
This manual presents material from a wide variety of disciplines associated with the prevention of food losses and development of marketing operations, particularly those in fruit, vegetables and roots, and tubers. It is directed to field staff, project supervisors, teachers at agricultural schools and at training institutions, and extension personnel connected with the handling and marketing of those commodities. The material should serve as a reference work on the prevention of postharvest food losses. For specific training purposes, the manual takes up a number of crops and techniques from which the trainer can select according to local conditions. Trainers are encouraged to supplement the material by practical work and by detailed worksheets or handouts covering special topics of local interest.


Part 1 of this collection assesses the causes of postharvest losses. Part 2 reviews advances in storage technologies, including management of insect pests using techniques such as fumigation, controlled atmospheres and biopesticides, as well as control of fungal contamination. Part 3 reviews advances in storage technologies, including management of insect pests using techniques such as fumigation, controlled atmospheres and biopesticides, as well as control of fungal contamination.

Postharvest Disinfection of Fruits and Vegetables - Mohammed Wasim Siddiqui - 2018-08-13

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 chlorine, 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.
Preharvest and Postharvest Food Safety - Ross C. Beier - 2008-02-28
While presenting the latest scientific research on the major pathogens associated with meat, poultry, produce, and other foods, Pre-Harvest and Post-Harvest Food Safety: Contemporary Issues and Future Directions goes beyond other professional reference books by identifying the research needed to assure food safety in the future. The editors and authors not only review the current, cutting-edge literature in each of their areas, but provide insights and forward thinking into the development of new and innovative approaches and research strategies. Scientists and researchers from academia, government, and industry have collaborated to examine the high-priority food safety areas recognized by the federal government: pathogen/host interactions; ecology, distribution and spread of foodborne hazards; antibiotic resistance; verification tests; decontamination and prevention strategies; and risk analysis. A worthy new edition to the FHT Press series of food science and technology titles, Pre-Harvest and Post-Harvest Food Safety describes what we now know in food safety and provides a framework and focus for future research to improve diagnostic capabilities and intervention strategies for enteropathogens.

The Role of Post-harvest Management in Assuring the Quality and Safety of Horticultural Produce - Adel A. Kader - 2004
Basic approaches to maintaining the safety and quality of horticultural produce are the same, regardless of the market to which this product is targeted. This bulletin reviews the factors which contribute to quality and safety deterioration of horticultural produce, and describes approaches to assuring the maintenance of quality and safety throughout the post-harvest chain. Specific examples are given to illustrate the economic implications of investing in and applying proper post-harvest technologies. Criteria for the assessment of post-harvest needs, the selection of post-harvest technologies appropriate to the situation and context, and for extending appropriate levels of post-harvest information are also discussed.

Postharvest Biology and Technology of Temperate Fruits - Shabir Ahmad Mir - 2018-05-29
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.

Postharvest Plant Pathology - N.G. Ravichandra - 2021-11-23
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 explains 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. Note: T&P does not sell or distribute the hardback in India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka. This title is co-published with NIPA.

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The book post harvest technology assumes great attention during recent years since preservation of agricultural produce is a basic necessity to sustain agricultural production. It helps to add value of produce, thus having great scope for employment generation at the production catchments. In this book, the authors have attempted to consolidate different methods of post harvest technology of fruits and vegetables focusing on recent advances. This book will benefit both practicing food technologists/prof harvest technologist who are searching for answers to critical technical questions of post harvest technology. Further, it will be useful to agricultural engineers, food processors, food scientist, researchers and progressive farmers and tom those who are working in relevant fields. It is intended to fill a gap in presently available post harvest technology literature.

Postharvest Losses, Technology, And Employment - Martin Greeley - 2019-09-11

This book presents a Bangladesh case study of the farm-level postharvest system. There are two main objectives. First, to use measured estimates of food loss to test (and reject) the conventional assumptions: that postharvest farm-level food losses are large, that they can be prevented cost-effectively by technical change; and that as a consequence, there will be more food consumption by hungry people. Commonly, none of these assumptions are true and the evidence from Bangladesh, plus supporting evidence from elsewhere, is used to show why they are wrong.

Postharvest Technology of Perishable Horticultural Commodities - Elhadi M. Yahia - 2019-07-16

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.

Postharvest Pathogens and Disease Management - P. Narayanasamy - 2005-11-28

POSTHARVEST PATHOGENS AND DISEASE MANAGEMENT Postharvest diseases caused by microbial pathogens account for millions of dollars in losses of both durable and perishable produce products every year. Moreover, with consumers increasingly demanding minimally processed vegetables and fruits—which can be invaded by human pathogens—there is an imperative need for sustainable protective measures to provide pathogen-free commodities that are free from, or contain only acceptable levels of, chemical residues. Providing details of both conventional and modern molecular techniques applicable for the detection, identification, and differentiation of food and storage microbial pathogens, Postharvest Pathogens and Disease Management: - Discusses diseases of both durables and perishables during transit and storage - Provides a basic understanding of...
a comprehensive overview of the new and eco-friendly technologies in the and product susceptibility on the development of postharvest diseases * Reveals, as a cautionary note, the potential hazards of mycotoxins with carcinogenic properties that can contaminate fruits and vegetables * Contains detailed information derived from elucidative evidence and data in order to explain the infection process and subsequent stages of disease development * Helps readers to avoid conditions that favor disease incidence and spread * Includes real life examples of disease management strategies such as hurdle technology or combined methods of preservation. Each chapter compiles the mode of food preservation, basic terminologies, and sequential steps of treatments, including types of equipment required. In addition, chapters present how preservation method affects the products, reaction kinetics and selected prediction models related to food stability, what conditions need be applied for best quality and safety, and applications of these preservation methods in different food products. This book emphasizes practical, cost-effective, and safe strategies for implementing preservation techniques for wide varieties of food products. Features: Includes extensive overview on the postharvest handling and treatments for foods of plants and animal origin Describes comprehensive preservation methods using chemicals and microbes, such as fermentation, antimicrobials, antioxidants, pH-lowering, and nitrite Explains comprehensive preservation by controlling of water, structure and atmosphere, such as water activity, glass transition, state diagram, drying, smoking, edible coating, encapsulation and controlled release Describes preservation methods using conventional heat and other forms of energy, such as microwave, ultrasound, ohmic heating, light, irradiation, pulsed electric field, high pressure, and magnetic field Revised, updated, and expanded with 18 new chapters, the Handbook of Food Preservation, Third Edition, remains the definitive resource on food preservation and is useful for practicing industrial and academic food scientists, technologists, and engineers.

**Handbook of Food Preservation** - Mohammad Shafiqu Rehaman - 2020-06-10

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. Since 1999 when the first edition of this book was published, it has facilitated readers' understanding of the methods, technology, and science involved in the manipulation of conventional and newer sophisticated food preservation methods. The Third Edition of the Handbook of Food Preservation provides a basic background in postharvest technology for foods of plant and animal origin, presenting preservation technology of minimally processed foods and hurdle technology or combined methods of preservation. Each chapter compiles the mode of food preservation, basic terminologies, and sequential steps of treatments, including types of equipment required. In addition, chapters present how preservation method affects the products, reaction kinetics and selected prediction models related to food stability, what conditions need be applied for best quality and safety, and applications of these preservation methods in different food products. This book emphasizes practical, cost-effective, and safe strategies for implementing preservation techniques for wide varieties of food products. Features: Includes extensive overview on the postharvest handling and treatments for foods of plants and animal origin Describes comprehensive preservation methods using chemicals and microbes, such as fermentation, antimicrobials, antioxidants, pH-lowering, and nitrite Explains comprehensive preservation by controlling of water, structure and atmosphere, such as water activity, glass transition, state diagram, drying, smoking, edible coating, encapsulation and controlled release Describes preservation methods using conventional heat and other forms of energy, such as microwave, ultrasound, ohmic heating, light, irradiation, pulsed electric field, high pressure, and magnetic field Revised, updated, and expanded with 18 new chapters, the Handbook of Food Preservation, Third Edition, remains the definitive resource on food preservation and is useful for practicing industrial and academic food scientists, technologists, and engineers.

**Modern Fruit Industry** - Ibrahim Kahramanoglu - 2020-03-04

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.

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In the Western world where modern transportation, storage facilities, and marketing crops have become a greater problem as the distance from the farm to the ultimate consumer increases. Food loss assessment methodologies are highlighted from several high-profile institutions and it is envisioned that researchers and post-harvest extension personnel will benefit from the development and field testing of a hybrid methodology, incorporating the strengths and utilizing the best practices from each of the methodologies in current use. Chapters cover postharvest extension work and capacity building in a wide range of regions.

Postharvest Extension and Capacity Building for the Developing World - Majeed Mohammed - 2018-12-07
It is estimated that around 1.3 billion tons per year of food produced for human consumption, which is about one-third of all food produced, is either lost or wasted globally. Reduction of the postharvest losses is being considered as one of the sustainable ways to ensure world food security. Postharvest Extension and Capacity Building for the Developing World provides information on postharvest extension/outrreach programs, capacity building, and practical methodologies for postharvest extension professionals and food science teachers, food processing trainers, and outreach specialists who work in the field. The book provides information on training of postharvest trainers, food loss assessment methodologies, models for cost effective postharvest/post processing extension work, success stories, and lessons learned from past projects and programs. The book is divided into four sections. Section I explains postharvest loss assessment methodologies, Section II on capacity building, and Sections III and IV focus on training and postharvest extension models. Food loss assessment methodologies are highlighted from several high-profile institutions and it is envisioned that researchers and post-harvest extension personnel will benefit from the development and field testing of a hybrid methodology, incorporating the strengths and utilizing the best practices from each of the methodologies in current use. Chapters cover postharvest extension work and capacity building in a wide range of regions.

Postharvest Physiology and Crop Preservation - Morris Lieberman - 2012-12-06
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 simple involves preservation of the harvested crop for human consumption. The losses incurred in harvesting, handling, transportation, storage, and marketing contribute 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, 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 Food Losses in Developing Countries - National Research Council (U.S.). Board on Science and Technology for International Development - 1978

Postharvest Food Losses in Developing Countries - National Research Council (U.S.). Board on Science and Technology for International Development - 1978
Food Industry Wastes - Maria R. Kosseva - 2020-08-02
Food Industry Wastes: Assessment and Recuperation of Commodities, Second Edition presents a multidisciplinary view of the latest scientific and economic approaches to food waste management, novel technologies and treatment, their evaluation and assessment. It evaluates and synthesizes knowledge in the areas of food waste management, processing technologies, environmental assessment, and wastewater cleaning. Containing numerous case studies, this book presents food waste valorization via emerging chemical, physical, and biological methods developed for treatment and product recovery. This new edition addresses not only recycling trends but also innovative strategies for food waste prevention. The economic assessments of food waste prevention efforts in different countries are also explored. This book illustrates the emerging environmental technologies that are suitable for the development of both sustainability of the food systems and a sustainable economy. So, this volume is a valuable resource for students and professionals including food scientists, bio/process engineers, waste managers, environmental scientists, policymakers, and food chain supervisors. Provides guidance on current regulations for food process waste and disposal practices Highlights novel developments needed in policy making for the reduction of food waste Increases awareness of the sustainable food waste management techniques and their appraisal through Life Cycle Assessment Explores options for reducing food loss and waste along the entire food supply chain.

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Postharvest Disease Development - Elazar Falik - 2021-03-19
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 atmospheres, chemical treatments, biocontrol, and more. This Special Issue on “Postharvest Disease Development: Pre and/or Postharvest Practices” gathers papers that deal

Strawberry - Toshiki Asao - 2019-10-02

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.

Sustainable maize production systems for Nepal. Proceedings of a Maize Symposium; Kathmandu (Nepal); 3-3 Dec 2001 - Rajbhandari, N.P. - 2014-07-01

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Post-harvest Pathology - Dov Prusky - 2009-12-01

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Nutrition Policy Implementation - Nevin S. Scrimshaw - 2012-12-06

The MIT International Nutrition Planning Program (INP) was initiated in the fall of 1972 with a grant from the Rockefeller Foundation, later supplemented by funds from USAID under the 2110 Program. Conceived as a multidisciplinary undertaking, the INP was a joint effort of the Department of Nutrition and Food Science and the Center for International Studies at MIT that also included representatives of the Departments of Economics, Political Science, Urban Studies, Humanities (Anthropology), and Civil Engineering. It has been successful in attracting graduate students and conducting research on various international food and nutrition problems, including the design of intervention programs. A condition of the original grant from the Rockefeller Foundation was the organization of a meeting to summarize and evaluate the progress of the program. It was ultimately decided that the best approach would be a workshop that would attempt to assess what had been learned about the implementation of food and nutrition policies since the start of the INP. Out of concern for food and nutrition policy issues, the World Hunger Programme of The United Nations University (UNU) and the Ford Foundation also agreed to cosponsor the workshop.

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Encyclopedia of Pest Management - David Pimentel, Ph.D. - 2002-05-09

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Prevention of post-harvest food losses - A training manual - FAO Training Series No. 10 - 2004

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International Congress for Plant Pathology, this text features research right at the leading edge of the field. The latest findings are particularly crucial in their implications for fruit production; an important market sector where in some areas up to 50 per cent of the crop can be lost after harvest. While post-harvest fruit treatments with fungicides are the most effective means to reduce decay, rising concerns about toxicity have led to the development of alternative approaches to disease control, including biological methods, the subject of three chapters of this book. With several new techniques requiring modification of current post-harvest practices, it is more important than ever to stay abreast of the latest information. Other chapters deal with the mechanisms of host fruit and vegetable resistance, fungal pathogenicity factors and their relationship with the host response, and a number of subjects related to disease assessments before harvest as well as their relationship to the postharvest treatment of fruits and vegetables. The book also includes several useful case studies of crops such as kiwifruit and peaches, where different approaches at the pre- and post-harvest levels are combined to good effect. With food production issues gaining an ever higher profile internationally, this text makes an important contribution to the debate.
on appropriate measures. It also provides some guiding principles for interventions based on the objectives being pursued through food loss and waste reductions, be they in improved economic efficiency, food security and nutrition, or environmental sustainability.

Quality Handling and Evaluation - Randane Dris - 2007-05-08 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).

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Bio-management of Postharvest Diseases and Mycotoxigenic Fungi - Neeta Sharma - 2020-09-01 There is an ever-increasing demand for more food but one of the stumbling blocks to achieving this goal is quality and quantity losses due to various pests and pathogens and the mycotoxins synthesized by these harmful biotic entities. Thus far, strategies employed to manage these post-harvest diseases and mycotoxins decontamination include established physical, cultural, and chemical methods. Recently, the application of chemicals to reduce decay and deterioration caused by various pathogens has been impeded as these hazardous chemicals contaminate the environment, enter the food chain, and destroy beneficial microorganisms and pests by aiming at non-target microorganisms. In light of this, the usage of eco-friendly and non-polluting alternatives to chemical pesticides is the call of the hour. Bio-management of Postharvest Diseases and Mycotoxigenic Fungi deals with the current state and future prospects of using various bio-management techniques that are natural, ecofriendly, and nonpolluting. It aims to increase awareness of their potential as well as sensitizing readers to the various aspects of biologicals in pest control. Key Features: Highlights classical versus new techniques adopted to manage postharvest diseases 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).

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Irradiation for Food Safety and Quality - Paisan Loaharanu - 2020-08-26
Food irradiation is increasingly used worldwide as a proven and effective method of food preservation, as well as for improvement of food safety and quality. The International Conference on Ensuring the Safety and Quality of Food through Radiation Processing convened for the presentation of new irradiation technology, and to assess the role of irradiation in ensuring the safety and nutritional adequacy of food of plant and animal origin. This new book presents the complete texts of all twenty reports from the conference. Examined are applications of the technology in produce, animal products, and prepared foods, the economics of various irradiation technologies, international regulations, the marketing of irradiated products to consumers and retail outlets, and irradiation's implications for the global trade in food and agricultural commodities. Also included is new information on the scientific, regulatory, and consumer acceptance status of food irradiation and the role this technology will play in the 21st century. The new information in this book will be useful to all those involved in the processing, preservation, and distribution of food, as well as food industry managers and regulatory personnel. To receive your copy promptly, please order now. Information on ordering follows the complete table of contents. Conference Sponsors and Speakers This conference was sponsored by three U.N. Agencies: IAEA (International Atomic Energy Agency), FAO (Food and Agriculture Organization), and the WHO (World Health Organization). All authors are leading experts in aspects of food irradiation. From the Editor's Foreword "Significant developments on the acceptance and application of food irradiation as a method to ensure food safety and quality and to facilitate food trade have occurred in recent years. Regulations on food irradiation in many countries either have been or are being harmonized based on the Codex General Standard for Irradiated Foods and relevant recommendations of the International Consultative Group on Food Irradiation (ICGFI). The number of irradiation facilities for treating food is increasing and many more are under construction or being planned. The consumers are getting accurate information and are beginning to appreciate the benefit of irradiated foods. The potential of irradiation as a method to ensure the hygienic quality of food, especially those of animal origin, as a quarantine treatment of fresh horticultural commodities, and as a substitute for fumigants, is being realized The Conference reaffirmed the view that the safety and nutritional adequacy of irradiated food produced under conditions of Good Manufacturing Practice is no longer in question, regardless of the absorbed dose."