cereal crops but also in horticultural crops, which comprise a great diversity of species. This book provides information on the physiological aspects of the abiotic stress response in horticultural plants, which is considered essential for postgenomic research.

Physiology of Sugarcane looks at the development of a suite of well-established and developing biofuels derived from sugarcane and cane-based co-products, such as bagasse. Chapters provide broad-ranging coverage of sugarcane biology, biotechnological advances, and breakthroughs in production and processing techniques. This single volume resource brings together essential

information to researchers and industry personnel interested in utilizing and developing new fuels and bioproducts derived from cane crops.

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. 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.

With contributions from over 70 international experts, this reference provides comprehensive coverage of plant physiological stages and processes under both normal and stressful conditions. It emphasizes environmental factors, climatic changes, developmental stages, and growth regulators as well as linking plant and crop physiology to the production of food, feed, and medicinal compounds. Offering over 300 useful tables, equations, drawings, photographs, and micrographs, the book covers cellular and molecular aspects of plant and crop physiology, plant and crop physiological responses to heavy metal concentration and agrichemicals, computer modeling in plant physiology, and more.

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.

*Ethylene in Plant Biology* focuses on the role of ethylene in plant physiology and the interrelationship between ethylene, fruit ripening, and respiration. It summarizes the physiology, biochemistry, production, regulation, plant effects, metabolism, and mechanism of action of ethylene. This book presents an introduction to basic chemistry of ethylene and available techniques for its sampling and analysis. Then, it discusses the rate, environmental conditions, and reactions involved in ethylene production. Chapter 4 examines the effects of herbicides and hormones, such as auxin, gibberellins, cytokinins, and abscisic acid, on ethylene production. Meanwhile, the next chapter studies the so-called stress ethylene phenomenon in plants. In particular, this book examines the role of insects, temperature, water, gamma-irradiation, and mechanical and chemical stimuli in stress ethylene. The biochemical aspects of ethylene are covered in the subsequent chapters. These include its role in growth and development of plant, phytochronological activity, role in ethylene synthesis, respiration, pigmentation, and hormone regulation. Chapter 9 presents the activity of ethylene relative to other hydrocarbon analogs and dose-response relationships for a number of ethylene-mediated processes. The concluding chapters tackle the attachment of ethylene to its site of action, including epinasty, root initiation, intumescence formation, and floral initiation. A discussion on the issue of ethylene air pollution is included. This book will be useful to both undergraduate students and professional workers, especially those who have background in plant anatomy, plant physiology, or biochemistry.

*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

Science and practice of postharvest plant physiology; Nature and structure of harvested products; Metabolic process in harvested products;

Secondary metabolic processes and products; Development of plants and plant parts; stress in harvested products; Movement of gases solvents, and solutes within harvested products and their exchange between the product and its external environment; Heat, heat transfer, and cooling.

This book covers the importance of post-harvest technology in horticultural crops, fruit growth, development and post harvest physiology, fruit maturity indices, harvesting of fruits and vegetables, initial handling of fruits and vegetable after harvesting, precooling of horticulture produce, transportation, etc.. It is a rich source of modern engineering technologies for income generating concept for agro based industries. The book is specially dedicated to the sub sector of the fruits and vegetables plants dealing with the fresh primary product from the product reception following the harvesting up-to the storage and before launches it to the market. This book will serves as a comprehensive guide for all the people who focuses on post harvest management skills. Note: T&F does not sell or distribute the hardback in India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka.

It is over 20 years since the publication of A.c. Hulme's two volume text on The Biochemistry of Fruits and their Products. Whilst the bulk of the information contained in that text is still relevant it is true to say that our understanding of the biochemical and genetic mechanisms focusing exclusively on postharvest vegetable studies, this book covers advances in biochemistry, plant physiology, and molecular physiology to maximize vegetable quality. The book reviews the principles of harvest and storage; factors affecting postharvest physiology, calcium nutrition and irrigation control; product quality changes during handling and storage; technologies to improve quality; spoilage factors and biocontrol methods; and storage characteristics of produce by category. It covers changes in sensory quality such as color, texture, and flavor after harvest and how biotechnology is being used to improve postharvest quality.

Because they meet the needs of today's consumers, fresh-cut plant products are currently one of the hottest commodities in the food market of industrialized countries. However, fresh-cut produce deteriorates faster than the correspondent intact produce. The main purpose of Fresh-Cut Fruits and Vegetables: Technology, Physiology, and Safety is to provide helpful guidelines to the industry for minimizing deterioration, keeping the overall quality, and lengthening the shelf life. It provides an integrated and interdisciplinary approach for accomplishing the challenges, where raw materials, handling, minimal processing, packaging, commercial distribution, and retail sale must be well managed. It covers technology, physiology, quality, and safety of fresh-cut fruits and vegetables. In this book, the chapters follow a logical sequence analyzing most of the important factors affecting the main characteristics of fresh-cut horticultural products. The most relevant technologies to prevent deterioration and improve final overall quality of fresh-cut commodities are described in detail. This book covers the basics of the subject from quality preservation, nutritional losses, physiology, and safety to industry-oriented advancements in sanitization, coatings, and packaging. It examines such novel preservation technologies as edible coatings, antimicrobial coatings, natural antimicrobials, gum arabic coatings, and pulsed light treatments. Minimal processing design and industrial equipment are also reviewed. With its international team of contributors, this book will be an essential reference work both for professionals involved in the postharvest handling of fresh-cut and minimally processed fruits and vegetables and for academic and researchers working in the area.

A comprehensive guide that covers the banana's full value chain – from production to consumption The banana is the world's fourth major fruit crop. Offering a unique and in-depth overview of the fruit's entire value chain, this important new handbook charts its progression from production through to harvest, postharvest, processing, and consumption. The most up-to-date data and best practices are drawn together to present guidelines on innovative storage, processing, and packaging technologies, while fresh approaches to quality management and the value-added utilization of banana byproducts are also explained. Additionally, the book examines the banana's physiology, nutritional significance, and potential diseases and pests. The book also Edited by noted experts in the field of food science, this essential text: Provides a new examination of the world's fourth major fruit crop Covers the fruit's entire value chain Offers dedicated chapters on bioactive and phytochemical compounds found in bananas and the potential of processing byproducts Gives insight into bananas' antioxidant content and other nutritional properties Identifies and explains present and possible effects of bioactive and phytochemical compounds Handbook of Banana Production, Postharvest Science, Processing Technology, and Nutrition offers the most far-reaching overview of the banana currently available. It will be of great benefit to food industry professionals specializing in fruit processing, packaging, and manufacturing banana-based products. The book is also an excellent resource for those studying or researching food technology, food science, food engineering, food packaging, applied nutrition, biotechnology, and more.

Postharvest Ripening Physiology of Crops CRC Press

The tomato is commercially important throughout the world both for the fresh fruit market and the processed food industries. It is grown in a wide range of climates in the field, under protection in plastic greenhouses and in heated glasshouses. Genetic, physiological and pathological investigations frequently adopt the tomato plant as a convenient subject. Hitherto, much of the information on tomatoes has been fragmented: tomatoes grown in the field and under protection have been considered separately and the more fundamental findings from research have often failed to reach those involved directly or indirectly in commercial crop production. Similarly, the research scientist is often unaware of the problems of commercial crop production and the possible relevance of his work to the crop. This book is an attempt to rectify that situation. By giving a thorough scientific review of all factors influencing tomato production systems, it is hoped that this book will prove useful to students, researchers and commercial producers alike. It gives the basis for the development of improved cultivars, the formulation of strategies for managing pest, disease and disorder problems and the production of high yields of good quality fruit as well as suggesting important areas for scientific initiatives. The extensive bibliographies provide a comprehensive database for tomato researchers. Such a vast subject could not be covered with authority by anyone author.

Deze studie behandelt de waarde van voedergewassen voor de voedselvoorziening; het belang van bewaarfysiologie; structuur van het geogste materiaal in relatie tot de gevolgen voor fysiologische processen van vochtverlies en -opname, respiratie en warmteproductie; veranderingen in samenstelling en op welke wijze dit de voederwaarde en opneembaarheid van het opgeslagen materiaal beïnvloedt; speciale gevallen van rijping en veroudering van fruit; het belang van opslagcondities en de schadelijke invloeden van ziekten en plagen. Tenslotte volgt een beschrijving van enkele belangrijke voorbeelden van praktische toepassingen van fysiologische principes ter verlenging van de houdbaarheid en ter vermindering van bewaarverliezen

Emphasis in agricultural research for many years has concentrated on crop production. This emphasis has become more important in recent years with the realization that the population worldwide is outstripping the food supply. There is, however, another side to increasing the availability of the food supply. This simply involves preservation of the harvested crop-for human consumption. The losses incurred in harvesting, handling, transportation, storage and marketing crops have become a greater problem as the distance from the farm to the ultimate consumer increases. In the Western world

where modern transportation, storage facilities, and marketing technology are widely used, post-harvest technology requires a large input of energy which increases costs considerably. Therefore, losses are more significant and the ability to provide fresh fruits and vegetables, out of season, at reasonable costs will depend on reduced post-harvest losses throughout the marketing chain from the farm gate to the ultimate consumer. The reduction in post-harvest losses depends on proper use of current technology and further developments derived from a broad spectrum of scientific disciplines. Biochemistry, plant physiology, plant pathology, horticulture, agronomy, physics, engineering and agricultural economics, all provide knowledge which has been useful and will be useful in the future for improving post-harvest technology and crop preservation. This volume records the Proceedings of the NATO Advanced Study Institute on Post-Harvest Physiology and Crop Preservation, held at Sounion, Greece, April 28 - May 8, 1981.

Postharvest Ripening Physiology of Crops is a comprehensive interdisciplinary reference source for the various aspects of fruit ripening and postharvest behavior. It focuses on the postharvest physiology, biochemistry, and molecular biology of ripening and provides an overview of fruits and vegetables, including chapters on the postharvest quality of ornamental plants and molecular biology of flower senescence. It describes various developments that have taken place in the last decade with respect to identifying and altering the function of ripening-related genes. Taking clues from studies in grape and tomato as model fruits, the book reviews a few case studies and gives you a detailed account of molecular regulation of fruit ripening, and signal transduction and internal atmospheres in relation to fruit ripening. It also presents an overview of methods utilized in fruit proteomics, as well as a global proteome and systems biology analysis of fruits during ripening, and discusses the basics of dormancy, its molecular and physiological basis, and methods to break the dormancy. The book provides an overview of the most important metabolic pathways and genes that control volatile biosynthesis in model fruits, including tropical, subtropical, and temperate fruits, with a special emphasis on fruit ripening and the role of ethylene during this process. It presents a brief description of the composition of volatiles in various fruit species and addresses the influences of preharvest factors and postharvest technologies on fruit aroma, basic mechanisms responsible for postharvest flavor change in fresh produce, and the potential impacts of various postharvest technologies on flavor.

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

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 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.

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