

Accelerating New Food Product Design And Development

Product development, from refining an established product range to developing completely new products, is the lifeblood of the food industry. It is, however, a process fraught with risk, often ending in failure. What are the keys to making the process a success? Based on a wealth of experience gathered over 40 years, Food Product Development provides the answers. After an introductory chapter, the first half of the book considers the four core elements of product development: the overall business strategy which directs product development, the various steps in the product development process itself, the knowledge required to fuel the process and, last but not least, keeping product development focused on consumer needs and aspirations. The second part of the book looks at managing the product development process in practice with four case studies of successful product launches. It also discusses how to evaluate and improve the process to make future product innovation more successful. Filled with examples and practical suggestions, and written by a distinguished team with unrivalled academic and industry expertise, Food Product Development will be an essential guide for R & D and product development staff, and all managers concerned with this key issue throughout the food industry. Mary D. Earle and Richard L. Earle are both Professors Emeritus in Massey University, New Zealand. Mary Earle is a pioneer in

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product development research, and both she and her husband have worked with industry on numerous product development projects. Allan M. Anderson is Chief Executive of the New Zealand Dairy Research Institute, the central R & D organisation for the New Zealand dairy industry, and has extensive experience of managing successful product development projects. The 2nd Annual Conference of Engineering and Implementation on Vocational Education (ACEIVE-2018) is a scientific forum for scholars to disseminate their research and share ideas. This conference was held on November 3, 2018 on the Digital Library of Universitas Negeri Medan, North Sumatra Province, Indonesia. The ACEIVE's theme is Engineering and Application for Industry 4.0. The conference was attended by researchers, experts, practitioners, and observers from all around the globe to explore various issues and debates on research and experiences, discuss ideas of empowering engineering and implementation on vocational education for Industry 4.0. This event has been carried out well and produced many benefits to increase the knowledge of conference participants based on research results, particularly the implementation of vocational education for industrial revolution 4.0. Food nanotechnology is an expanding field. This expansion is based on the advent of new technologies for nanostructure characterization, visualization, and construction. Nanotechnology Research Methods for Food and Bioproducts introduces the reader to a selection of the most widely used techniques in food and bioproducts nanotechnology. This book focuses on state-

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of-the-art equipment and contains a description of the essential tool kit of a nanotechnologist. Targeted at researchers and product development teams, this book serves as a quick reference and a guide in the selection of nanotechnology experimental research tools.

Our dietary intake comprises three macronutrients (protein, carbohydrate and lipid) and a large but unknown number of micronutrients (vitamins, minerals, antioxidants, etc). Good health rests, in part, on an adequate and balanced supply of these components. This book is concerned with the major sources of lipids and the micronutrients that they contain. Now in an extensively updated second edition, the volume provides a source of concentrated and accessible information on the composition, properties and food applications of the vegetable oils commonly used in the food industry.

Chapters are devoted to each type of oil, and an introductory chapter by the Editor provides an overview of the current production and trade picture globally. The book includes coverage of the modifications of these oils that are commercially available by means of partial hydrogenation, fractionation and seed breeding. The major food applications are linked, wherever possible, to the composition and properties of the oils. This new edition widens the range of oils covered, addresses issues related to trans fats reduction, and new composition data is included throughout. The book is an essential resource for food scientists and technologists who use vegetable oils in food processing; chemists and technologists working in oils and fats processing; and analytical chemists and quality assurance personnel.

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Praise for the first edition: "This excellent book consists of 337 pages in 11 chapters, written by 13 experts from six countries...the important vegetable oils are dealt with in great detail. With obesity on all out lips...this book also rightly defends itself and its content - namely, that all vegetable oils, when used correctly and of course in moderation, are indeed necessary to all of us." –Food & Beverage Reporter "Overall, the book covers all of the major oils which the potential reader is likely to approach it for... covers a wide range of topics from production, through composition to nutritional aspects... The volume is well indexed, particularly for the individual subject oils, and it is easy to find specific topics within its chapters." –Food Science and Technology "This latest book edited by Professor Gunstone belongs to the kind of books where the reader rapidly knows it will bring him a wealth of updated information concentrated in one book. The goal to 'serve as a rich source of data' on the thirteen major oils and their important minor components has been attained. There is a need for books of such quality." –European Journal of Lipid Science and Technology "Due to the many problems that need to be solved to optimize food texture, the design and optimization of food texture is an ongoing challenge for the food industry. This unique 2-volume resource offers practical solutions to the complex and varied problems encountered in designing, measuring and optimizing food texture. The first volume presents insightful case studies on formulating products from a broad variety of food segments, such as cheese, soups, chocolate, cookies, brownies, bread, gluten-free products, low-

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fat/non-fat dairy products and more. The second volume provides an overview of the latest advances in food texture design and optimization"--

A fundamental paradigm shift has occurred in marketing and branding. Today the most successful CEOs, executives, entrepreneurs and enterprises set their sites on developing a long-term platform instead of a short-term strategy that supports and builds buzz for their personal or business brand. That's really the key to the new business mindset — the recognition that branding and marketing are an ongoing, steady stream of small efforts, not a series of gigantic pushes. Social media, blogging and other business development activities — both online and off — are about the persistent, ongoing process of building a platform, creating credibility and increasing the number of people that you funnel into your potential client and network pipeline. Converting those people into clients or fans may take a month, a year or two years, but the new mindset leads you to strategies that will keep that pipeline full. In short, you need to start a bunch of small fires to keep your brand burning hot. How can today's CEOs, executives and entrepreneurs keep these fires going and powerfully get their messages across, motivate others to action and be authentic — all while simultaneously shepherding initiatives from creation to implementation in high-demand markets? CEO, executive and team branding are key factors that enable effective leaders to achieve peak performance, gain greater influence in their industries and generate increased engagement within their companies. By creating a brand (business or personal) by design

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instead of default, leaders and companies bring their brand promise into every interaction across the board. A personal, team or business brand is not just a single statement or a clever quip but a multilayered, congruent narrative told across multiple channels — online and off — within the organization and to the business community at large. The power is in knowing how to tell the story. The book will introduce CEOs and executives in Fortune 500 companies and entrepreneurs in SMBs to the SMG Brand Mapping Process©, a process that will guide them in creating personal, team and business brands that work in harmony and parallel with each other.

Bio-nanotechnology is the key functional technology of the 21st century. It is a fusion of biology and nanotechnology based on the principles and chemical pathways of living organisms, and refers to the functional applications of biomolecules in nanotechnology.

It encompasses the study, creation, and illumination of the connections between structural molecular biology, nutrition and nanotechnology, since the development of techniques of nanotechnology might be guided by studying the structure and function of the natural nanomolecules found in living cells. Biology offers a window into the most sophisticated collection of functional nanostructures that exists. This book is a comprehensive review of the state of the art in bio-nanotechnology with an emphasis on the diverse applications in food and nutrition sciences, biomedicine, agriculture and other fields. It describes in detail the currently available methods and contains numerous references to the primary literature, making this the perfect “field guide” for

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scientists who want to explore the fascinating world of bio-nanotechnology. Safety issues regarding these new technologies are examined in detail. The book is divided into nine sections – an introductory section, plus:

- Nanotechnology in nutrition and medicine
- Nanotechnology, health and food technology applications
- Nanotechnology and other versatile applications
- Nanomaterial manufacturing
- Applications of microscopy and magnetic resonance in nanotechnology
- Applications in enhancing bioavailability and controlling pathogens
- Safety, toxicology and regulatory aspects
- Future directions of bio-nanotechnology

The book will be of interest to a diverse range of readers in industry, research and academia, including biologists, biochemists, food scientists, nutritionists and health professionals.

Food Processing for Increased Quality and Consumption, Volume 18 in the Handbook of Food Bioengineering series, offers an updated perspective on the novel technologies utilized in food processing. This resource highlights their impact on health, industry and food bioengineering, also emphasizing the newest aspects of investigated technologies and specific food products through recently developed processing methods. As processed foods are more frequently consumed, there is increased demand to produce foods that attract people based on individual preferences, such as taste, texture or nutritional value. This book provides advantageous tools that improve food quality, preservation and aesthetics. Examines different frying techniques, dielectric defrosting, high pressure

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processing, and more Provides techniques to improve the quality and sensory aspects of foods Includes processing techniques for meat, fish, fruit, alcohol, yogurt and whey Outlines techniques for fresh, cured and frozen foods Presents processing methods to improve the nutritional value of foods

Concepts are critical for the development and marketing of products and services. They constitute the blueprint for these products and services, albeit at the level of consumers rather than at the technical level. A good product concept can help make the product a success by guiding developers and advertising in the right direction. Yet, there is a dearth of both practical and scientific information about how to create and evaluate concepts.

There has been little or no focus on establishing knowledge bases for concepts. Concept development is too often relegated to the so-called “fuzzy front end.”

Concept Research in Food Product Design and Development remedies this inattention to product concepts by providing a unique treatment of concepts for the business professional as well as for research scientists. The book begins with simple principles of concepts, moves forward to methods for testing concepts, and then on to more substantive areas such as establishing validity, testing internationally and with children, creating databases, and selling in new methods for concept testing. The book combines a “how to” business book with a detailed treatment of the different facets of concept research. As such, the book represents a unique contribution to business applications in food, and consumer research methods. The book is positioned

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specifically for foods, to maintain a focus on a coherent set of topics. *Concept Research in Food Product Design and Development* appeals to a wide variety of audiences: R&D, marketing, sensory analysts, and universities alike. Corporate R&D professionals will learn how to create strong concepts. Marketers will recognize how concepts are at the heart of their business. Sensory analysts will find the book a natural extension of their interest in product features. University students will understand how concept research is a critical part of the “consumer-connection.” *Concept Research in Food Product Design and Development* is the definitive, innovative text in describing how to create, analyze, and capitalize upon new product concepts.

Melding the hands-on experience of producing yogurt and fermented milks over four decades with the latest in scientific research in the dairy industry, editor Chandan and his associate editors have assembled experts worldwide to write *Manufacturing Yogurt and Fermented Milks, 2nd Edition*. This one-of-a-kind resource gives a complete description of the manufacturing stages of yogurt and fermented milks from the receipt of raw materials to the packaging of the products. Information is conveniently grouped under four categories: • Basic background—History and consumption trends, milk composition characteristics, dairy processing principles, regulatory requirements, laboratory analysis, starter cultures, packaging, and more • Yogurt manufacture—Fruit preparations and

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flavoring materials, ingredients, processing principles, manufacture of various yogurt types, plant cleaning and sanitizing, quality assurance, and sensory analysis · Manufacture of fermented milks—Procedure, packaging and other details for more than ten different types of products · Health benefits—Functional foods, probiotics, disease prevention, and the health attributes of yogurt and fermented milks All manufacturing processes are supported by sound scientific, technological, and engineering principles.

The fully revised third edition of this unique and comprehensive overview of the science and technology of the bottled waters industry contains brand new chapters which address these new developments. As well as an updated introductory chapter reviewing the market, the degree to which the global legislative and regulatory picture has changed is examined, and new and increasingly-used quality standards are assessed. The book provides a definitive source of reference for all those involved in bottled water production: beverage technologists, packaging technologists, analytical chemists, microbiologists and health and safety personnel.

Rheology is fundamentally important in food manufacturing in two major senses. Understanding the way in which a substance moves and behaves is essential in order to be able to transport and mix it

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during processing. Secondly, the rheology of a product dictates much of the consumer experience, e.g. in relation to texture and mouthfeel. This book doesn't overwhelm the reader with complex mathematical equations but takes a simple and practically-focused approach, interpreting the implications of rheological data for use in different food systems. Through this approach industry-based food developers / rheologists, students, and academics are given clear, concise interpretation of rheological data which directly relates to actual perceived functionality in the food. The functionality may relate to texture, structure and mouthfeel, and may result as a function of temperature, pH, flocculation, concentration effects, and mixing. The interpretative view is based on the principle that the food rheologist will produce a graph, for example of viscosity or gelation profiling, and then have to extract a practical meaning from it. For example, if viscosity falls with time as a function of pH, this knowledge can be used to tell the customer that the viscosity can be followed with just a pH meter and a stopwatch. Rheological measurements have shown that once the pH has dropped 1 unit after 10 minutes, the viscosity has been halved. This is the type of practical and valuable information for customers of the industrial food rheologist which the book will enable readers to access. Key features: A uniquely practical approach to the often difficult

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science of food rheology Includes chapters introducing the basics of food rheology before moving on to how data can be usefully and easily interpreted by the food scientist Can be used as a teaching aid on academic or industry-based courses Part of the IFT (Institute of Food Technologists) series, this book discusses multiphysics modeling and its application in the development, optimization, and scale-up of emerging food processing technologies. The book covers recent research outcomes to demonstrate process efficiency and the impact on scalability, safety, and quality, and technologies including High Pressure Processing, High Pressure Thermal Sterilization, Radiofrequency, Ultrasound, Ultraviolet, and Pulsed Electric Fields Processing. Ideal for food and process engineers, food technologists, equipment designers, microbiologists, and research and development personnel, this book covers the importance and the methods for applying multiphysics modeling for the design, development, and application of these technologies.

Product Innovation Toolbox: A Field Guide to Consumer Understanding and Research brings together key thought-leaders and seasoned consumer researchers from corporate R&D, academia and marketing research companies to share their experiences, cutting edge consumer research tools and practical tips for successful and

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sustainable product innovation. This is an essential resource for product developers, marketers and technologists who want to implement consumer-centric innovation and are responsible for designing product-testing strategies from upfront innovation to support new product development. The scope of the book by chapter shows the steps that transform a consumer researcher to a Consumer Explorer that guides the project team to successful innovation and new product introductions. Product Innovation Toolbox is designed to appeal to broad audiences from consumer researchers, product developers, marketers and executives. With an emphasis on consumer understanding and examples that range from cheese to lipstick and printers to energy beverages, Product Innovation Toolbox offers guidelines and best practices for strategizing, planning and executing studies with confidence and high efficiency yielding faster and better insights. Explains the basics of food technology and new product development from initial planning through formulation, market research, manufacturing and product launch Carefully outlined test protocols plus quantified sensory, financial and feasibility analysis Recaps key technical concepts across the entire food science curriculum Developed as a comprehensive guide to how food products are planned, budgeted, manufactured and launched, this original textbook forms a cohesive introduction to all

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phases of food product development. A unique feature of the book is that it reviews the main concepts of food chemistry, ingredient functionality, additives, processing, quality control, safety, package labeling and more—virtually the entire food technology curriculum. With this specialized information as context, the book spells out the procedures needed to formulate, cost-justify and test market safe and profitable new products that meet regulatory guidelines and consumer expectations. The technical exposition is highlighted by case studies of novel food items introduced by U.S. companies. Syllabus-ready and furnished with back-of-chapter questions and projects, the volume is highly suited for university courses, including the capstone, as well as in-house and team training short courses in industry.

Here is the first comprehensive approach to managing design-in-process inventory from the bestselling author of "Developing Products in Half the Time". Donald Reinertsen reveals a transparent system for tracking, measuring, and managing invisible "design-in-process" inventory to achieve lower costs, higher profits, and better processes. 20 line drawings.

Food production is an increasingly complex and global enterprise, and public awareness of poisoning outbreaks is higher than ever. This makes it vital that companies in the food chain maintain scrupulous

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standards of hygiene and are able to assure customers of the safety of their products. This book reviews the production of food and the level of microorganisms that humans ingest, covering both food pathogens and food spoilage organisms. The comprehensive contents include: the dominant foodborne microorganisms; the means of their detection; microbiological criteria and sampling plans; the setting of microbial limits for end-product testing; predictive microbiology; the role of HACCP; the setting of Food Safety Objectives; relevant international regulations and legislation. This updated and expanded second edition contains much important new information on emerging microbiological issues of concern in food safety, including: microbiological risk assessment; bacterial genomics and bioinformatics; detergents and disinfectants, and the importance of hygiene practice personnel. The book is essential reading for all those studying food science, technology and food microbiology. It is also a valuable resource for government and food company regulatory personnel, quality control officers, public health inspectors, environmental health officers, food scientists, technologists and microbiologists. Web-based sources of information and other supporting materials for this book can be found at www.wiley.com/go/forsythe

This book extensively reviews the dairy, beverage

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and distilled spirits applications of membrane processing techniques. The four main techniques of membrane filtration are covered: microfiltration, ultrafiltration, nanofiltration and reverse osmosis. The book is divided into four informal sections. The first part provides an overview of membrane technology, including the main scientific principles; the major membrane types and their construction; cleaning and disinfection; and historical development. The second part focuses on dairy applications including liquid and fermented milks; cheese; whey; and milk concentrates. The third part of the book addresses beverage applications including mineral waters, fruit juices and sports drinks, and the final part looks at membrane filtration in the production of beers, wines and spirits. The definitive industry reference on the paper and paperboard packaging sector. Now in a fully revised and updated second edition, this book discusses all the main types of packaging based on paper and paperboard. It considers the raw materials, the manufacture of paper and paperboard, and the basic properties and features on which packaging made from these materials depends for its appearance and performance. The manufacture of twelve types of paper- and paperboard-based packaging is described, together with their end-use applications and the packaging machinery involved. The importance of pack design is stressed, as well as how these materials offer packaging designers opportunities for imaginative and innovative design solutions.

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Environmental factors, including resource sustainability, societal and waste management issues are addressed in a dedicated chapter. The book is directed at readers based in companies which manufacture packaging grades of paper and paperboard, companies involved in the design, printing and production of packaging, and companies which manufacture inks, coatings, adhesives and packaging machinery. It will be essential reading for students of packaging technology and technologists working in food manufacturing who are users of paper and paperboard packaging products. Praise for the First Edition 'This book is a valuable addition to the library of any forward-looking company by providing in-depth coverage of all aspects of packaging which involve the most ecologically acceptable material, namely paper and paperboard.'—International Journal of Dairy Technology '...a welcome contribution to a field where coverage was previously limited to subject-specific books... or to single chapters in textbooks on broader aspects of packaging technology.'—Packaging Technology and Science

Phytochemicals are plant derived chemicals which may bestow health benefits when consumed, whether medicinally or as part of a balanced diet. Given that plant foods are a major component of most diets worldwide, it is unsurprising that these foods represent the greatest source of phytochemicals for most people. Yet it is only relatively recently that due recognition has been given to the importance of phytochemicals in maintaining our health. New evidence for the role of specific plant food phytochemicals in protecting against the onset of

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diseases such as cancers and heartdisease is continually being put forward. The increasing awarenessof consumers of the link between diet and health has exponentiallyincreased the number of scientific studies into the biological effects of these substances. The Handbook of Plant Food Phytochemicals provides acomprehensive overview of the occurrence, significance and factors affecting phytochemicals in plant foods. A key objective of thebook is to critically evaluate these aspects. Evaluation ofthe evidence for and against the quantifiable health benefits beingimparted as expressed in terms of the reduction in the risk of disease conferred through the consumption of foods that are rich in phytochemicals. With world-leading editors and contributors, the Handbook ofPlant Food Phytochemicals is an invaluable, cutting-edgeresource for food scientists, nutritionists and plant biochemists.It covers the processing techniques aimed at the production of phytochemical-rich foods which can have a role in disease-prevention, making it ideal for both the food industry andthose who are researching the health benefits of particular foods.Lecturers and advanced students will find it a helpful and readableguide to a constantly expanding subject area.

Coffee: Emerging Health Benefits and Disease Prevention presents a comprehensive overview of the recent scientific advances in the field. The book focuses on the following topics: coffee constituents; pro- and antioxidant properties of coffee constituents; bioavailability of coffee constituents; health benefits and

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disease prevention effects of coffee; and potential negative impacts on health. Multiple chapters describe coffee's positive impact on health and various diseases: type 2 diabetes; neurodegenerative diseases (Parkinson's and Alzheimer's); cancer (prostate, bladder, pancreatic, breast, ovarian, colon and colorectal); cardiovascular health; and liver health. Coffee's positive effects on mood, suicide rate and cognitive performance are addressed as are the negative health impacts of coffee on pregnancy, insulin sensitivity, dehydration, gastric irritation, anxiety, and withdrawal syndrome issues. Written by many of the top researchers in the world, *Coffee: Emerging Health Benefits and Disease Prevention* is a must-have reference for food professionals in academia, industry, and governmental and regulatory agencies whose work involves coffee.

Modern aquaculture is faced with a number of challenges, including public concern about environmental impacts and the welfare of farmed fish. A fundamental understanding of fish biology is central to finding ways to meet these challenges and is also essential for maintaining the industry's sustainability. Furthermore, the behaviour of fish under culture situations has long been ignored despite heavy commercial losses that can result from fish stressed and hence disease-prone, due to bad husbandry techniques. This important book summarises the current understanding of the behavioural biology of farmed species and illustrates how this can be applied to improve aquaculture practice. Informative and engaging, *Aquaculture & Behavior* brings the reader up-to-date with

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major issues pertaining to aquaculture. Everyone from fish farmers to upper level students will find this book a valuable and practical resource. Libraries in universities and research establishments where animal behavior, aquaculture, veterinary and biological sciences are studied and taught should have copies of this work on their shelves.

The internet is rife with biased and unsubstantiated claims from the organic industry, and the treatment of issues such as food safety and quality by the media ("if it bleeds, it leads") tends to have a negative impact on consumer perceptions about conventional food. Until recently, more and more consumers in many countries were opting to buy organic food over conventional food, resulting in a radical shift in food retailing. This was due to concerns over chemical residues, food poisoning resulting in recalls, food scares such as "mad-cow" disease, issues like gene-modified (GM foods), antibiotics, hormones, cloning and concerns over the way plants and animals are being grown commercially as food sources. As a result there has been an expansion of the organic industry and the supply of organic foods at farmers' markets, supermarkets and specialty stores. *Organic Production and Food Quality: A Down to Earth Analysis* is the first comprehensive book on how organic production methods influence the safety and quality of foods, based on an unbiased assessment of the latest scientific findings. The title is a 'must-have' for everyone working within the food industry. Comprehensive explanation of organic production methods and effects on the safety and quality of foods Authoritative, unbiased

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and up-to-date examination of relevant global scientific research Answers the questions of whether organic food is more nutritious and/or more healthy

This book is the first to bring together essential information on the application of ozone in food processing, providing an insight into the current state-of-the-art and reviewing established and emerging applications in food processing, preservation and waste management. The chemical and physical properties of ozone are described, along with its microbial inactivation mechanisms. The various methods of ozone production are compared, including their economic and technical aspects. Several chapters are dedicated to the major food processing applications: fruit and vegetables, grains, meat, seafood and food hydrocolloids, and the effects on nutritional and quality parameters will be reviewed throughout. Further chapters examine the role of ozone in water treatment, in food waste treatment and in deactivating pesticide residues. The international regulatory and legislative picture is addressed, as are the health and safety implications of ozone processing and possible future trends.

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Important to Product Success -- Three Evergreen Trends -- Healthy Eating -- Paleo: A Diet Fat That Looks to the Far-Off Past -- A More Sustainable Way to Manage Wellness: The Role of Protein in the Diet -- From Niche to Mainstream: Gluten Free -- Natural Nutrition: The Trend to Drive Healthy Eating Forward -- Pleasure: Food as a Sensory Experience -- Convenience -- Final Thoughts -- References -- Chapter 4 Developing Partnerships: Using Outside Resources for Product Development -- Introduction -- White Space Opportunities - We Want to do This, But We Don't Know How (Given Our Time Frame) -- Choice Opportunities - We Want to Do This, But We Are Making a Choice to Outsource (Given Our Time Frame) -- Conclusion -- Chapter 5 Building Superior R&D Organizations -- The Challenge -- R&D Skills: Level 1 - Technical Basics, Required Skills -- R&D Skills: Level 2 - Team Player -- R&D Skills: Level 3 - Business Partner -- Skill and Capability Assessment -- Further Reading -- Chapter 6 A Flavor Supplier Perspective - Let's Cut to the Chase and Win Together! -- Introduction -- New Business Models -- Conclusion -- Chapter 7 Supplier Collaboration and Open Innovation to Accelerate Food Product Development -- Introduction -- A Product Development Process is the First Step -- Why a Growth Process? -- Supplier Offerings -- Products -- Services -- Network -- Complementary Knowledge and Skills

Calorimetry in Food Processing: Analysis and Design of Food Systems introduces the basic principles of calorimetry and highlights various applications of calorimetry to characterize temperature-induced changes

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including starch gelatinization and crystallization, lipid transitions, protein denaturation, and inactivation of microorganisms in a variety of food and biological materials. Emphasis is given to the use of calorimetry as a tool for evaluation of processing requirements in order to assess the efficacy of food processing and for characterization of the effects of changes in formulation and processing conditions.

Many books on sustainability have been written in the last decade, most of them dealing with agricultural systems, communities, and general business practices. In contrast, Handbook of Sustainability for the Food Sciences presents the concept of sustainability as it applies to the food supply chain from farm to fork but with a special emphasis on processing. Structured in four sections, Handbook of Sustainability for the Food Sciences first covers the basic concepts of environmental sustainability and provides a detailed account of all the impacts of the food supply chain. Part two introduces the management principles of sustainability and the tools required to evaluate the environmental impacts of products and services as well as environmental claims and declarations. Part three looks at ways to alleviate food chain environmental impacts and includes chapters on air emissions, water and wastewater, solid waste, energy, packaging, and transportation. The final part summarizes the concepts presented in the book and looks at the measures that will be required in the near future to guarantee long term sustainability of the food supply chain. Handbook of Sustainability for the Food Sciences is aimed at food

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science professionals including food engineers, food scientists, product developers, managers, educators, and decision makers. It will also be of interest to students of food science.

Attempts to provide safer and higher quality fresh and minimally processed produce have given rise to a wide variety of decontamination methods, each of which have been extensively researched in recent years. *Decontamination of Fresh and Minimally Processed Produce* is the first book to provide a systematic view of the different types of decontaminants for fresh and minimally processed produce. By describing the different effects – microbiological, sensory, nutritional and toxicological – of decontamination treatments, a team of internationally respected authors reveals not only the impact of decontaminants on food safety, but also on microbial spoilage, vegetable physiology, sensory quality, nutritional and phytochemical content and shelf-life. Regulatory and toxicological issues are also addressed. The book first examines how produce becomes contaminated, the surface characteristics of produce related to bacterial attachment, biofilm formation and resistance, and sublethal damage and its implications for decontamination. After reviewing how produce is washed and minimally processed, the various decontamination methods are then explored in depth, in terms of definition, generation devices, microbial inactivation mechanisms, and effects on

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foodsafety. Decontaminants covered include: chlorine, electrolyzed oxidizing water, chlorine dioxide, ozone, hydrogen peroxide, peroxyacetic acid, essential oils and edible films and coatings. Other decontamination methods addressed are biological strategies (bacteriophages, protective cultures, bacteriocins and quorum sensing) and physical methods (mild heat, continuous UV light, ionizing radiation) and various combinations of these methods through hurdle technology. The book concludes with descriptions of post-decontamination methods related to storage, such as modified atmosphere packaging, the cold chain, and modeling tools for predicting microbial growth and inactivation. The many methods and effects of decontamination are detailed, enabling industry professionals to understand the available state-of-the-art methods and select the most suitable approach for their purposes. The book serves as a compendium of information for food researchers and students of pre- and postharvest technology, food microbiology and food technology in general. The structure of the book allows easy comparisons among methods, and searching information by microorganism, produce, and quality traits. Edited and authored by an international team of respected researchers, this book provides a summary of current research findings related to phytochemical compositions and properties of cereal

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and pulse crops. It will serve as a timely guide for scientists working in food ingredients, food product research and development, functional foods and nutraceuticals, crop breeding and genetics, post-harvest treatment and processing of cereal grains and pulses, and human nutrition to effect value-added food innovation for health promotion and disease risk reduction.

New products often fail not because they are bad products, but because they don't meet consumer expectations or are poorly marketed. In other cases, the marketing is spot on, but the product itself does not perform. These failures drive home the need to understand the market and the consumer in order to deliver a product which fulfills the two equa

Not since "Sugar Chemistry" by Shallenberger and Birch (1975) has a text clearly presented and applied basic carbohydrate chemistry to the quality attributes and functional properties of foods. Now in Food Carbohydrate Chemistry, author Wrolstad emphasizes the application of carbohydrate chemistry to understanding the chemistry, physical and functional properties of food carbohydrates. Structure and nomenclature of sugars and sugar derivatives are covered, focusing on those derivatives that exist naturally in foods or are used as food additives. Chemical reactions emphasize those that have an impact on food quality and occur under processing and storage conditions. Coverage

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includes: how chemical and physical properties of sugars and polysaccharides affect the functional properties of foods; taste properties and non-enzymic browning reactions; the nutritional roles of carbohydrates from a food chemist's perspective; basic principles, advantages, and limitations of selected carbohydrate analytical methods. An appendix includes descriptions of proven laboratory exercises and demonstrations. Applications are emphasized, and anecdotal examples and case studies are presented. Laboratory units, homework exercises, and lecture demonstrations are included in the appendix. In addition to a complete list of cited references, a listing of key references is included with brief annotations describing their important features. Students and professionals alike will benefit from this latest addition to the IFT Press book series. In *Food Carbohydrate Chemistry*, upper undergraduate and graduate students will find a clear explanation of how basic principles of carbohydrate chemistry can account for and predict functional properties such as sweetness, browning potential, and solubility properties. Professionals working in product development and technical sales will value *Food Carbohydrate Chemistry* as a needed resource to help them understand the functionality of carbohydrate ingredients. And persons in research and quality assurance will rely upon *Food Carbohydrate Chemistry* for

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understanding the principles of carbohydrate analytical methods and the physical and chemical properties of sugars and polysaccharides. Nonthermal Processing Technologies for Food offers a comprehensive review of nonthermal processing technologies that are commercial, emerging or over the horizon. In addition to the broad coverage, leading experts in each technology serve as chapter authors to provide depth of coverage. Technologies covered include: physical processes, such as high pressure processing (HPP); electromagnetic processes, such as pulsed electric field (PEF), irradiation, and UV treatment; other nonthermal processes, such as ozone and chlorine dioxide gas phase treatment; and combination processes. Of special interest are chapters that focus on the "pathway to commercialization" for selected emerging technologies where a pathway exists or is clearly identified. These chapters provide examples and case studies of how new and nonthermal processing technologies may be commercialized. Overall, the book provides systematic knowledge to industrial readers, with numerous examples of process design to serve as a reference book. Researchers, professors and upper level students will also find the book a valuable text on the subject. This book is a practical guide to sensory evaluation methods and techniques in the food, cosmetic and household product industries. It explains the

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suitability of different testing methods for different situations and offers step-by-step instructions on how to perform the various types of tests. Covering a broad range of food and non-food product applications, the book is designed to be used as a practical reference in the testing environment; a training manual for new recruits into sensory science, and a course book for students undertaking industrial training or academic study.

Accelerating New Food Product Design and Development
John Wiley & Sons

Food products have always been designed, but usually not consciously. Even when design has been part of the process, it has often been restricted to considerations of packaging, logos, fonts and colors. But now design is impacting more dramatically on the complex web that makes up our food supply, and beginning to make it better. Ways of thinking about design have broad applications and are becoming central to how companies compete. To succeed, food designers need to understand consumers and envision what they want, and to use technology and systems to show they can deliver what has been envisioned. They also need to understand organizations in order to make innovation happen in a corporation. The authors of this book argue that design has been grossly underestimated in the food industry. The role of design in relation to technology of every kind (materials, mechanics, ingredients,

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conversion, transformation, etc.) is described, discussed, challenged and put into proper perspective. The authors deftly analyze and synthesize complex concepts, inspiring new ideas and practices through real-world examples. The second part of the book emphasizes the role of innovation and how the elements described and discussed in the first parts (design, technology, business) must join forces in order to drive valuable innovation in complex organizations such as large (and not so large) food companies. Ultimately, this groundbreaking book champions the implementation of a design role in defining and executing business strategies and business processes. Not only are designers tremendously important to the present and future successes of food corporations, but they should play an active and decisive role at the executive board level of any food company that strives for greater success.

Dairy Processing and Quality Assurance, Second Edition describes the processing and manufacturing stages of market milk and major dairy products, from the receipt of raw materials to the packaging of the products, including the quality assurance aspects. The book begins with an overview of the dairy industry, dairy production and consumption trends. Next are discussions related to chemical, physical and functional properties of milk; microbiological considerations involved in milk processing;

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regulatory compliance; transportation to processing plants; and the ingredients used in manufacture of dairy products. The main section of the book is dedicated to processing and production of fluid milk products; cultured milk including yogurt; butter and spreads; cheese; evaporated and condensed milk; dry milks; whey and whey products; ice cream and frozen desserts; chilled dairy desserts; nutrition and health; sensory evaluation; new product development strategies; packaging systems; non-thermal preservation technologies; safety and quality management systems; and dairy laboratory analytical techniques. This fully revised and updated edition highlights the developments which have taken place in the dairy industry since 2008. The book notably includes: New regulatory developments The latest market trends New processing developments, particularly with regard to yogurt and cheese products Functional aspects of probiotics, prebiotics and synbiotics A new chapter on the sensory evaluation of dairy products Intended for professionals in the dairy industry, Dairy Processing and Quality Assurance, Second Edition, will also appeal to researchers, educators and students of dairy science for its contemporary information and experience-based applications.

This book seeks to address the challenges facing the international seafood industry via a two pronged approach: by offering the latest information on established technologies

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and introducing new ideas and technologies. An introductory chapter sets the tone for the book by presenting the background against which fish processing will exist in the near future. Chapter two looks at the environmental and sustainability issues relating to conventional fish processing, including processing efficiency and better use of the outputs currently considered wastes. The impact of mechanisation and computerisation on environmental sustainability is also addressed. Subsequent chapters examine the latest developments in established fish processing technologies such as canning, curing, freezing and chilling, with an emphasis on the environmental aspects of packaging and the process itself. In addition, quality and processing parameters for specific species, including new species, are described. The second part of the book gives authors the opportunity to introduce the potential technologies and applications of the future to a wider audience. These include fermented products and their acceptance by a wider audience; the utilisation of fish processing by-products as aquaculture feeds; and the use of by-products for bioactive compounds in biomedical, nutraceutical, cosmetic and other applications.

During the past thirty years, companies have recognized the consumer as the key driver for business and product success. This recognition has, in turn, generated its own drivers: sensory analysis and marketing research, leading first to a culture promoting the expert and then evolving into the systematic acquisition of consumer-relevant information to build businesses. *Sensory and Consumer Research in Food Product Design and Development* is the first book to present, from the business viewpoint, the critical issues faced by business leaders from both the research development and business development perspective. This popular volume, now in an updated and expanded second edition, presents a unique perspective afforded by the author team of Moskowitz,

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Beckley, and Resurreccion: three leading practitioners in the field who each possess both academic and business acumen. Newcomers to the field will be introduced to systematic experimentation at the very early stages, to newly emerging methods for data acquisition/knowledge development, and to points of view employed by successful food and beverage companies. The advanced reader will find new ideas, backed up by illustrative case histories, to provide another perspective on commonly encountered problems and their practical solutions. This book is aimed at professionals in all sectors of the food and beverage industry. Sensory and Consumer Research in Food Product Design and Development is especially important for those business and research professionals involved in the early stages of product development, where business opportunity is often the greatest.

Written primarily for directors and managers of food design and development, food scientists, technologists, and product developers, this book explains all the necessary information in order to help meet the increasing demands for innovation in an industry that is providing fewer resources. This updated edition, by a group of seasoned food industry business professionals and academics, provides a real-world perspective of what is occurring in the food industry right now, offers strategic frameworks for problem solving and R&D strategies, and presents methods needed to accelerate and optimize new product development. Accelerating New Food Product Design and Development, Second Edition features five brand new chapters covering all the changes that have occurred within the last decade: A Flavor Supplier Perspective, An Ingredient Supplier Perspective, Applying Processes that Accelerate New Product Development, Looking at How the University Prepares Someone for a Career in Food, and Innovative Packaging and Its Impact on

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Accelerated Product Development. Offers new perspectives on what really goes on during the development process Includes updated chapters fully describing the changes that have occurred in the food industry, both from a developer's point of view as well as the consumer requirements Features a completely rewritten chapter covering the importance of packaging which is enhanced through 3D printing All of this against the impact on speed to market Filled with unique viewpoints of the business from those who really know and a plethora of new information, Accelerating New Food Product Design and Development, Second Edition will be of great interest to all professionals engaged in new food product design and development.

Product design touches every aspect of modern life, determining the form and function of the products and technologies that we use every day. Product design is not just concerned with the appearance and functionality of products; it has an important role in determining the cost, pricing, risk and profitability profile of those products. Product Design and the Supply Chain shows how decisions taken at the design stage of a product's life cycle go on to affect that product's subsequent value to a company. Eighty percent of a product's eventual supply chain costs are already present at the early stages of product design and development. This book allows companies to make informed design decisions that have significant positive through-life implications for risk, complexity and responsiveness, thus allowing them to create a 'moat' that is difficult for competitors to sidestep or surmount. Product Design and the Supply Chain contains fascinating content applicable to industry. It is full of useful and insightful real-life cases and examples. This book sets out to show how design impacts: sales revenues, pricing, time to market, manufacturing and supply chain costs, supply chain risks, brand loyalty, and competitiveness.

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Reducing the intake of sodium is an important public health goal for Americans. Since the 1970s, an array of public health interventions and national dietary guidelines has sought to reduce sodium intake. However, the U.S. population still consumes more sodium than is recommended, placing individuals at risk for diseases related to elevated blood pressure. *Strategies to Reduce Sodium Intake in the United States* evaluates and makes recommendations about strategies that could be implemented to reduce dietary sodium intake to levels recommended by the Dietary Guidelines for Americans. The book reviews past and ongoing efforts to reduce the sodium content of the food supply and to motivate consumers to change behavior. Based on past lessons learned, the book makes recommendations for future initiatives. It is an excellent resource for federal and state public health officials, the processed food and food service industries, health care professionals, consumer advocacy groups, and academic researchers.

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