Pulse Foods Processing Quality And Nutraceutical Applications Food Science And Technology Academic Press

The present book presents its reader with comprehensive knowledge related to cereals processing. It is imperative to have sound knowledge of food laws and regulations with an Indian perspective as these play a pivotal role in commercializing food products as well as fresh produce, which are aptly covered in this book. It includes recent trends in technology of cereals based products, technological updates in legumes and pulses based convenience/processed foods, various aspects of evolution of bakery and confectionery technology and technological evaluation of milling. Since age's process of fermentation was employed for preserving the cereals based food by using general and specified micro flora and micro fauna, the science and technology involved is well explained in the chapter titled 'Fermented Food Based on Cereal and Pulses.' The most important quality attributes related to cereals processing are rheological and thermal changes which occur when extrinsic factors such as moisture and temperature are ebbed and flowed. This subject was sensibly covered under 'Rheological and Thermal Changes Occurring During Processing.' Sugarcane and the sugar industry have the largest contribution to the industrial development. Various unit operations and technology involved are explained as recent updates in sugar, honey, jaggery and salt processing. Shelf life stability of the products with respect to various chemical parameters attributed to the oxidative changes in processed foods is also aptly covered. Note: T&F does not sell or distribute the hardback in India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka. This title is co-published with NIPA.

Non-thermal operations in food processing are an alternative to thermal operations and similarly aimed at retaining the quality and organoleptic properties of food products. This volume covers different non-thermal processing technologies such as high-pressure processing, ultrasound, ohmic heating, pulse electric field, pulse light, membrane processing, cryogenic freezing, nanofiltration, and cold plasma processing technologies. The book focuses both on fundamentals and on recent advances in non-thermal food processing technologies. It also provides information with the description and results of research into new emerging technologies for both the academy and industry. Key features: Presents engineering focus on non-thermal food processing technologies. Discusses sub-classification for recent trends and relevant industry information/examples. Different current research-oriented results are included as a key parameter. Covers high-pressure processing, pulse electric field, pulse light technology, irradiation, and ultrasonic techniques. Includes mathematical modeling and numerical simulations. Food Processing: Advances in Non-Thermal Technologies is aimed at graduate students, professionals in food engineering, food technology, and biological systems engineering.

Long recognized as the bestselling textbook for teaching food engineering to food science students, this 5e transitions with today’s students from traditional textbook learning to integrated presentation of the key concepts of food engineering. Using carefully selected examples, Singh and Heldman demonstrate the relationship of engineering to the chemistry, microbiology, nutrition and processing of foods in a uniquely practical blend. This approach facilitates comprehensive learning that has proven valuable beyond the classroom as a lifetime professional reference. New to this Edition: Communicates key concepts using audio, video, and animations Integrates interactive tools to aid in understanding complex charts and graphs Features multimedia guide to setting up Excel spreadsheets and working with formulae Demonstrates key processes and engineering in practice through videos Shows the relationship of engineering to the chemistry, microbiology, nutrition and processing of foods via carefully selected examples Presents a practical, unique and challenging blend of principles and applications for comprehensive learning Ideal for classroom use, valuable as a lifetime professional reference

Pulsed electric field (PEF) food processing is a novel, non-thermal preservation method that has the potential to produce foods with excellent sensory and nutritional quality and shelf-life. This important book reviews the current status of the technology, from research into product safety and technology development to issues associated with its commercial implementation. Introductory chapters provide an overview of the process and its history. Part one then discusses the technology of PEF food preservation, with chapters on circuitry and pulse shapes, chamber design and technical and safety requirements. The second part of the book focuses on important product safety and quality issues such as probable mechanisms of microbial inactivation by PEF, adaptation potential of microorganisms treated by this method, toxicological aspects, the impact on food enzymes and shelf life. Chapters in the final part of the book cover topics relating to the commercialisation of the technology, including current and future applications, pitfalls, economic issues and scaling up, and public and regulatory acceptance. Food preservation by pulsed electric fields is a standard reference for all those involved in research into PEF food processing and its commercialisation. Reviews the current status of PEF technology with an overview of the process and its history Discusses the technology involved in PEF food preservation Focuses on important product safety and quality issues such as the impact on food enzymes and shelf life

The Produce Contamination Problem

Current Strategies to Improve the Nutritional and Physical Quality of Baked Goods

Biorefinery Production Technologies for Chemicals and Energy

Causes and Solutions

Principles and Applications

The common beans and pulses are diverse food resources of highnutritional value (protein, energy, fiber and vitamins andminerals) with broad social acceptance. These legume cropsdemonstrate global adaptability, genotypic and phenotypicdiversity, and multiple means of preparation and dietary use. Beans and pulses are produced in regions as diverse as LatinAmerica, Africa, Asia, and North America, and on a scale similar tosome other crops, such as wheat, corn, rice and soybeans. Numerous factors influence utilization, including bean type andcultivar selection, cropping environment and systems, storageconditions and handling infrastructure, processing and finalproduct preparation. Nutrient content and bio-availabilityare dramatically influenced by these conditions. In recentyears, beans and pulses have been cited for imparting specificpositive health potentiating responses, such as hypocholesteremicresponse, mitigation of diabetes and colonic cancer, and weightcontrol. Enhanced dry bean utilization focused on improved dietaryhealth is an opportunity within both subsistent and developedpopulations. This book provides a contemporary source of information thatbrings together current knowledge and practices in the value chainof beans/pulses production, processing, and nutrition. Itprovides in-depth coverage of a wide variety of pertinent topicsincluding: breeding, postharvest technologies, composition,processing technologies, food safety, quality, nutrition, andsignificance in human health. An experienced team of over 25contributors from North America, Asia, and Africa has written 15chapters, divided into three sections: Overview, production and postharvest technologies of beans andpulses Composition, value-added processing and quality Culinology, nutrition, and significance in human health Contributors come from a field of diverse disciplines, includingcrop sciences, food science and technology, food biochemistry, foodengineering, nutritional sciences, and culinology. Dry Beans andPulses Production, Processing and Nutrition is an essentialresource for scientists, processors and nutritionists, whatever thework setting.

Cereals, pulses, roots, and tubers are major food sources worldwide and make a substantial contribution to the intake of carbohydrates, protein, and fiber, as well as vitamin E and B. The Handbook of Cereals, Pulses, Roots, and Tubers: Functionality, Health Benefits, and Applications provides information about commercial cereals, pulses, and their nutritional profile, as well as health benefits and their food and non-food applications. Split into four sections, this handbook covers all the recent research about the related crops and outlines matters needing further research in the field of agriculture sciences. Both qualitative and quantitative analysis of nutrients and bio-actives, and their beneficial effects on human health, are highlighted in this book. The conclusions drawn and future perspectives proposed in each chapter will also help researchers to take more focused approaches. FEATURES Covers the full spectrum of cereals, pulses, roots, and tubers grain production, processing, and their use for foods, feeds, fuels, and industrial materials, and other uses Contains the latest information from grain science professionals and food technologists alike Provides comprehensive knowledge on the nutritional and non-nutritional aspects of cereals, pulses, and tubers Discusses the latest development in modification of native starch Provides information in enhancing shelf life and its utilization in phytochemical rich product development The result of various well-versed researchers across the globe sharing their knowledge and experience, this handbook will be a valuable resource for students, researchers, and industrial practioners who wish to enhance their knowledge and insights on cereals, pulses, roots, and tubers.

Risk Management for Food Allergy is developed by a team of scientists and industry professionals who understand the importance of allergen risk assessment and presents practical, real-world guidance for food manufacturers. With more than 12 million Americans suffering from food allergies and little indication of what is causing that number to continue to grow, food producers, packagers and distributors need to appropriately process, label and deliver their products to ensure the safety of customers with allergic conditions. By identifying risk factors during processing as well as determining appropriate "safe" thresholds of ingredients, the food industry must take increasingly proactive steps to avoid direct or cross-contamination as well as ensuring that their products are appropriately labeled and identified for those at risk. This book covers a range of critical topics in this area, including the epidemiology of food allergy, assessing allergen thresholds and risk, specifics of gluten management and celiac disease, and much more. The practical advice on factory risk management, catering industry practices, allergen detection and measurement and regulatory controls is key for food industry professionals as well as regulators in government and other public bodies. Science-based insights into the potential risks of food allergens Focused section on determining thresholds Practical guidance on food allergen risk management, including case studies

Legume crops provide a significant sources of plant-based proteins for humans. Grain legumes present outstanding nutritional and nutraceutical properties as sources of bioactive components with benefits in human health, while they are affordable food that contributes to achieving future food and feed security. Furthermore, they are major ingredients in the Mediterranean diet, playing a vital role in developing countries. Global food security requires a major re-focusing of plant sciences, crop improvement and production agronomy towards grain legumes (pulse crops) over coming decades, with intensive research to identify cultivars with improved grain characteristics, helping to develop novel legume-derived products (foods) adapted to today consumer preference. In this context, studies dealing with legume processing impact such as soaking, boiling, microwave cooking, germination, and fermentation among others, in their nutritional and anti-nutritional (i.e., food allergy) properties are of great interest in these future food developments. This Research Topic aims to bring together a collection of studies for a better understanding of current research in legume seed compounds functional properties to provide an updated and global vision of the importance of legumes in human health.

From Research to Application

Fundamentals and Applications

Processing, Quality and Nutraceutical Applications

Food Biochemistry and Food Processing

Health Benefits of Pulses

Processing and Product Development

Many novel technologies have been proposed in the attempt to improve existing food processing methods. Among emerging nonthermal technologies, high intensity pulsed electric fields (PEF) is appealing due to its short treatment times and reduced heating effects. This book presents information accumulated on PEF during the last 15 years by experienced microbiologists, biochemists, food technologists, and electrical and food engineers.

Food and feasting are key themes in the Hebrew Bible and the culture it represents. The contributors to this handbook draw on a multitude of disciplines to offer an overview of food in the Hebrew Bible and ancient Israel. Archaeological materials from biblical lands, along with the recent interest in ethnographic data, a new focus in anthropology, and emerging technologies provide valuable information about ancient foodways. The contributors examine not only the textual materials of the Hebrew Bible and related epigraphic works, but also engage in a wider archaeological, environmental, and historical understanding of ancient Israel as it pertains to food. Divided into five parts, this handbook examines and considers environmental and socio-economic issues such as climate and trade, the production of raw materials, and the technology of harvesting and food processing. The cultural role of food and meals in festivals, holidays, and biblical regulations is also discussed, as is the way food and drink are treated in biblical texts, in related epigraphic materials, and in iconography.

In recent years, the concern of society about how food influences the health status of people has increased. Consumers are increasingly aware that food can prevent the development of certain diseases, so in recent years, the food industry is developing new, healthier products taking into account aspects such as trans fats, lower caloric intake, less salt, etc. However, there are bioactive compounds that can improve the beneficial effect of these foods and go beyond the nutritional value. This book provides information on impact of bioactive ingredients (vitamins, antioxidants, compounds of the pulses, etc.) on nutrition through food, how functional foods can prevent disease, and tools to evaluate the effects of bioactive ingredients, functional foods, and diet.

This book covers various facets of entrepreneurial opportunities in processing sector. The editors have made an exhaustive effort to provide information on various entrepreneurial opportunities in food processing sector. This book clarifies most of the technical questions which arises on entrepreneurship ventures in food processing sector. Also, the book will be useful to prospective entrepreneurs, food engineers, agricultural engineers, researchers and also to those who are working in the relevant fields. Note: T&F does not sell or distribute the hardback in India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka. This title is co-published with NIPA.

Functional Food

Potential Resources for Enhancing Genetic Gains

Grain Legumes

Food Preservation by Pulsed Electric Fields

Challenges and Potential Solutions in Gluten Free Product Development

Lentils

Packed with case studies and problem calculations, Handbook of Food Processing: Food Safety, Quality, and Manufacturing Processes presents the information necessary to design food processing operations and describes the equipment needed to carry them out in detail. It covers the most common and new food manufacturing processes while addressing rele

This booklet aims to introduce the reader to the importance of preserving our soil resources by attending to the reciprocal relationship between soils and pulses. The ecosystem services provided by soil are presented together with the role of pulses in improving soil health, adapting to and mitigating climate change, and ultimately contributing to food security and nutrition. The book also discusses the role of pulses in restoring degraded soils and their contribution to pursuing the practice of sustainable soil management.

A complete guide to the evolving methods by which we may recover by-products and significantly reduce food waste Across the globe, one third of cereals and almost half of all fruits and vegetables go to waste. The cost of such waste – both to economies and to the environment – is a serious and increasing concern within the food industry. If we are to overcome this crisis and move towards a sustainable future, we must do everything possible to utilize innovative new methods of extracting and processing valuable by-products of all kinds. Food Wastes and By-products represents a complete primer to this important and complex process. Edited and written by leading researchers, the text provides essential information on the supply of waste and its composition, identifies foods rich in valuable bioactive compounds, and explores revolutionary methods for creating by-products from fruit, vegetable, and seed waste. Other chapters discuss the nutraceutical properties of value-added by-products and their uses in the manufacturing of dietary fibers, food flavors, supplements, pectin, and more. This book: Explains how reconstituted by-products can best be used to radically reduce food waste Discusses the potential nutraceutical assets of recovered food waste Covers a broad range of by-product sources, such as mangos, cacao, flaxseed, and spent coffee grounds Describes novel extraction processes and the emerging use of nanotechnology A significant contribution to the field, Food Wastes and By-products is a timely and essential resource for food industry professionals, government agencies and NGOs involved in nutrition, agriculture, and food production, and university instructors and students in related areas.

The world has shifted towards sustainable development for the generation of energy and industrially valuable chemicals. Biorefinery plays an important role in the integration of conversion process with high-end equipment facilities for the generation of energy, fuels and chemicals. The first part of the book presents the fundamentals of the biorefinery concept. The second part describes the biorefinery approach for production of several industrially important chemicals from waste biomass and agro residues. These chemicals include industrially important C4. C5 and C6 chemicals, propylene glycol, glycerol byproducts, dyes and inks etc. Each and every chemical has its own industrial value and the book describes the production processes and strategies at the industrial level. The final part of the book describes the various biorefinery approaches and economic analysis for the different types of biofuel production.

Characterization, Processing, and Applications

Legume Agriculture and Biotechnology Vol 2

Processing, Technology and Product Development

Soils and pulses

Production, Processing and Nutrition

Dry Beans and Pulses Production, Processing and Nutrition

The lifestyle of humans is rapidly changing, and, correspondingly, their needs and the current and future megatrends of the food market. It is worth mentioning (1) the preference for natural, simple, and flexible diets that drive the further expansion of plant-focused formulations, (2) the focus on food sustainability (food waste reduction), and (3) the interest in healthy eating as the basis for good health. The hectic routine and rapid urbanization in developed and developing regions, respectively, have shifted consumer preferences toward bread and baked foods, which, interestingly, are often high in sugars and are categorized as having a high glycemic index. Therefore, it is of major importance to address the technological challenges of manufacturing baked goods with high physical and sensory quality that result in positive metabolic responses. This Special Issue seeks to provide fundamental understanding in this area and novel strategies to improve the nutritional properties of baked goods, including a decrease in starch bioaccessibility, sugar reduction, increase in fiber and/or protein content, and the improvement of phytochemical bioactivity. This Special Issue will also cover studies on the physical and sensory improvements of baked goods that may provide a mechanistic understanding to minimize the loss of quality after the incorporation of nutritional-improving ingredients, such as edible byproducts, proteins, or fibers. Last but not least, studies focused on the reduction of additives (clean label) or fat and on the use of sourdough to improve the sensory properties of baked goods will also be included.

This work provides researchers with a thorough overview of all aspects related to the development of gluten-free food products. In summarizing and offering critical reviews of published works and focusing on current advances and technologies in gluten free product development, this book covers all of the important subjects related to this increasingly important aspect of the food industry. Important case studies in gluten-free breadmaking and alternative proteins are presented, making this a rich and singular source for food manufacturers and scientists seeking practical knowledge on the challenges and solutions involved in the development of gluten-free foods. Challenges and Potential Solutions in Gluten Free Product Development covers the latest advances and strategies for gluten-free diets including the important nutritional factors involved. Traditional and alternative approaches for the development of gluten-free dough, including starch applications and microbial fermentations, are extensively covered. Alternative proteins including those from vegetables, cereals, legumes and eggs are presented. Novel approaches for gluten-free breadmaking such as aeration strategies, prebiotics, hydrocolloids and nutritional enhancements are also covered in depth. With further chapters dedicated to regulatory aspects, gluten detection methods and the global market, this book presents full and up-to-date coverage of the development and manufacture of gluten-free products.

World health authorities recommend people maximize their protein intake through vegetable sources (such as pulses), and reduce protein intake from animal sources. Increasing vegetable protein intake has been shown to be positively associated with the reduction of both cardiovascular-disease-related mortality and all-cause mortality. Pulse consumption has been shown to improve satiety and metabolism of glucose and lipids, due to their high protein and fiber content, which makes their consumption ideal for preventing and managing obesity. In recent years, there has been increasing demand for pulses and pulse-based products in developed countries. Several large-scale collaborative research projects on pulse products have been initiated by government agencies. Similarly, established multinational food companies have developed pulse product units. Pulses: Processing and Product Development fulfills the need for a comprehensive book on processing and products of pulses. The book addresses a specific pulse with each chapter to meet a wide range of audiences from undergraduate students to consumers.

Understanding the causes and contributing factors leading to outbreaks of food-borne illness associated with contamination of fresh produce is a worldwide challenge for everyone from the growers of fresh-cut produce through the entire production and delivery process. The premise of The Produce Contamination Problem is that when human pathogen contamination of fresh produce occurs, it is extremely difficult to reduce pathogen levels sufficiently to assure microbiological safety with the currently available technologies. A wiser strategy would be to avoid crop production conditions that result in microbial contamination to start. These critical, problem-oriented chapters have been written by researchers active in the areas of food safety and microbial contamination during production, harvesting, packing and fresh-cut processing of horticultural crops, and were designed to provide methods of contamination avoidance. Coverage includes policy and practices in the United States, Mexico and Central America, Europe, and Japan. Addresses food-borne contaminations from a prevention view, providing proactive solutions to the problems Covers core sources of contamination and methods for identifying those sources Includes best practice and regulatory information

Encyclopedia of Food Chemistry

Functionality, Health Benefits, and Applications

Food Wastes and By-products

Milk Proteins

Introduction to Food Engineering

Food Processing

Food Waste Recovery: Processing Technologies, Industrial Techniques, and Applications, Second Edition provides information on safe and economical strategies for the recapture of value compounds from food wastes while also exploring their re-utilization in fortifying foods and as ingredients in commercial products. Sections discuss the exploration of management options, different sources, the Universal Recovery Strategy, conventional and emerging technologies, and commercialization issues that target applications of recovered compounds in the food and cosmetics industries. This book is a valuable resource for food scientists, technologists, engineers, chemists, product developers, researchers, academics and professionals working in the food industry. Covers food waste management within the food industry by developing recovery strategies Provides coverage of processing technologies and industrial techniques for the recovery of valuable compounds from food processing by-products Explores the different applications of compounds recovered from food processing using three approaches: targeting by-products, targeting ingredients, and targeting bioactive applications

Food Processing: Principles and Applications second edition is the fully revised new edition of this best-selling food technology title.Advances in food processing continue to take place as food scientists and food engineers adapt to the challenges imposed by emerging pathogens, environmental concerns, shelf life, quality and safety, as well as the dietary needs and demands of hunans. In addition to covering food processing principles that have long been essential to food quality and safety, this edition of Food Processing: Principles and Applications, unlike the former edition, covers microbial/enzyme inactivation kinetics, alternative food processing technologies as well as environmental and sustainability issues currently facing the food processing industry. The book is divided into two sections, the first focusing on principles of food processing and handling, and the second on processing technologies and applications. As a hands-on guide to the essential processing principles and their applications, covering the theoretical and applied aspects of food processing in one accessible volume, this book is a valuable tool for food industry professionals across all manufacturing sectors, and serves as a relevant primary or supplemental text for students of food science.

Understanding of the interactions of milk proteins in complex food systems continues to progress, resulting in specialized milk-protein based applications in functional foods, and in protein ingredients for specific health applications. Milk Proteins is the first and only presentation of the entire dairy food chain – from the source to the nutritional aspects affecting the consumer. With focus on the molecular structures and interactions of milk proteins in various processing methods, Milk Proteins presents a comprehensive overview of the biology and chemistry of milk, as well as featuring the latest science and developments. Significant insight into the use of milk proteins from an industry viewpoint provides valuable application-based information. Those working with food and nutritional research and product development will find this book useful. 20% new chapter content — full revision throughout New chapters address: role of milk proteins in human health; aspects of digestion and absorption of milk proteins in the GIT; consumer demand and future trends in milk proteins; and world supply of proteins with a focus on dairy proteins Internationally recognized authors and editors bring academic and industrial insights to this important topic

The Handbook of Research on Food Processing and Preservation Technologies covers a vast abundance of information on various design, development, and applications of novel and innovative strategies for food processing and preservation. The roles and applications of minimal processing techniques (such as ozone treatment, vacuum drying, osmotic dehydration, dense phase carbon dioxide treatment, pulsed electric field, and high-pressure assisted freezing) are discussed, along with a wide range of applications. The handbook also explores some exciting computer-aided techniques emerging in the food processing sector, such as robotics, radio frequency identification (RFID), three-dimensional food printing, artificial intelligence, etc. Some emphasis has also been given on nondestructive quality evaluation techniques (such as image processing, terahertz spectroscopy imaging technique, near infrared, Fourier transform infrared spectroscopy technique, etc.) for food quality and safety evaluation. The significant roles of food properties in the design of specific foods and edible films have been elucidated as well. Volume 5: Emerging Techniques for Food Processing, Quality, and Safety Assurance discusses various emerging techniques for food preservation, formulation, and nondestructive quality evaluation techniques. Each chapter covers major aspects pertaining to principles, design, and applications of various food processing methods, such as low temperature-based-ultrasonic drying of foods, hypobaric processing of foods, viability of high-pressure technology, application of pulsed electric fields in food preservation, green nanotechnology for food processing and preservation, advanced methods of encapsulation, basics and methods of food authentication, imaging techniques for quality inspection of spices and nuts, FTIR coupled with chemometrics for food quality and safety, and the use of robotic engineering for quality and safety. Other volumes in the 5-volume set include: Volume 1: Nonthermal and Innovative Food Processing Methods Volume 2: Nonthermal Food Preservation and Novel Processing Strategies Volume 3: Computer-Aided Food Processing and Quality Evaluation Techniques Volume 4: Design and Development of Specific Foods, Packaging Systems, and Food Safety Together with the other volumes in the set, the Handbook of Research on Food Processing and Preservation Technologies will be a valuable resource for researchers, scientists, students, growers, traders, processors, industries, and others.

Advances in Cereals Processing Technologies

Food Safety, Quality, and Manufacturing Processes

Handbook of Research on Food Processing and Preservation Technologies

Advances in Non-Thermal Technologies

Smart and Sustainable Food Technologies

Symbiosis for life

Pulses are nutritionally diverse crops that can be successfully utilized as a food ingredient or a base for new product development. They provide a natural food grade ingredient that is rich in lysine, dietary fiber, complex carbohydrates, protein and B-vitamins suggesting that pulses can provide a variety of health benefits such as reducing heart disease and diabetes. Interest in the use of pulses and their ingredients in food formulations is growing and several factors are contributing to this drive. Pulse Foods: Processing, Quality and Nutraceutical Applications is the first book to provide up-to-date information on novel and emerging technologies for the processing of whole pulses, techniques for fractionating pulses into ingredients, their functional and nutritional properties, as well as their potential applications, so that the food industry can use this knowledge to incorporate pulses into new food products. First reference bringing together essential information on the processing technology of pulses Addresses processing challenges relevant to legume and pulse grain processors Delivers insights into the current state-of-art and emerging processing technologies In depth coverage of developments in nutraceutical applications of pulse protein and carbohydrate based foods

Encyclopedia of Food Chemistry is the ideal primer for food scientists, researchers, students and young professionals who want to acquaint themselves with food chemistry. Well-organized, clearly written, and abundantly referenced, the book provides a foundation for readers to understand the principles, concepts, and techniques used in food chemistry applications. Articles are written by international experts and cover a wide range of topics, including food chemistry, food components and their interactions, properties (flavor, aroma, texture) the structure of food, functional foods, processing, storage, nanoparticles for food use, antioxidants, the Maillard and Strecker reactions, process derived contaminants, and the detection of economically-motivated food adulteration. The encyclopedia will provide readers with an introduction to specific topics within the wider context of food chemistry, as well as helping them identify the links between the various sub-topics. Offers readers a comprehensive understanding of food chemistry and the various connections between the sub-topics Provides an authoritative introduction for non-specialists and readers from undergraduate levels and upwards Meticulously organized, with articles structured logically based on the various elements of food chemistry

A team of global contributors review recent research, consumer trends, new products, and food security issues in dry beans processing and value-added practices. New chapters address Hard-to-cook (HTC) phenomenon and other storage-induced quality defects, quality assessment of raw and processed legumes using innovative technologies, utilization of dry beans and pulses as ingredients in diverse food products, and the production, processing, and nutritional profile of Faba beans. Covering both traditional and non-traditional bean classes, this comprehensive volume: Features new topics, expanded discussion, updated references, and additional figures and tables throughout Provides in-depth information on key aspects of production technologies, value-added processing, and Culinology® Examines global production and consumption, packaging and distribution, and nutrient bioavailability of bioactive compounds Highlights worldwide efforts to improve the quality and utilization of dry beans and pulses Discusses emerging trends and new applications of antioxidant properties of dry beans as functional foods Features chapters written by experts in disciplines such as crop science, horticulture, food science and technology, food biochemistry and engineering, and nutritional and environmental sciences Dry Beans and Pulses Production, Processing and Nutrition, Second Edition remains required reading for food scientists, nutritionists, agronomists, researchers, food processing specialists, and food engineers and chemists involved in dry beans processing and value-added technologies.

This book provides a global overview of pulse intake and future trends from a variety of perspectives. Pulses, which include dried beans, peas and lentils, are second only to grains as a source of food for the world's population. Contributors from around the globe explore a number of issues related to this food group, including their impact on global health and sustainability, the relationship between pulse intake and chronic disease, and their nutritional and gastrointestinal benefits. The primary purpose of the volume is to explore the nutritional and health benefits of pulses (starchy legumes) as a sustainable food source. Initial chapters focus on the role of pulses in complementary feeding and in the prevention of malnutrition in infants and children in the developing nations of Africa. Authors also consider the feasibility and sustainable properties of pulses as a staple food for these regions. Subsequent chapters focus on the association between pulse intake and chronic disease risk reduction. Contributors identify the unique contributions of pulses, versus legumes as a whole, to chronic disease risk and management. Additional chapters provide a comprehensive review of the nutrient contents of pulses, their bioavailability, and the nutritional impact of pulse consumption. The book also explores the phytochemicals contained in pulses from two perspectives, the traditional perspective of risk (e.g. anti-nutrients) and a nutraceutical perspective, focused on the novel benefits of pulse components (e.g. antioxidants). The editor has designed the book for students, faculty, and research scientists, as well as practicing dietitians. Members of the pulse industry, grower associations, and government agencies also will find the information relevant to their work, as will those in the private sector employed by food companies with an interest in pulse ingredients.

Dry Beans and Pulses

Pulses and Pulse Ingredients

T&T Clark Handbook of Food in the Hebrew Bible and Ancient Israel

Processing Technologies, Industrial Techniques, and Applications

Nutraceutical and Health Potential

Innovations in Food Packaging

Understanding what the consumer wants and will accept are two of the most significant hurdles faced by anyone in new product development. Whether the concern is the proper mouth-feel of a potato chip, the sense of freshness" evoked by a chewing gum, or the weight and texture of a cosmetic, if the consumer doesn't find the product acceptable, it won't sell. Sensory evaluation testing is the process that establishes the consumer acceptability of a product. It can help identify issues before general production is begun and potentially bring to light issues that hadn't previously been considered a factor in the success of the project. Emphasizes the importance of a scientific sensory methodology used to measure and understand consumer perception Illustrates the importance of planning, managing, and communicating product sensory information in a way that is actionable to developers and marketers Presents demonstrated methods for test selection, application and measurement, and testing with the right consumer, including more typical usage environments Includes worked examples for interpreting and displaying results

In the context of climate change, pollution and food safety, the current challenge is to enhance legumes production to sustain the growing population needs by 2050. This is a daunting task because abiotic and biotic stresses are threatening the growth, survival and productivity of legumes. For instance, the productivity of legumes is documented to be reduced by 14-88% by abiotic stresses. The co-occurrence of abiotic and biotic stresses under field conditions leads to interactive stress types, thus yielding positive or negative outcomes. Legumes react using antioxidant defense, osmoregulatory adjustments, hormonal regulations and molecular mechanisms to tolerate stress. Hence, improving legume productivity requires knowledge on the sensitivity, mechanisms and approaches of stress tolerance in legumes, in order to design new crops and alternative management systems. This book presents advances on bioactive compounds, applications, effect of various stresses and biotechnology-based stress tolerance mechanisms of legumes. This is our second volume on Legume Agriculture and Biotechnology, published in the series Sustainable Agriculture Reviews.

Pulses and Pulse Ingredients: Processing, Technology and Product Development is a complete and comprehensive overview of pulses, with coverage from raw ingredient to developed products. Divided into two main sections, the book opens with coverage of the processing of pulses. It begins at ingredient processing, with a focus on milling and fractionation, also covering the composition of pulse ingredients and pulse and pulse ingredient testing. In addition, readers will find sections on raw ingredients that can be derived from pulses, with separate chapters covering whole pulses, pulse flours, starches, proteins and fibers. Final sections cover technology, challenges and potential resolutions. As pulses are one of the hottest topics in cereal and grain science, this book, written by industrial researchers working at the cutting-edge of pulses and pulse ingredients, brings practical applied knowledge on this rapidly expanding field. It is essential reading for cereal and grain science academics and postgraduate students and industrial product developers in cereal and grain companies. Contains coverage of pulse processing, testing and quality insurance Provides extensive coverage of the raw ingredients derived from pulses Includes detailed information about the products that can be developed from pulses Provides coverage of equipment and the role of technology in pulse processing

Like cereal, pulse processing is one of the oldest and most important of all food processing, which encompasses a diverse range of products. Pulses are widely grown throughout the world and their dietary and economic importance is globally appreciated and well recognized. Although cereal processing has several dedicated text books, no dedicated text on pulse processing is currently available for food science and technology graduates. This book aims to address this oversight, starting with a chapter highlighting the importance of pulses, their production and consumption trends. The coverage in subsequent chapters provides details on the physical and chemical characteristics of pulses, starches, proteins and minor constituents in them and then how they are processed and used. Cooking quality, analysis and the value of the food products will all be examined with the final chapter reviewing the regulatory and legislative requirements for pulses. This book will serve as a comprehensive text book for undergraduate and postgraduate students, educators, industry personnel involved with grain processing and to some extent researchers providing an up-to-date insight into pulse science, processing and technology.

Improve Health through Adequate Food

Polymer Science

From Expression to Food

Pulsed Electric Fields Technology for the Food Industry

Food Waste Recovery

Sustainable Agriculture Reviews 51

Grain legumes are a main source of nitrogen-rich edible seeds and constitute a major source of dietary protein in the diets of human population especially for vegetarian diet. Legumes comprise the third largest family of flowering plants and provide important sources of food, fodder, oil, and fiber products. This book focuses on grain legumes production challenges, progress, and prospects. The book comprises a vast array of topics including diversity, biofortification, importance and antioxidant properties of pulse proteins, etc. This volume will serve as an excellent resource for students, researchers, and scientists interested and working in the area of sustainable crop production.

Lentils: Potential Resources for Enhancing Genetic Gains describes the evolutionary aspects and agronomic potential of this important pulse with emphasis placed on wide hybridization, including molecular aspects and future breeding strategies. The existing variability among cultivated germplasm has been exploited to reach a desirable level of productivity. However, to attain further breakthroughs in increasing yield and improving stability in future cultivars, new sources of genes/alleles need to be identified and incorporated into cultivated varieties. This book provides specific use information, including wild lentil germplasm utilization, thus allowing for the selection of transgressive interspecific recombinants that can be adapted to specific environments. Identifies breeding resources and the agronomic value assessed for specific traits of interest Presents marker assisted breeding work and genomic resources Describes strategies for wild lentils using wide hybridization Features key breeding strategies

During the last ten to fifteen years the developments in polymer science has been striking attention and undergone important changes. From rather specialized subject intended for engineers interested in certain definite fields, it has developed into one of the fundamental disciplines common to several branches of engineering and science. To serve this purpose, the subject materials have been prepared to treat a comprehensive aspects of polymer science. Following this trend, a number of rigorous books have discussed different types of polymers with great precision and elegance and at relatively high levels of abstraction, but none is complementary. A position midway between the older, traditional approach in engineering and the recent, somewhat formal expositions seems to be evolving.

This new edition of Innovations in Food Packaging ensures that readers have the most current information on food packaging options, including active packaging, intelligent packaging, edible/biodegradable packaging, nanocomposites and other options for package design. Today's packaging not only contains and protects food, but where possible and appropriate, it can assist in inventory control, consumer education, increased market availability and shelf life, and even in ensuring the safety of the food product. As nanotechnology and other technologies have developed, new and important options for maximizing the role of packaging have emerged. This book specifically examines the whole range of modern packaging options. It covers edible packaging based on carbohydrates, proteins, and lipids, antioxidative and antimicrobial packaging, and chemistry issues of food and food packaging, such as plasticization and polymer morphology. Professionals involved in food safety and shelf life, as well as researchers and students of food science, will find great value in this complete and updated overview. New to this edition: Over 60% updated content — including nine completely new chapters — with the latest developments in technology, processes and materials Now includes bioplastics, biopolymers, nanoparticles, and eco-design of packaging

Entrepreneurship Development in Food Processing

Food Process Engineering and Technology

Pulse Foods

Risk Management for Food Allergy

Legumes as Food Ingredient

Pulse Chemistry and Technology

The past 30 years have seen the establishment of food engineering both as an academic discipline and as a profession. Combining scientific depth with practical usefulness, this book serves as a tool for graduate students as well as practicing food engineers, technologists and researchers looking for the latest information on transformation and preservation processes as well as process control and plant hygiene topics. Strong emphasis on the relationship between engineering and product quality/safety Links theory and practice Considers topics in light of factors such as cost and environmental issues

India, a country with high concentrations of poor and malnourished people, long promoted a cereal-centric diet composed of subsidized staple commodities such as rice and wheat to feed its population of more than a billion. Today, however, dietary patterns are changing. Policy makers, researchers, and health activists are looking for ways to fight hunger and malnutrition in the country. As they shift their focus from calorie intake to nutrition, neglected foods such as pulses (the dried, edible seeds of legumes) are gaining attention. Pulses for Nutrition in India: Changing Patterns from Farm to Fork explores the numerous benefits of a diet that incorporates pulses. Pulses, including pigeonpeas, lentils, and chickpeas, are less expensive than meat and are excellent sources of protein. In India, people consume pulses and other legumes for protein intake. Pulses also benefit the ecosystem. Among protein-rich foods, pulses have the lowest carbon and water footprints. Pulses also improve soil health by naturally balancing atmospheric nitrogen in the soil; thus, growing pulses reduces the need for nitrogenous fertilizer. Pulses for Nutrition in India: Changing Patterns from Farm to Fork looks at the country's pulses sector in light of agricultural systems, climate change, irrigation design, and how policies (including the Green Revolution) have evolved over time. To understand how pulses can help fulfill the objectives of India's food policies, experts explore the role that pulse production plays in global trade; the changing demand for pulses in India since the 1960s; the possibility of improving pulse yields with better technology to compete with cereals; and the long-term health benefits of greater reliance on pulses. The analyses in Pulses for Nutrition in India: Changing Patterns from Farm to Fork contribute to the emerging literature on pulses and will aid policy makers in finding ways to feed and nourish a growing population.

Simpson (food science and agricultural chemistry, McGill U., Canada) brings together academics and industry professionals working in food biochemistry, processing, and safety around the world for this 45-chapter textbook aimed at food scientists, researchers and technologists in the food industry, and faculty and students in food science, technology, and engineering. It combines the areas of food biochemistry and food processing to help them rationalize and develop more effective strategies to produce and preserve food. It covers the essential principles of food biochemistry, enzymology, and food processing, then the biochemistry of meat, poultry, seafoods, milk, fruits, vegetables, cereals, and fermented foods, and food microbiology and safety. Along with updates to several chapters, this edition has been revised to incorporate safety considerations and the chemical changes induced by processing in the biomolecules of food in each chapter. It includes a new section on health and functional foods and 10 new chapters on topics like thermally and minimally processed foods, separation technology, and allergens.

Handbook of Cereals, Pulses, Roots, and Tubers

Pulses

Pulses for nutrition in India: Changing patterns from farm to fork

Handbook of Food Processing

Sensory Evaluation Practices

Volume 5: Emerging Techniques for Food Processing, Quality, and Safety Assurance