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Pathogens respond dynamically to their

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environment. Understanding their behaviour is critical both because of evidence of increased resistance to established sanitation and preservation techniques, and because of the increased use of minimal processing technologies which are more vulnerable to the development of resistance. Understanding

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pathogen behaviour summarises the wealth of recent research and its implications for the food industry. After two introductory chapters on ways of analysing and modelling pathogens, Part one summarises current research on what determines pathogenicity, stress response, adaptation and resistance. Part two

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reviews the behaviour of particular pathogens, reviewing virulence, stress response and resistance mechanisms in such pathogens as Salmonella, E.coli and Campylobacter. The final part of the book assesses how pathogens react and adapt to particular stresses from heat treatment and the effects of low temperature to the use of

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disinfectants and sanitisers. With its distinguished editor and international team of contributors, Understanding pathogen behaviour is a standard reference for the food industry in ensuring food safety. Summarises the wealth of recent research in pathogen behaviour
Assesses implications for microbiologists

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and QA staff in the food industry

The shelf-life of a product is critical in determining both its quality and profitability. This important collection reviews the key factors in determining shelf-life and how it can be measured. Part one examines the factors affecting shelf-life and spoilage, including individual chapters on

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the major types of food spoilage, the role of moisture and temperature, spoilage yeasts, the Maillard reaction and the factors underlying lipid oxidation. Part two addresses the best ways of measuring the shelf-life of foods, with chapters on modelling food spoilage, measuring and modelling glass transition, detecting

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spoilage yeasts, measuring lipid oxidation, the design and validation of shelf-life tests and the use of accelerated shelf-life tests. Understanding and measuring the shelf-life of food is an important reference for all those concerned with extending the shelf-life of food. Reviews the key factors in determining shelf-life and how they can be

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measured Examines the importance of the shelf-life of a product in determining its quality and profitability Brings together the leading international experts in the field

The best-selling first edition of this contributed book established itself as a highly practical and authoritative source of

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information on shelf-life evaluation. Every food manufacturer is concerned about shelf life, as are the major retailers and ingredient suppliers. Increasing consumer interest in food safety, quality and date marking, competitive pressures from retailers and extensive legislative changes have combined to give this subject new

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significance. A proper evaluation of shelf life must be grounded on sound scientific principles, supported by up-to-date techniques. This book begins with six chapters reviewing the principles of shelf-life evaluation, followed by ten chapters on a number of selected food products such as chilled yogurt and other dairy desserts,

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seafood, and meat. The latest edition has been expanded to include new chapters on HACCP, preservation technology and shelf life, and minimally processed, ready-to-eat ambient-stable meat products. Sufficient information on the principles and practice of shelf life evaluation has been included for the beginner as well as

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for those who are more experienced in this area.

Predictive Microbiology Theory and
Application Research Studies Press Ltd
Natural Antimicrobials in Food Safety and
Quality
Virulence, Stress Response and Resistance
Modern Food Microbiology

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Modelling Microorganisms in Food
Hazards, Risk Analysis and Control
Mathematical and Statistical Methods in
Food Science and Technology
*This second edition of Water
Activity in Foods furnishes those
working within food*

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manufacturing, quality control, and safety with a newly revised guide to water activity and its role in the preservation and processing of food items. With clear, instructional prose and illustrations, the book's

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*international team of contributors
break down the essential
principles of water activity and
water-food interactions,
delineating water's crucial impact
upon attributes such as flavor,
appearance, texture, and shelf*

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life. The updated and expanded second edition continues to offer an authoritative overview of the subject, while also broadening its scope to include six newly written chapters covering the latest developments in water activity

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research. Exploring topics ranging from deliquescence to crispness, these insightful new inclusions complement existing content that has been refreshed and reconfigured to support the food industry of today.

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Predictive microbiology is a recent area within food microbiology, which studies the responses of microorganisms in foods to environmental factors (e.g., temperature, pH) through mathematical functions. These

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functions enable scientists to predict the behavior of pathogens and spoilage microorganisms under different combinations of factors. The main goal of predictive models in food science is to assure both food safety and

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food quality. Predictive models in foods have developed significantly in the last 20 years due to the emergence of powerful computational resources and sophisticated statistical packages. This book presents the concepts,

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models, most significant advances, and future trends in predictive microbiology. It will discuss the history and basic concepts of predictive microbiology. The most frequently used models will be explained,

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and the most significant software and databases (e.g., Combase, Sym'Previus) will be reviewed. Quantitative Risk Assessment, which uses predictive modeling to account for the transmission of foodborne pathogens across the

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food chain, will also be covered. Food Engineering Handbook, Two-Volume Set provides a stimulating and up-to-date review of food engineering phenomena. It also addresses the basic and applied principles of food engineering

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methods used in food processing operations around the world.

Combining theory with a practical, hands-on approach, this set examines the thermophysical properties and modeling of selected processes such as

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*chilling, freezing, and
dehydration, and covers the key
aspects of food engineering, from
mass and heat transfer to steam
and boilers, heat exchangers,
diffusion, and absorption.
Comprised of Food Engineering*

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*Handbook: Food Engineering
Fundamentals and Food
Engineering Handbook: Food
Process Engineering, this
comprehensive resource: Explains
the interactions between different
food constituents that might lead*

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*to changes in food properties
Describes the characterization of
the heating behavior of foods,
their heat transfer, heat
exchangers, and the equipment
used in each food engineering
method Discusses rheology, fluid*

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flow, evaporation, distillation, size reduction, mixing, emulsion, and encapsulation Provides case studies of solid-liquid and supercritical fluid extraction and food behaviors Explores fermentation, enzymes, fluidized-

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bed drying, and more Presenting cutting-edge information on new and emerging food engineering processes, Food Engineering Handbook, Two-Volume Set offers a complete reference on the fundamental concepts, modeling,

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quality, safety, and technologies associated with food engineering and processing operations today. Predictive microbiology primarily deals with the quantitative assessment of microbial responses at a macroscopic or microscopic

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level, but also involves the estimation of how likely an individual or population is to be exposed to a microbial hazard. This book provides an overview of the major literature in the area of predictive microbiology, with a

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special focus on food. The authors tackle issues related to modeling approaches and their applications in both microbial spoilage and safety. Food spoilage is presented through applications of best-before-date determination and

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commercial sterility. Food safety is presented through applications of risk-based safety management. The different modeling aspects are introduced through probabilistic and stochastic approaches, including model and

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data uncertainty, but also biological variability. Features an extensive review of modelling terminology Presents examples of all available microbial models (i.e., growth, inactivation, growth/no growth) and applicable

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*software Revisits all statistical aspects related to exposure assessment Describes realistic examples of implementing microbial spoilage and safety modeling approaches
Computer Methods for Estimating*

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*Probability of Botulinum Toxin
Production in Pasteurized Process
Cheese
Understanding Pathogen
Behaviour
Advanced Quantitative
Microbiology for Foods and*

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Biosystems

*A Primer on Risk Assessment
Modelling*

*Handbook of Food Safety
Engineering*

*Processing Effects on Safety and
Quality of Foods*

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This paper is written as an introduction to the concepts of microbial risk assessment in general, but with a seafood focus and greater emphasis on the quantitative approach. The risk of food-borne disease is a

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combination of the likelihood of exposure to the pathogen, the likelihood of infection or intoxication resulting in illness and the severity of the illness. In a system as complex as the production and consumption of

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food, many factors affect both the likelihood and severity. To manage food safety effectively, a systematic means of examining these factors is necessary.

The RACCP (hazard analysis

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critical control point) concept for food products was an outgrowth of the US space program with the demand for a safe food supply for manned space flights by the National Aeronautics and Space

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Administration (NASA). The original work was carried out by the Pillsbury Company under the direction of Roward E. Bauman, who as the author of chapter 1 describes the evolution of the RACCP system

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and its adaptation to foods. The second chapter discusses the adoption of RACCP principles and explains how they fit into the USDA and FDA meat, poultry and seafood inspection systems. The next

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chapter discusses how RACCP principles can be extended to production of meat, poultry and seafoods, a most important area involved in producing a safe food supply. Chapter 4 deals with the use of

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RACCP in controlling hazards encountered in slaughtering and distribution of fresh meat and poultry, while chapter 5 discusses the problem - both spoilage and hazards - involved in processing and

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distribution of meat, poultry and seafood products. Chapter 6 covers the entire area of fish and seafoods, including both fresh and processed products from the standpoints of spoilage and hazards.

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The global market for seafood products continues to increase year by year. Food safety considerations are as crucial as ever in this sector, and higher standards of quality are demanded even as products

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are shipped greater distances around the world. The current global focus on the connection between diet and health drives growth in the industry and offers commercial opportunities on a number of

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fronts. There is great interest in the beneficial effects of marine functional compounds such as omega-3 polyunsaturated fatty acids. Seafoods are well-known as low calorie foods, and research

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continues into the nutritional effects on, for example, obesity and heart disease. In addition, by-products of marine food processing can be used in nutraceutical applications. This book is a resource for

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those interested in the latest advances in the science and technology of seafood quality and safety as well as new developments in the nutritional effects and applications of marine foods. It

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includes chapters on the practical evaluation of seafood quality; novel approaches in preservation techniques; flavour chemistry and analysis; textural quality and measurement; packaging; the

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*control of food-borne
pathogens and seafood toxins.
New research on the health-
related aspects of marine food
intake are covered, as well as
the use of seafoods as sources
of bioactives and*

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nutraceuticals. The book is directed at scientists and technologists in academia, government laboratories and the seafood industries, including quality managers, processors and sensory

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scientists.

This book is an example of a successful addition to the literature of bioengineering and processing control within the scientific world. The book is divided into twelve chapters

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covering: selected topics in food engineering, advances in food process engineering, food irradiation, food safety and quality, machine vision, control systems and economics processing. All chapters have

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*been written by renowned
professionals working in food
engineering and related
disciplines.*

*Food Engineering Handbook
Fundamentals and Frontiers
Microbiological Safety and*

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Quality of Food

Foodborne Pathogens

Exposure Assessment of

Microbiological Hazards in

Food

Theory and Application

The measurement, prediction,

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and control of food processes in the quest for greater consistency, quality, and safety in the final product has been a major trend in the food industry over the past decade. The shift to modelling food processes as

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a way of identifying and understanding the key variables at work is a major outgrowth of this trend. The editors and contributors explore the current trends in modelling, their strengths, and

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weaknesses, and their applications across the supply chain in this book.

Jointly issued by the World Health Organization and the Food and Agriculture Organization. For interpretative

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summary of this report, see
(ISBN 9251051267).

This new edition discusses the
physical and engineering
aspects of the thermal
processing of packaged foods
and examines the methods

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which have been used to establish the time and temperature of processes suitable to achieve adequate sterilization or pasteurization of the packaged food. The third edition is totally renewed and

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updated, including new concepts and areas that are relevant for thermal food processing: This edition is formed by 22 chapters—arranged in five parts—that maintain great

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parts of the first and second editions The First part includes five chapters analyzing different topics associated to heat transfer mechanism during canning process, kinetic of microbial death, sterilization

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criteria and safety aspect of thermal processing. The second part, entitled Thermal Food Process Evaluation Techniques, includes six chapters and discusses the main process evaluation techniques. The

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third part includes six chapters treating subjects related with pressure in containers, simultaneous sterilization and thermal food processing equipment. The fourth part includes four chapters

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including computational fluid dynamics and multi-objective optimization. The fifth part, entitled Innovative Thermal Food Processing, includes a chapter focused on two innovative processes used for

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food sterilization such high pressure with thermal sterilization and ohmic heating. Thermal Processing of Packaged Foods, Third Edition is intended for a broad audience, from undergraduate to post

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graduate students, scientists, engineers and professionals working for the food industry. This document provides guidance on undertaking risk assessment of all microbial hazards which may adversely

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affect human health in foods along a food chain. This document is also intended to provide practical guidance on a structured framework for carrying out risk assessment of microbiological hazards in

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foods, focussing on the four components including hazard identification, hazard characterization, exposure assessment and risk characterization. These guidelines therefore represent

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the best practice at the time of their preparation, and it is hoped that they will help stimulate further developments and disseminate the current knowledge.

Fundamentals and Applications

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Microbiological Risk
Assessment in Food Processing
Food Microbiology
HACCP in Meat, Poultry, and
Fish Processing
Guidelines
Shelf Life Assessment of Food

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The key requirements for chilled food products are good quality and microbiological safety at the point of consumption. The first edition of Chilled foods quickly established itself as the standard work on these issues. This major new edition strengthens that reputation, with extensively revised and

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expanded coverage (including more than ten new chapters) and significant participation from those in the chilled food industry to increase the publication's relevance to practitioners. The introduction discusses key trends and influences in the chilled foods market. Part one explores the critical

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importance of raw material selection and packaging materials in final product quality, with expanded coverage of particular ingredients such as fish, cheese and poultry and a new contribution on chilled food packaging materials and technologies. Part two focuses on technologies and processes in

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the supply chain, with entirely new chapters on refrigeration, storage and transport and non-microbial hazards such as allergens, among others.

Alongside are updated chapters on the important topics of hygienic design, cleaning and disinfection and temperature monitoring and

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measurement. Part three covers microbiological hazards, with new chapters on predictive microbiology and conventional and rapid analytical microbiology. The final part contains three new chapters devoted to essential issues in safety and quality management, such as shelf-life, quality

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and consumer acceptability. A wholly updated chapter on legislation and criteria completes the volume.

Extensively revised and expanded, the third edition of Chilled foods is an essential reference for professionals involved in the manufacture of chilled food products. Reviews key trends and

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influences in the chilled food market

**Explores the importance of raw
material selection and packaging
materials in final product quality**

**Discusses technologies and processes in
the supply chain, focusing on
refrigeration, storage and transport**

Covers a Host of Groundbreaking

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Techniques Thermal processing is known to effectively control microbial populations in food, but the procedure also has a downside?it can break down the biochemical composition of foods, resulting in a marked loss of sensory and nutritional quality. Processing Effects on Safety and Quality of Foods

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delineates three decades of advances made in processing techniques that produce microbiologically safe foods, while maintaining their sensory and nutritive properties. Addresses the Entire Food Processing Industry With an international team of more than 35 renowned contributors, this book

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presents evaluation techniques that yield reliable estimations of microbiological, physicochemical, nutritive, and sensory characteristics. Each chapter discusses the processing effects of relevant technologies and includes the basics of microbial kinetics, sensory evaluation, and the perception

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of food quality. A sampling of the techniques covered: Hermetically sealed containers Acrylamide formation Dried foods Irradiated foods Pressure-assisted thermal processing Pulsed electric field processing Processing Effects on Safety and Quality of Foods addresses the entire food processing industry,

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including food modeling, optimization, and proper design of manufacturing plants. It is the first of its kind? a single, sound reference that explores all of the different aspects involved in evaluating processing effects in food safety and quality.

Exposure assessment is one of the four

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steps of microbiological risk assessment. This volume provides guidelines for the exposure assessment of microbiological hazards in food. It outlines the principles of exposure assessment as well as the data needed and approaches available for carrying out exposure assessment.--Publisher's description.

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Research and development of seafood continues to be productive in terms of new and improved products for both food and non-food purposes. The use of biotechnology, microbiology, computer modeling and advanced analytical techniques has led to improvements in processing and product safety. This

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recent book provides extensive new information on these developments. The 25 reports were prepared by food scientists specializing in seafood. The reports are well illustrated with numerous schematics and some micrographs. Extensive reference data is provided in tables and graphs.

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Focus on Seafood Products

Water Activity in Foods

Shelf Life Evaluation of Foods

**Models for Predicting Growth and
Inactivation**

**Understanding and Measuring the Shelf-
Life of Food**

Technical Report

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Microbiological risk assessment (MRA) is one of the most important recent developments in food safety management. Adopted by Codex Alimentarius and many other international bodies, it provides a structured way of identifying and

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assessing microbiological risks in food. Edited by two leading authorities, and with contributions by international experts in the field, Microbiological risk assessment provides a detailed coverage of the key steps in MRA and how it can be used to improve food

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safety. The book begins by placing MRA within the broader context of the evolution of international food safety standards. Part one introduces the key steps in MRA methodology. A series of chapters discusses each step, starting with hazard identification and

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characterisation before going on to consider exposure assessment and risk characterisation. Given its importance, risk communication is also covered. Part two then considers how MRA can be implemented in practice. There are chapters on implementing the results of

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a microbiological risk assessment and on the qualitative and quantitative tools available in carrying out a MRA. It also discusses the relationship of MRA to the use of microbiological criteria and another key tool in food safety management, Hazard Analysis and

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Critical Control Point (HACCP) systems. With its authoritative coverage of both principles and key issues in implementation, Microbiological risk assessment in food processing is a standard work on one of the most important aspects of

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food safety management. Provides a detailed coverage of the key steps in microbiological risk assessment (MRA) and how it can be used to improve food safety Places MRA within the broader context of the evolution of international food safety

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standards Introduces the key steps in MRA methodology, considers exposure assessment and risk characterisation, and covers risk communication

Publisher Description

Determining accurate shelf life data for

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foods is essential for assuring food quality and protecting consumers from the effects of degradation. With a proper balance of theory and practical examples, Shelf Life Assessment of Food presents the essential criteria and current methodologies for obtaining

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accurate and reliable shelf life dating. Defining the process through a series of sequential steps, the book assists and supports researchers and food industry operators in planning a shelf life study that best suits their needs. Offering an integrated view of the present status of

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shelf life assessment, the book covers:
Definitions, basic concepts, and
regulatory aspects of food shelf life
The shelf life assessment process,
including preliminary steps, testing,
modeling, and monitoring Methods for
determining acceptability limits

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Critical indicators in shelf life
assessment Real-time and accelerated
shelf life testing Microbial indicators
for shelf life prediction and
determination Survival analysis
methodologies and their role in
modeling shelf life The effect of

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packaging materials properties in food shelf life assessment The book concludes with a series of case studies involving fresh-cut apple slices, fruit juices, frozen pasta, cheese breadsticks, coffee, frozen shrimp, and fruit-based noncarbonated soft drinks. Each case

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study begins with a brief presentation of the product and the problem most relevant to the product's shelf life. The studies first define acceptability limits and identify the indicators of quality loss. Next, the book examines expiration time assessment by

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instrumental or sensory tools.

Providing researchers and food industry operators with up-to-date data and procedures, this volume surveys the most critical factors and methods for obtaining accurate and reliable shelf life dating.

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Food Engineering Handbook: Food Engineering Fundamentals provides a stimulating and up-to-date review of food engineering phenomena.

Combining theory with a practical, hands-on approach, this book covers the key aspects of food engineering,

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from mass and heat transfer to steam and boilers, heat exchangers, diffusion, and absorption. A complement to Food Engineering Handbook: Food Process Engineering, this text: Explains the interactions between different food constituents that might lead to changes

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in food properties Describes the
characterization of the heating behavior
of foods, their heat transfer, heat
exchangers, and the equipment used in
each food engineering method
Discusses rheology, fluid flow,
evaporation, and distillation and

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includes illustrative case studies of food behaviors Presenting cutting-edge information, Food Engineering Handbook: Food Engineering Fundamentals is an essential reference on the fundamental concepts associated with food engineering today.

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Thermal Processing of Packaged Foods
Meeting Report
Risk Assessment of Listeria
Monocytogenes in Ready-to-eat Foods
Encyclopedia of Food Microbiology
Emerging Infectious Diseases
Predictive Microbiology in Foods

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Cases of listeriosis appear to be predominantly associated with ready-to-eat products. FAO and WHO have undertaken a risk assessment of *Listeria monocytogenes* in ready-to-eat foods, prepared

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and reviewed by an international team of scientists. Input was received from several international fora including expert consultations and Codex Alimentarius committee meetings as well

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**as via public and peer review.
This technical report provides
complete documentation of
the risk assessment, the
approaches taken, the data
and methodology used, and
the results. It also contains**

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**four example assessments
addressing the risk of
listeriosis associated with
fresh milk, ice cream,
fermented meats and cold-
smoked fish. These products
were selected to represent**

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typical classes of ready-to-eat products.

The demands of producing high quality, safe (pathogen-free) food rely increasingly on natural sources of antimicrobials to inhibit food

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spoilage organisms and food-borne pathogens and toxins. Discovery and development of new antimicrobials from natural sources for a wide range of application requires that knowledge of traditional

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sources for food antimicrobials is combined with the latest technologies in identification, characterization and application. This book explores some novel, natural sources of antimicrobials as

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**well as the latest
developments in using well-
known antimicrobials in food.
Covering antimicrobials
derived from microbial
sources (bacteriophages,
bacteria, algae, fungi), animal-**

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derived products (milk proteins, chitosan, reduction of biogenic amines), plants and plant-products (essential oils, phytochemicals, bioactive compounds), this book covers the development and use of

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natural antimicrobials for processed and fresh food products. New and emerging technologies concerning antimicrobials are also discussed.

Predicting the growth and

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behaviour of microorganisms in food has long been an aim in food microbiology research. In recent years, microbial models have evolved to become more exact and the discipline of quantitative

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microbial ecology has gained increasing importance for food safety management, particularly as minimal processing techniques have become more widely used. These processing methods

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operate closer to microbial death, survival and growth boundaries and therefore require even more precise models. Written by a team of leading experts in the field, Modelling microorganisms in

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food assesses the latest developments and provides an outlook for the future of microbial modelling. Part one discusses general issues involved in building models of microbial growth and

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inactivation in foods, with chapters on the historical background of the field, experimental design, data processing and model fitting, the problem of uncertainty and variability in models and

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modelling lag-time. Further chapters review the use of quantitative microbiology tools in predictive microbiology and the use of predictive microbiology in risk assessment. The second part

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of the book focuses on new approaches in specific areas of microbial modelling, with chapters discussing the implications of microbial variability in predictive modelling and the importance

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of taking into account microbial interactions in foods. Predicting microbial inactivation under high pressure and the use of mechanistic models are also covered. The final chapters

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outline the possibility of incorporating systems biology approaches into food microbiology. Modelling microorganisms in food is a standard reference for all those in the field of food

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microbiology. Assesses the latest developments in microbial modelling Discusses the issues involved in building models of microbial growth Chapters review the use of quantitative microbiology

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**tools in predictive
microbiology**

**This book presents a
comprehensive and
substantial overview of the
emerging field of food safety
engineering, bringing together**

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**in one volume the four
essential components of food
safety: the fundamentals of
microbial growth food safety
detection techniques
microbial inactivation
techniques food safety**

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**management systems Written
by a team of highly active
international experts with both
academic and professional
credentials, the book is
divided into five parts. Part I
details the principles of food**

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safety including microbial growth and modelling. Part II addresses novel and rapid food safety detection methods. Parts III and IV look at various traditional and novel thermal and non-thermal

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**processing techniques for
microbial inactivation. Part V
concludes the book with an
overview of the major
international food safety
management systems such as
GMP, SSOP, HACCP and**

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*estimating microbial
growth and survival. The
author covers traditional
and alternative models,
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*dose response curves,
interpretation of
irregular count records,
and how to estimate the
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mathematical forms of the proposed alternative models and on the rationale for their introduction as substitutes to those currently in use. The book

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provides examples of how some of the methods can be implemented to follow or predict microbial growth and inactivation patterns, in real time, with free programs posted on the

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web, written in MS Excel, and examples of how microbial survival parameters can be derived directly from non-isothermal inactivation data and then used to

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and thorough updating of taxonomies make this an essential for every food scientist.

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management of microbiological hazards at any stage in the food production chain.

This major edition strengthens that reputation, with extensively revised and expanded coverage, including more than ten new chapters. Part one focuses on risk assessment and management in the food chain. Opening chapters review the

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important topics of pathogen detection, microbial modelling and the risk assessment procedure. Four new chapters on pathogen control in primary production follow, reflecting the increased interest in safety management early in the food chain. The fundamental issues of hygienic design and sanitation are also covered in

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more depth in two extra chapters.

Contributions on safe process design and operation, HACCP and good food handling practice complete the section.

Parts two and three then review the management of key bacterial and non-bacterial foodborne pathogens. A new article on preservation principles and

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technologies provides the context for following chapters, which discuss pathogen characteristics, detection methods and control procedures, maintaining a practical focus. There is expanded coverage of non-bacterial agents, with dedicated chapters on gastroenteritis viruses, hepatitis viruses

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and emerging viruses and foodborne helminth infections among others. The second edition of Foodborne pathogens: hazards, risk analysis and control is an essential and authoritative guide to successful pathogen control in the food industry. Strengthens the highly successful first edition of Foodborne pathogens with

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extensively revised and expanded coverage Discusses risk assessment and management in the food chain. New chapters address pathogen control, hygiene design and HACCP Addresses preservation principles and technologies focussing on pathogen characteristics, detection methods and control procedures

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Mathematical and Statistical Approaches in Food Science and Technology offers an accessible guide to applying statistical and mathematical technologies in the food science field whilst also addressing the theoretical foundations. Using clear examples and case-studies by way of practical illustration, the book is more than

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just a theoretical guide for non-statisticians, and may therefore be used by scientists, students and food industry professionals at different levels and with varying degrees of statistical skill.

This authoritative two-volume reference provides valuable, necessary information on the principles underlying the

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production of microbiologically safe and stable foods. The work begins with an overview and then addresses four major areas: 'Principles and application of food preservation techniques' covers the specific techniques that defeat growth of harmful microorganisms, how those techniques work, how they are used, and

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how their effectiveness is measured.

'Microbial ecology of different types of food' provides a food-by-food accounting of food composition, naturally occurring microflora, effects of processing, how spoiling can occur, and preservation.

'Foodborne pathogens' profiles the most important and the most dangerous

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microorganisms that can be found in foods, including bacteria, viruses, parasites, mycotoxins, and 'mad cow disease.' The section also looks at the economic aspects and long-term consequences of foodborne disease.

'Assurance of the microbiological safety and quality of foods' scrutinizes all aspects

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of quality assurance, including HACCP, hygienic factory design, methods of detecting organisms, risk assessment, legislation, and the design and accreditation of food microbiology laboratories. Tables, photographs, illustrations, chapter-by-chapter references, and a thorough index complete

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each volume. This reference is of value to all academic, research, industrial and laboratory libraries supporting food programs; and all institutions involved in food safety, microbiology and food microbiology, quality assurance and assessment, food legislation, and generally food science and technology.

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Four authors with backgrounds in food

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microbiology, food chemistry, mathematics, and statistics, explain how techniques of predictive microbiology can allow an objective evaluation of the effects of processing, distribution, and storage on the microbiological safety and quality of foods. The trick is to understand the

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microbial ecology of a process or of a food at a particular point in the chain, then use mathematical relationships between microbial growth and the expected environmental conditions, to predict the growth or survival of selected organisms. Annotation copyright by Book News, Inc.,

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This essential reference emphasizes the molecular and mechanistic aspects of food microbiology in one comprehensive volume. • Addresses the field's major concerns, including spoilage, pathogenic bacteria, mycotoxigenic molds, viruses, prions,

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parasites, preservation methods, fermentation, beneficial microorganisms, and food safety. • Details the latest scientific knowledge and concerns of food microbiology • Offers a description of the latest and most advanced techniques for detecting, analyzing, tracking, and

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controlling microbiological hazards in food. • Serves as significant reference book for professionals who conduct research, teach food microbiology courses, analyze food samples, conduct epidemiologic investigations, and craft food safety policies.