Postharvest Handling A Systems Approach 2nd Edition

The Third Edition of the University of California's definitive manual on postharvest technology has been completely updated and expanded. Five new chapters cover consumer issues in quality and safety, preharvest factors affecting fruit and vegetable quality, waste management and cull utilization, safety factors, and processing methods. A new appendix presents a summary of optimal conditions and the potential storage life of 200 fruits and vegetables.

The purpose of the book Postharvest Plant Pathology is to provide its readers recent developments and updated comprehensive information on postharvest pathogens & diseases of major crops. This book explicates the fundamental aspects of postharvest diseases of crops and is conveniently divided into ten chapters, providing the latest information on the concept & types of postharvest diseases, economically significant postharvest pathogens & diseases of major crops, factors governing postharvest diseases, storage conditions, food safety issues, quiescence in post harvest pathogens, detailed & recent information on major mycotoxins, various approaches of postharvest disease management, integrated management strategies, biochemical & molecular aspects of postharvest diseases, apart from which, an exclusive chapter for discussing the postharvest nematode diseases and their management is also furnished.

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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.

Since its publication in 1994, the Small Farm Handbook has been an essential resource for California’s small farmers and the agricultural professionals advising them – selling over 4300 copies. Now this invaluable reference has been updated and expanded for today’s small-scale producers. The handbook covers three essential areas: Background skills and knowledge, the business side, and the farming side. Within these broad areas you’ll find specific chapters on: Requirements for Successful Farming Growing Crops Raising Animals Farm and Financial Management Marketing and Product Sales Labor Management Also included are profiles of six small farm operators representing a sample of California’s diverse agriculture. Throughout you’ll get a look at emerging trends and issues for California agriculture and innovative methods for better production and management, all of which can lead to better farm performance. Drawing upon the knowledge of 32 experts from the University of California, No other publication covers the topics, issues, and facets of California’s small-scale agriculture with this depth or level of expertise. From the basics to risk management, specialty crops to marketing and product sales, this guide covers the gamut.

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 minially-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 A Handbook on Post Harvest Management of Fruits and Vegetables deals with the scientific approach to post harvest management of fresh fruits and vegetables with the intention to minimize the post harvest losses. It is a compilation of informations on various aspects of post harvest technology in to a simple handbook. Separate chapters on the importance of harvesting indices of various fruits and vegetables, methods of harvesting, importance of washing and various techniques and types of machines used for washing are coverd in the earlier chapters with tables and pictures. Importance of packing fresh fruits and vegetables, its comparative merits and demerits of each material, pre-treatments of fruits and vegetables, different storage techniques and hazards during transportation are covered in the later chapters. This is a brief and valid handbook highly suitable for the students and research workers in the field of
Horticulture, Agriculture and Food Science and Technology who are doing post harvest aspect of fruit and vegetables and also those who are engaged in fresh fruits and vegetable handling, packaging marketing. Contents Chapter 1: Introduction; Chapter 2: Harvesting; Chapter 3: Washing; Chapter 4: Sorting and Grading; Chapter 5: Pre-treatments; Chapter 6: Packaging; Chapter 7: Storage; Chapter 8: Transportation

Written by a diverse group of research professionals, Postharvest Decay: Control Strategies is aimed at a wide audience, including researchers involved in the study of postharvest handling of agricultural commodities, and undergraduate and graduate students researching postharvest topics. Growers, managers, and operators working at packinghouses and storage, retail, and wholesale facilities can also benefit from this book. The information in this book covers a wide range of topics related to selected fungi, such as taxonomy, infection processes, economic importance, causes of infection, the influence of pre-harvest agronomic practices and the environment, the effect of handling operations, and the strategic controls for each host-pathogen, including traditional and non-traditional alternatives. Includes eleven postharvest fungi causing serious rots in numerous fruits and vegetables Offers selected microorganisms including pathogens of commercially important tropical, subtropical and temperate crops worldwide, such as tomatoes, pears, apples, peaches, citrus, banana, papaya, and mango, among others Presents content developed by recognized and experienced high-level scientists, working in the postharvest pathology area worldwide Provides basic information about each fungus, pre- and postharvest factors that contribute to infection and control measurements, including the use of chemicals and non-traditional methods.
Dates are an important fruit, especially in many African, Middle-Eastern and Asian countries. In recent years this fruit has gained significant importance in terms of global commerce. During the period 1990–2009, global production of dates saw an increase of 219% and this trend is expected to continue as per FAO projections. Some of the major challenges confronting date fruit production and commerce are issues related to postharvest handling technologies, use of appropriate processing and packaging technologies, food safety aspects and quality assurance. Dates: Postharvest Science, Processing Technology and Health Benefits provides contemporary information that brings together current knowledge and practices in the value chain of dates, from production through to consumption. The important book published by Wiley Blackwell features coverage from leading experts on innovative processing technologies, packaging, quality management and pest control for dates. It is the only book to address the science and technology of the postharvest production of dates, a commercially important and growing sector of the food industry.

Overview of the problems: Tropical fruits: the social, political, and economic Issues; Quality assurance: a total approach; An economic evaluation of postharvest tropical fruit research: some preliminary results; Regulations and quarantine in international trade; Session summary; Marketing of tropical fruits: Prospects for marketing tropical fruits in Asia; Trends and changes in the european market for tropical fruits and their impact on technological requirements; Postharvest handling of avocado, mango, and lychee for export from south Africa; The market for tropical fruits in Japan; Diagnosing the causes of
outturn problems in imported tropical fruits;
Harvesting, processing, and transportation: When to harvest-maturity standards versus harvesting indices (abstract only); Fruit packing house operations to improve returns; Fruit handling systems in developing countries; Impact and vibration damage to fruit during handling and transportation; Minimal processing of tropical fruits; Session summary;
Postharvest diseases and disorders: Control of postharvest diseases of tropical fruits: challenges for the 21st century: Infection processes of colletotrichum species in subtropical and tropical fruits; Preharvest fungicidal sprays for postharvest disease control in fruits; A review of biological control of postharvest diseases of subtropical fruits; Sulfur dioxide fumigation in postharvest handling of fresh longan and lychee for export; Session summary;
Storage and ripening: Tropical fruit physiology and storage potential; Biochemical and molecular approaches to fruit ripening and senescence; Calcium and fruit storage potential; Postharvest water relations in horticultural crops: principles and problems; Modified and controlled atmosphere storage of tropical fruits; New developments in modified atmosphere packaging and surface coatings for fruits; Preharvest effects on postharvest quality of subtropical and tropical fruits; Session summary; Disinfestation of tropical fruits: Quarantine disinfestation of tropical fruits: non-chemical options;
Heat disinfestation of mangoes: effect on fruit quality and disease control; Preharvest fruit fly control: strategies for the tropics; Disinfestation: effect of non-chemical treatments on market quality of fruit; Proposed standardisation of protocols for quarantine treatment of fruit; Session summary; Contributed poster papers: Overview issues: Postharvest studies on some tropical and subtropical fruits in Pakistan; Potential of value-added fruit products in Papua New Guinea; The economic potential of interventions to reduce postharvest losses of tropical fruits and nuts in Papua New Guinea; Aspects of marketing tropical fruits in temperate climates; A multivariate factor analysis of consumer preference on banana attributes; Maturity assessment: Determination of maturity indices for Sri Lankan embul bananas; Development of maturity indices for longan; Maturation and harvesting criteria for avocado (abstract only); Disinfestation and primary processing: Postharvest handling and quarantine of tropical fruit in the Jiangmen region of Guangdon, China; Effects of gamma irradiation and hot-water treatment on the shelf life and quality of Thai Mango cv. rad; Effect of irradiation and storage temperature on the shelf life and quality of Thai licheee; Insect quarantine treatments and fruit ripening; Microwaves as a quarantine treatment to disinfest commodities of pests; Effect of pH and sugar concentration on apple cider quality; Osmotic dehydration of membrane-
coated pineapple; Anti-fruit-fly activity of extracts of black pepper and other edible plants; The potential use of insecticidal atmospheres for mango, avocado, and papaya fruits; Preliminary investigation of microorganisms antagonistic to colletotrichum gloeosporioides obtained from rambutan; Electron beam irradiation combined with hot-water immersion treatment for banana preservation (abstract only); Fruit fly problem and disinfestation research in Malaysia (abstract only); Storage and ripening: Internal quality analysis of watermelons by and acoustic technique and its application in Japan; Feasibility studies into NIR technique for measurement of internal quality of some tropical fruits; Distribution of mineral in Alphonso mango during ripening; Effect of calcium on physicochemical changes in Alphonso mango during ripening and storage; A low-cost cool chamber: an innovative technology for developing countries; Effect of low temperatures on storage life and quality of carambola (Averrhoa carambola L.)cv. B17; Incidence of chilling injury in Salacca zalacca; Internal carbon dioxide and ethylene of avocado fruit (Persea americana Mill.) measured by equilibrium technique; Effects of plantation and postharvest management factors on shelf life of 'Williams' banana; Optimisation of indigenous ripening systems for bananas in the Philippines; Fundamental studies on respiration rates and storage properties of some
tropical fruits grown on Okinawa; Reducing decay and extending shelf life of bell-peppers and mangoes by modified atmosphere packaging; Modified atmosphere storage of bananas at chilling temperatures; Storage of fresh pineapples; The effect of sucrose ester coating on ambient temperature storage of several fruits; Effects of different precooling methods and times on the storage quality of carambola variety B10; Effect of maturity, damage, and humidity on the ripening of plantain and cooking banana; Modified atmosphere packaging by perforated polymeric film and its effect on physical properties of mango fruit; Productivity and postharvest behaviour of black sapote in the Israeli Negev desert (abstract only); Storage and ripening of Kenyan mangoes (Abstracts only); The storage of sapodilla (Manilkara achras L.) at 10, 15, and 20 o. C (abstract only); Factors influencing the ripening of 'chanee' and 'monthong' durians (abstract only); Effects of ethylene application on fruit postharvest characteristics of cucumis metuliferus Mey. (abstract only); Postharvest diseases and disorders: Mango postharvest disease control: effect of rain at harvest, fungicide treatments, and fruit brushing on fruit appearance; Sour rot disease on citrus fruits: importance and control; Hot-water control of anthracnose on mango varietis arumanis, golek and manalagi; Efficacy of propiconazole against fungi causing postharvest disease on
eksotika papaya; Freckle disease of banana; Phytophthora fruit rot of durian (Durio zibethinus L.); Postharvest fruit rot of banana caused by colletotrichum musae (Berg. & Curt.) Arx. and its control; Application of candida guilliermondii in commercial citrus waxes for biocontrol of penicillium on grapefruit; Phomopsis fruit rot of mango and its control; Management of 'jelly-seed' in mango (Mangifera indica L.) cv. Tommy Atkins (abstract only); Session summaries-contributed poster papers: Workshop reports: Controlled atmospheres/modified atmospheres; Postharvest physiology; Disinfestation; Diseases; Biocontrol of diseases; Molecular biology; Trade and marketing; Education and training; Research network on tropical fruit trees in Asia. 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. 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.

This book takes a transdisciplinary approach and considers multisectoral actions, integrating health, agriculture and environmental sector issues to comprehensively explore the topic of sustainable diets. The team of international authors informs readers with arguments, challenges, perspectives, policies, actions and solutions on global topics that must be properly understood in order to be effectively addressed. They position issues of sustainable diets as central to the Earth's future. Presenting the latest findings, they: - Explore the transition to sustainable diets within the context of sustainable food systems, addressing the right to food, and linking food security and nutrition to
sustainability. - Convey the urgency of coordinated action, and consider how to engage multiple sectors in dialogue and joint research to tackle the pressing problems that have taken us to the edge, and beyond, of the planet's limits to growth. - Review tools, methods and indicators for assessing sustainable diets. - Describe lessons learned from case studies on both traditional food systems and current dietary challenges. As an affiliated project of the One Planet Sustainable Food Systems Programme, this book provides a way forward for achieving global and local targets, including the Sustainable Development Goals and the United Nations Decade of Action on Nutrition commitments. This resource is essential reading for scientists, practitioners, and students in the fields of nutrition science, food science, environmental sciences, agricultural sciences, development studies, food studies, public health and food policy. This book presents a comprehensive study of the handling of fresh fruits in the developing world from harvesting to the shelf. With annual losses ranging from 30-40% due to lack of knowledge on proper handling practices and value addition, this book's information on postharvest handling and quality testing is crucial for reducing these losses and improving the quality and safety of fresh fruits in these areas. With its added focus on marketing and organized retail aspects, Postharvest Quality
Assurance of Fruits: Practical Approaches for Developing Countries covers the entire range of fruit handling, from transportation and packaging to quality assessment and commercial preparation. In presenting a fully comprehensive outline of the factors affecting postharvest quality and marketability of fruits, this work lays the foundation for understanding the proper storage, transportation and packaging methods to prevent losses and increase quality. With its study of prevailing marketing systems, supply chains and retail methods, the book presents the complete picture for the postharvest handling of fruits in the developing world.

This text focuses on mineral nutrition and quality management; and on the effect of pre-harvest or post-harvest practices on the quality of crops grown under different climate conditions worldwide. The book highlights achievements in minimizing post-harvest loss by providing information on production, physiological changes, pre- and post-harvest storage requirements, storage problems and nutrient management systems in relation to plant health and production, environmental protection in agriculture and in post-harvest and processing aspects.

The new edition of this highly acclaimed reference provides comprehensive and current information on a wide variety of fruits and processes. Revised and updated by an international team of contributors, the
second edition includes the latest advances in processing technology, scientific research, and regulatory requirements. Expanded coverage includes sustainable agriculture, a rapidly growing field aiming at producing food and energy in a sustainable way for humans and their children. It is a discipline that addresses current issues: climate change, increasing food and fuel prices, poor-nation starvation, rich-nation obesity, water pollution, soil erosion, fertility loss, pest control and biodiversity depletion. This series gathers review articles that analyze current agricultural issues and knowledge, then proposes alternative solutions.

This book covers various aspects of quality handling and assessment, including handling parameters, quality evaluation, CA and MAP storage conditions in a broad sense. It emphasizes on developing better methods of monitoring quality and safety attributes of fresh produce as part of a quality assurance system and quality assessment and maintenance.

Fruits are botanically diverse, perishable, seasonal and predominantly regional in production. They come in many varieties, shapes and size, colors, flavors and textures and are an important part of a healthy diet and the global economy. Besides vitamins, minerals, fibers and other nutrients, fruits contain phenolic compounds that have pharmacological potential. Consumed as a part of a regular diet, these naturally occurring plant
constituents are believed to provide a wide range of physiological benefits through their antioxidant, anti-allergic, anti-carcinogenic, and anti-inflammatory properties. Handbook of Fruits and Fruit Processing distils the latest developments and research efforts in this field that are aimed at improving production methods, post-harvest storage and processing, safety, quality and developing new processes and products. This revised and updated second edition expands and improves upon the coverage of the original book. Some highlights include chapters on the physiology and classification of fruits, horticultural biochemistry, microbiology and food safety (including HACCP, safety and the regulation of fruits in the global market), sensory and flavor characteristics, nutrition, naturally present bioactive phenolics, postharvest physiology, storage, transportation and packaging, processing and preservation technologies. Information on the major fruits includes tropical and super fruits, frozen fruits, canned fruit, jelly, jam and preserves, fruit juices, dried fruits and wines. The 35 chapters are organized into five parts: Part I: Fruit physiology, biochemistry, microbiology, nutrition and health Part II: Postharvest handling and preservation of fruits Part III: Product manufacturing and packaging Part IV: Processing plant, waste management, safety and regulations Part V: Production, quality and processing aspects of major fruits and fruit products
Each chapter has been contributed by professionals from around the globe representing academia, government institutions and industry. The book is designed to be a valuable source and reference book for scientists, product developers, students and all professionals with an interest in this field. 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.

Improved quality requires integration across business functions and scientific disciplines. Based on this premise, Fruit and Vegetable Quality: An Integrated View presents 15 unique perspectives on achieving greater quality and guidance for a more integrated approach to postharvest handling and fruit and vegetable research. Designed for anyone involved in the management, production, handling,
distribution, or processing of fruits and vegetables, it provides concise descriptions of important issues, roadmaps to the literature in specific fields, assessments of current knowledge and research needs, and specific examples of product-based research. Your guide to the dynamic developments in integrating fruit and vegetable quality projects, **Fruit and Vegetable Quality: An Integrated View** also presents a range of options for achieving better coordination of research across scientific disciplines. 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. **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
responsibile 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

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. This book examines economically important horticultural crops selected from the major production systems in temperate, subtropical and tropical climatic areas. The general aspects of the tropical climate, fruit production techniques, tree management and postharvest handling and the principal tropical fruit crops that are common in temperate city markets are discussed. The taxonomy, cultivars, propagation and orchard management, biotic and abiotic problems and cultivar development of these fruit crops are also highlighted.

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.

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. Fruit and fruit products, in all their many varieties and variations, are major world commodities and part of the economic life blood of many countries, particularly in the developing world. The perception of the healthy nature of fruit is a major reason for its increased consumption in the developed world, and many consumers today find a wider selection of fruit varieties, available at all times of the year, than ever before. This volume, however, is not so much concerned with fresh fruit as those principal
areas of processing to which it may be subjected. Fruit processing arose as a means of utilising a short-lived product and preserving its essential nutritional qualities as far as possible. A chapter on the nutritional aspects of fruit is included in this work to reflect the importance of this topic to most consumers. After a general introduction, the chapter on fruit storage is the only contribution which deals with a process from which fruit emerges in essentially the same physical condition. Beyond that the book sets out to cover most of the major areas in which fruit may be processed into forms which bear varying semblances to the original raw material.

This comprehensive book provides a thorough scientific foundation on the growth and care of plants common to all horticultural commodities. Continuing in the tradition of the first edition, it incorporates the principles behind the techniques described in other "how-to" horticulture texts. By providing readers with a thorough grounding in the science of horticulture, it successfully prepares them for more specialized studies in nursery management, floriculture, landscaping, vegetable and fruit science.

The problem; the systems approach; a working example of the systems approach; benefits of the systems approach; recommendations.

This volume addresses three important agricultural aspects of rice: physical characteristics, physico-chemical characteristics, and the organoleptic aspects. Divided into sections, the book first examines recent trends and advances for higher production and quality improvement, focusing on the effects of climate on rice cultivation and climate-resilient agricultural practices in
rice. The volume goes on to cover nutrient management for rice production and quality improvement. Chapters also address weed management and postharvest processing practices for improved rice production. With chapters from renowned scientists, researchers, and professors, this book will be a useful reference for rice researchers working in the area of agronomic practices, postharvest processing, and quality improvement in rice.

Postharvest Handling and Diseases of Horticultural Produce describes all the postharvest techniques, handling, pre-cooling, postharvest treatment, edible coating and storage of the horticultural produce available to handle perishable horticultural food commodities, covering the areas of horticulture, agricultural process engineering, postharvest technology, plant pathology and microbiology. Postharvest diseases of major fruits and vegetables, with their causal agents, are described. The integrative strategies for management of postharvest diseases include effectively inhibiting the growth of pathogens, enhancing the resistance of hosts and improving environmental conditions, with results that are favourable to the host and unfavourable to the pathogen growth including biotechnological approaches. Adopting a thematic style, chapters are organized by type of treatment, with sections devoted to postharvest risk factors and their amelioration. The chapters are written by experts in the fields of plant pathology, horticulture, food science etc., and core insights into identifying and utilizing appropriate postharvest options for minimizing postharvest losses and enhancing benefits to end-users are provided. Features Presents
the most recent developments in the field of postharvest handling technologies and diseases in a single volume.

Includes postharvest diseases of cut flowers, fruits, vegetables and tuber crops. Appropriate for students, researchers and professionals. Written by experts and can be used as a reference resource.

Keeping produce safe—from the farm to the fork. As health- and quality-conscious consumers increasingly seek out fresh fruit and vegetables, participants in the food supply chain—growers, shippers, processors, and retailers—must be ever more effective in safeguarding their products and protecting consumers.

Microbial Hazard Identification in Fresh Fruits and Vegetables is a comprehensive guide for the fresh fruit and vegetable industry to understanding and controlling the hazards that can affect their products on every leg of the journey from farm to fork. From production, harvesting, packing, and distribution to retail and consumer handling, the text highlights food safety hazards and potential areas of microbial contamination, examines food-borne pathogens and their association with produce-related outbreaks over the years, and points out areas for further research to better understand the survival of pathogens on fresh produce throughout the food chain. Particularly valuable to the industry are discussions of:

* Food worker hygiene, including control measures and employee training requirements
* Major areas of known contamination and mitigation measures
* Implementation of Hazard Analysis and Critical Control Points (HACCP)
* Contamination and mishandling during storage and transportation, and in retail display cases
Recommendations for consumer behavior with fresh produce and food handling prior to consumption in the home * A case study of the economic impact of the 2003 green onion food-borne outbreak A comprehensive look at both microbial hazards and available measures for their prevention, this book is an essential reference for the fresh fruit and vegetable industry as well as a practical text for the education and training of scientists, professionals, and staff involved in managing food safety.

The processing of food is no longer simple or straightforward, but is now a highly inter-disciplinary science. A number of new techniques have developed to extend shelf-life, minimize risk, protect the environment, and improve functional, sensory, and nutritional properties. The ever-increasing number of food products and preservation techniques cr

This book focuses on quality of produce by addressing its various aspects. By applying a disciplinary perspective, we work toward an integrated view, placing papers in the broader context of the processes that are responsible for the supply of fresh produce. While a number of technical papers focus on factors affecting quality, policy issues are also discussed. Several papers link the market performance with the ability of the existing institutional structures to provide incentives to supply the optimal quality produce. The topics covered in this contributed volume address quality issues ranging from cultural practices to postharvest handling, retailing, and home consumption. Perspectives of horticulturists, agronomists, food scientists, engineers, and economists
should be looked upon as a system applied to solve practical problems faced by scientists, the produce industry, and policy makers. The immediate benefit of this book is improved understanding of specific quality issues and marketing problems, while suggesting the need for a multidisciplinary approach for optimal solutions. This book is of interest to horticulturists, agronomists, food scientists, engineers, and economists, as well as the produce industry, and policy makers in food quality and safety.

Postharvest Handling, Third Edition takes a global perspective in offering a system of measuring, monitoring, and managing produce processing to improve food quality, minimize food waste, reduce risks and uncertainties, and maximize time and resources. This unique resource provides an overview of the postharvest system and its role in the food value chain, and offers essential tools to monitor and control the handling process. It shows how to predict and combat unexpected events (e.g., spoilage), and manage the food quality and safety within a facility. Proven research methods and applications from various viewpoints are available to help you maintain high-quality produce and achieve the highest yields possible. The book also explores current challenges—including oversupply, waste, food safety, lack of resources, sustainability—and best practices for production to thrive in spite of these challenges. Presents current research methods and applications in temperature control and heat treatments to help minimize moisture content, to prevent spoilage and mold, and more Addresses challenges of traceability
and sustainability Presents testing and measurement techniques and applications Provides technological tools to create crop value and improve both food safety and food quality

Postharvest Disinfection of Fruits and Vegetables describes available technologies to reduce microbial infection for maintaining postharvest quality and safety. The book analyzes alternative and traditional methodologies and points out the significant advantages and limitations of each technique, thus facilitating both cost and time savings. This reference is for anyone in the fresh produce industry who is involved in postharvest handling and management. It discusses, in detail, the latest disinfection approaches, low-cost treatment strategies, management and protocols to control fresh produce qualities, diseases and insect infestation. Includes methods to reduce microbial contamination using chlorination, ozone, pulsed light, irradiation and plasma technology Provides practical applications of recently developed, natural anti-microbial agents for eco-friendly and sustainable solutions Explores various disinfection technologies for quality assurance and for the development of potential new technologies

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