

Novel Food Regulations In Canada Ciph1

In the last decade, there has been substantial research dedicated towards prospecting physicochemical, nutritional and health properties of novel protein sources. In addition to being driven by predictions of increased population and lack of a parallel increase in traditional protein sources, main drivers for the rise in novel proteins/ novel foods research activities is linked to significant changes in young consumers' attitudes toward red meat consumption and their interest in new alternative protein products. Alternative Proteins: Safety and Food Security Considerations presents up-to-date information on alternative proteins from non-meat sources and examines their nutritional and functional roles as food sources and ingredients. Emphasis is placed on the safety of these novel proteins and an evaluation of their potential contribution to food security. Motivations for novel proteins and restrictions for their use are also discussed. Key Features: Explains potential improvements to alternative proteins through the employment of novel processing techniques. Contains the first review on keratin as an alternative protein source. Explores first comprehensive evaluation of the religious aspects of novel proteins. Describes methods for the detection and evaluation of health hazards. Discusses guidelines, regulatory issues and recommendations for food safety. Additionally, this book covers fundamental and recent scientific options for novel proteins, and examines safety and consumer acceptability wherever information is available. The sources and processing options for alternative proteins are also covered. A collective contribution from international researchers who are active in their field of research and have made significant contributions to the the food sciences, this book is beneficial to any researcher interested in the the food science and safety of alternative proteins. Infant formulas are unique because they are the only source of nutrition for many infants during the first 4 to 6 months of life. They are critical to infant health since they must safely support growth and development during a period when the consequences on inadequate nutrition are most severe. Existing guidelines and regulations for evaluating the safety of conventional food ingredients (e.g., vitamins and minerals) added to infant formulas have worked well in the past; however they are not sufficient to address the diversity of potential new ingredients proposed by manufacturers to develop formulas that mimic the perceived and potential benefits of human milk. This book, prepared at the request of the Food and Drug Administration (FDA) and Health Canada, addresses the regulatory and research issues that are critical in assessing the safety of the addition of new ingredients to infants.

An increasingly hot-button issue, genetically modified (GM) food is considered by some as the best way to feed the world's growing population, and by others as an experiment gone wrong on the unsuspecting public. *Genetically Modified Foods: Basics, Applications, and Controversy* details the basics of biotechnology and its applications in the labora

This book presents recent research using cognitive science to apprehend risk situations and elaborate new organizations, new systems and new methodological tools in response. The book demonstrates the reasons, advantages and implications of the association of the concepts of cognition and risk. It is shown that this association has strong consequences on how to apprehend critical situations that emerge within various activity domains, and how to elaborate responses to these critical situations. The following topics are covered by the book: - Influence of the culture in risk management, - Influence of the risk communication in risk management, - User-centred design to improve risk situation management, - Designing new tools to assist risk situation management, - Risk prevention in industrial activities.

Exploring Global Harmonization

Principles and Applications

Alternative Procees

Identification of the Main Constraints in the European Union

Biotechnology and the Consumer

Regulation of Agricultural Biotechnology: The United States and Canada

Food Biotechnology

The focus of food science and technology has shifted from previous goals of improving food safety and enhancing food taste toward providing healthy and functional foods. Today's consumers desire foods that go beyond basic nutrition-foods capable of promoting better health, or even playing a disease-prevention role. To meet this need for innovation,

Biotechnology has become one of the most important issues in public policy and governance, altering the boundaries between the public and the private, the economic and the social, and further complicating the divide between what is scientifically possible and ethically preferred. Given the importance of biotechnology in shaping relations between the state, science, the economy, and the citizenry, a book that explores the Canadian biotechnology regime and its place in our democracy is timelier than ever. Three Bio-Realms provides the first integrated examination of the thirty-year story of the democratic governance of biotechnology in Canada. G. Bruce Doern and Michael J. Prince, two recognized specialists in governance innovation and social policy, look at particular 'network-based' factors that seek to promote and to regulate biotechnology inside the state as well as at broader levels. Unmatched by any other book in its historical scope and range, Three Bio-Realms is sure to be read for years to come.

Handbook on Natural Pigments: Industrial Applications for Improving Food Colour is unique in its approach to the improvement of food colors. The book is written with industrial applications in mind, with each chapter focusing on a color solution for a specific commodity that will provide food scientists with a one-stop, comprehensive reference on how to improve the color of a particular food product. The first section of the book looks at the legal frameworks which underpin natural food colorings, also investigating the consumer expectations of food color. The second section of the book focuses on specific industrial applications of natural colorants with chapters covering the use of natural colorants in aqueous food products, cereal-based foods, and meat products, amongst many other topics. The various pigments which can be used to effectively color these commodities are presented with information on safety and testing included throughout. The final section in the book looks at recent developments and future perspectives in natural food colorings. There are chapters which cover the health benefits of natural food colorings, the use of novel fruits and vegetables in pigments, and stable natural solutions for blue colorings. Presents recent advances in consumer demand and worldwide legislation regarding natural food colorants Discusses the use of natural food colorants for one specific product category per chapter rather than one pigment class per chapter - this makes the book extremely useable for industrialists working in a specific sector Contains a comprehensive array of product-specific coloration approaches, from using pigment-enriched feed additives to the direct addition of color formulations

Genetically modified (GM) agricultural crops which are approved as safe in North America (Canada and the United States) are facing significant regulatory hurdles in gaining access to the European Union. The development and commercialization of GM crops illustrate a complex challenge facing trade diplomacy - the challenge of regulatory regionalism created by social regulatory barriers.

International Economic Review

Agricultural Biotechnology and Transatlantic Trade

Safety and Food Security Considerations

Industrial Applications for Improving Food Color

Novel Foods in the European Union

Selected Issues of Relevance to Food and Agriculture

Innovative Food Processing Technologies

Commercial development of cultured-derived food ingredients has attracted interna tional interest. As consumers have become more health conscious in recent years, the de mand for natural food ingredients and disease-preventative phytochemicals has increased tremendously. Plant Cell and Tissue Culture provides an alternative method for controlled production of these products. A wide range of food ingredients has been shown to be pro duced in culture. Much progress has been made in advancing this technology to the point that large-scale production has become possible. This book is developed from the Symposium "Plant Cell and Tissue Culture for Food Ingredient Production" which was held on April 13-17, 1997 at the American Chemical So ciety National Meeting in San Francisco, CA. In this book, international experts in acada mia, government, and industry discuss current advances in the field of plant cell and tissue culture with special emphasis on its application for food ingredient production. Topics re lated to various aspects of plant cell and tissue culture technology are discussed, including overviews of recent advances in plant metabolic pathway studies, process development for improving yields, and bioreactor design and operation for large-scale production. Economic considerations and issues related to the commercial development of culture-derived food ingredients are discussed. Also included are the safety assessment schemes and regulatory frameworks set up by regulatory agencies around the world.

Agricultural biotechnology takes many forms and applications, with the number and diversity of products ever increasing. With this rapid development, regulatory authorities have sought to keep pace through regulatory adjustments and advances to ensure the safe and beneficial use of this critical technology. The regulatory systems for the U.S. and Canada are not static and must evolve in order to maintain relevance, efficiency and applicability to the challenges encountered. The diverse authors, drawn from the biotechnology industry, academia, government research and regulatory agencies, offer their perspectives of the historical and current system and suggest where it can be improved in the future. Based upon vast experience interacting with the regulatory system, the editors and authors offer demystifying views of the US and Canadian regulatory structures and how they came to be. We know of no other effort to present the biotechnology regulatory systems of the US and Canada in an open forum which will benefit those in the regulated community as well as those charged with oversight of the products of biotechnology, and ultimately the consumer!

?Forecasts point out an exponential growth in the global population, which raises concerns over the ability of the current agri-food production systems to meet food demand in the long term. Such a prospect has led international organizations and the scientific community to raise awareness about, and call for, the need to identify additional sources of food to feed the world. From this perspective, insects qualify as a suitable and more environmentally friendly alternative meat and other foods that are sourced from animal proteins. However, uptake of the production and commercialization of insects as food has been facing regulatory hurdles, consumer skepticism and rejection in many markets. This is particularly true in the context of western societies in which insects do not always constitute part of the local traditional diets. Production and Commercialization of Insects as Food and Feed in the European Union and the Regulatory state-of-the-art for the production and commercialization of insects as food and feed in the European Union. The EU has been taking concrete legislative steps with a view to opening up its market for insect foods, although some key regulatory constraints still exist today which ultimately prevent the industry sector from growing, consolidating and thriving. The main regulatory constraints in the EU for insects as food include the fragmentation of the EU market as a result of the adoption of different policy solutions by EU Member States for novel foods and the lengthy and complex authorization procedures. Also, ad hoc safety and quality requirements tailored to the needs and specificities of the insect food sector are currently missing. This work constitutes the first comprehensive overview of the evolution and current state-of-the-art of the regulatory framework for insect foods in the EU, based on a multidisciplinary approach that combines science, policy and law. It proposes a legislative roadmap which the EU should follow in order to make its regulatory framework fit for insect foods in the long term by providing a detailed comparison between the current EU legal framework and other regulatory systems of western countries with a view to singling out the markets which are better equipped to address the production and the commercialization of insect foods. The text provides an updated overview of the overall market and of European consumers' perspectives on the use of insect foods. With the proper legislative steps and consolidation, the EU can be a global leader for insects as food and feed both as a market and as a standard-setting body.

Within the context of the Convention on Biological Diversity (CBD), the Cartagena Protocol on Biosafety (CPB) was established as an implementing agreement. The CPB is an international agreement establishing the rights of recipient countries to be notified of and to approve or reject the domestic import and/or production of living modified organisms (LMOs). Decisions regarding import/production are to be on the basis of a biosafety assessment. Article 26.1 of the CPB allows for the (optional) inclusion of socio-economic considerations (SECs) into that biosafety assessment process. This book compiles expert assessments of the issues relevant to SEC assessment of LMOs and fundamental for decisions regarding whether to undertake such assessments at all. It includes an overview of the inclusion of SEC assessment in the regulation of LMOs that looks at the rationale for the inclusion of SECs, in the context of the existing science-based risk assessment systems. This book reviews the various factors that can and have been suggested for inclusion in SEC assessment, and provides a meaningful dialogue about the contrasts, benefits and tradeoffs that are, and will, be created by the potential move to the inclusion of SECs in the regulation of LMOs, making it of interest to both academics and policy-makers.

Risk and Cognition

Effects on Livestock and Food Safety

Environmental Law in Canada

A Comparative Analysis of Regulatory Frameworks of Selected Countries and the EU

Biotechnology and the Governance of Food, Health, and Life in Canada

Resistance Is Fertile

Ensuring Global Food Safety

The production of animal feed increasingly relies on the global acquisition of feed material, increasing the risk of chemical and microbiological contaminants being transferred into food-producing animals. Animal feed contamination provides a comprehensive overview of recent research into animal feed contaminants and their negative effects on both animal and human health. Part one focuses on the contamination of feeds and fodder by microorganisms and animal by-products. Analysis of contamination by persistent organic pollutants and toxic metals follows in part two, before the problem of natural toxins is considered in part three. Veterinary medicinal products as contaminants are explored in part four, along with a discussion of the use of antimicrobials in animal feed. Part five goes on to highlight the risk from emerging technologies. Finally, part six explores feed safety and quality management by considering the safe supply and management of animal feed, the process of sampling for contaminant analysis, and the GMP+ feed safety assurance scheme. With its distinguished editor and international team of expert contributors, Animal feed contamination is an indispensable reference work for all those responsible for food safety control in the food and feed industries, as well as a key source for researchers in this area. Provides a comprehensive review of research into animal feed contaminants and their negative effects on both animal and human health Examines the contamination of feeds and fodder by microorganisms and animal by-products Analyses contamination by persistent organic pollutants, toxic metals and natural toxins

Historically, most of the research into carbohydrates as functional ingredients focused on the improvement of appearance, taste, mouth-feel, and stability. The growing interest in functional foods, however, is demanding a critical look at the beneficial nonnutritive effects of carbohydrates on human health. Furthermore, there is a need to establish definitive relations among the structure, physical property, and physiological function of these bioactive compounds. As more of the benefit and functional versatility of carbohydrates is revealed, it is clear that any future research and recommendation must be based on a solid synthesis of multidisciplinary findings including epidemiological, metabolic, and clinical nutritional data. Through clinical and epidemiological studies, Functional Food Carbohydrates addresses the specific classes of carbohydrates that seem to exert health-enhancing effects. The text begins with in-depth treatments of the chemistry, physical properties, processing technology, safety and health benefits of a variety of carbohydrates including cereal beta-glucans, microbial polysaccharides, chitosan, arabinoxylians, resistant starch, and other polysaccharides of plant origin. The authors then discuss the physiological and metabolic effects that a variety of carbohydrates have on specific chronic diseases such as cancer, diabetes, cardiovascular disease, obesity, and various gastrointestinal disorders. The final chapters discuss the regulatory and technological aspects of using carbohydrates as functional foods. Specifically, the authors consider the safety and efficacy of pre-, pro-, and syn-biotics, and the potential use of carbohydrate/as delivery vehicles for other bioactive compounds. With contributions from experts specializing in food chemistry and technology, as well as human nutrition and physiology, this text illuminates the link between the behavior of carbohydrate compounds and their beneficial end-result on human health.

Civil society organizations are among the most vociferous critics of the modern food system. Yet even after decades of campaigns, governments have largely failed to address health and sustainability issues in an effective way. This volume showcases the research of experts from multiple disciplines who argue that solutions lie not just in lobbying elected officials but in initiatives at the subparliamentary level. Real change will come, they argue, when advocacy groups develop innovative strategies capable of influencing decision makers resistant to public pressure: business lobbies well connected to government agencies, middle managers, and ministries unused to collaborating across departmental mandates.

The aquaculture industry is fast expanding around the globe and causing major environmental and social disruptions. The volume is about getting a 'good governance' grip on this important industry. The book highlights the numerous law and policy issues that must be addressed in the search for effective regulation of aquaculture. Those issues include among others: the equitable and fair assignment of property rights; the design of effective dispute resolution mechanisms; clarification of what maritime laws apply to aquaculture; adoption of a proper taxation system for aquaculture; resolution of aboriginal offshore title and rights claims; recognition of international trade law restrictions such as labeling limitations and food safety requirements; and determination of whether genetically modified fish should be allowed and if so under what controls. This book will appeal to a broad range of audiences: undergraduate and postgraduate students, academic researchers, policy makers, NGOs, practicing lawyers and industry representatives.

Innovation in Healthy and Functional Foods

Functional Food Carbohydrates

Regulatory Barriers to GM Crops

Regulating Safety of Traditional and Ethnic Foods

Towards principled access and operations

A research project sponsored by the Office of Consumer Affairs of Industry Canada

Nutraceutical and Functional Food Regulations in the United States and around the World

Genomics and the Global Bioeconomy, a new volume in the Translational and Applied Genomics series, empowers researchers, administrators, and sustainability leaders to apply genomics and novel omics technologies to advance the global bioeconomy and sustainability. Here, more than 15 international experts illustrate—with concrete examples across various industries and areas of global need—how genomics is addressing some of the most pressing global challenges of our time. Chapters offer an in-depth, case-based treatment of various topics, from genomics technologies supporting sustainability development goals to novel synthetic biology advancements improving biofuel production, conservation, sustainable food production, bioremediation, and genomic monitoring. Editors Catalina Lopez-Correa and Adrian Suarez-Gonzalez skillfully bring clarity to this diverse and increasingly impactful research, uniting various perspectives to inspire fresh innovation in driving the global bioeconomy. Presents concrete examples and detailed discussions that illustrate how to use genomics and omics technologies to drive the global bioeconomy Examines how genomics is addressing the most pressing environmental, agricultural, economic, and natural resources challenges of our time Features chapter contributions from international experts who are applying genomic technologies across various fields, from agriculture to biofuel production, bioremediation, biodiversity monitoring, and conservation

Everyday exposures to common chemicals found in homes, schools, and workplaces are having devastating long-term and inter-generational consequences on human health. At the same time, the risks associated with these exposures (and the burdens of managing them) rest disproportionately on the shoulders of women. Written by leading researchers in science, law, and public policy, the chapters in Our Chemical Selves critically examine the system that manufactures the chemicals as well as the social, political, and gender relations that enable harmful chemicals to continue being produced and consumed. This book demonstrates the urgent need to revise existing approaches to the regulation of toxic substances in Canada.

Regulating Safety of Traditional and Ethnic Foods, a compilation from a team of experts in food safety, nutrition, and regulatory affairs, examines a variety of traditional foods from around the world, their risks and benefits, and how regulatory steps may assist in establishing safe parameters for these foods without reducing their cultural or nutritive value. Many traditional foods provide excellent nutrition from sustainable resources, with some containing nutraceutical properties that make them not only a source of cultural and traditional value, but also valuable options for addressing the growing need for food resources. This book discusses these ideas and concepts in a comprehensive and scientific manner. Addresses the need for balance in safety regulation and retaining traditional food options Includes case studies from around the world to provide practical insight and guidance Presents suggestions for developing appropriate global safety standards

Modern food biotechnology is now a billion-dollar industry, producing functional foods and nutraceuticals that offer a whole host of increased health benefits, including prevention against illness, and chronic and degenerative conditions. Written by a team of top-tier researchers and scientists from around the world, Biotechnology in Functional Foo

A Comprehensive Review

The Food-to-supplement Paradigm

Health and Sustainability in the Canadian Food System

Basics, Applications, and Controversy

Nutraceuticals and Human Health

Ultraviolet Light in Food Technology

Gender, Toxics, and Environmental Health

Derived from the renowned multi-volume International Encyclopaedia of Laws, this book provides ready access to legislation and practice concerning the environment in Canada. A general introduction covers geographic considerations, political, social and cultural aspects of environmental study, the sources and principles of environmental law, environmental legislation, and the role of public authorities. The main body of the book deals first with laws aimed directly at protecting the environment from pollution in specific areas such as air, water, waste, soil, noise, and radiation. Then, a section on nature and conservation management covers protection of natural and cultural resources such as monuments, landscapes, parks and reserves, wildlife, agriculture, forests, fish, subsoil, and minerals. Further treatment includes the application of zoning and land-use planning, rules on liability, and administrative and judicial remedies to environmental issues. There is also an analysis of the impact of international and regional legislation and treaties on environmental regulation. Its succinct yet scholarly nature, as well as the practical quality of the information it provides, make this book a valuable resource for environmental lawyers handling cases affecting Canada. Academics and researchers, as well as business investors and the various international organizations in the field, will welcome this very useful guide, and will appreciate its value in the study of comparative environmental law and policy.

For decades, government, industry, and the mainstream media have extolled the virtues of biotechnology while downplaying its negative side effects. Focusing on agriculture, Resistance Is Fertile challenges this dominant rhetoric by analyzing the major issues around which opponents of biotechnology in Canada are mobilizing resistance – namely, the enclosure of the biological and the knowledge commons, which together form the BioCommons. What emerges is an empirically and theoretically informed analysis of Canada's regulatory regime, the corporate control of seeds, and attempts to construct and control public discussions about agricultural biotechnology.

Novel food regulation is already in force in the European Community, Australia/New Zealand and in Canada. These regulations distinguish between traditional plant foods and novel plant foods, as the novel plant foods need to go through a premarket assessment procedure. This report focuses on developing a proposal for definitions and criteria for determining if a plant food is traditional or novel and a proposal for an approach for the safety assessment of such plant foods with no or limited documented history of safe consumption. The report recommends to introduce a 2-step management procedure, first to establish the novelty and secondly to define and commit resources for the safety assessment, and recommend to generate and use a worldwide net of global, regional, local and ethnobotanical positive lists for food plants to guide both the decision on novelty and the safety assessment. The report recommends using the "history of use"--Concept and if the data submitted can support the claim that a product has a history of safe use, the approval can be straightforward. In Europe around 300 food plants deliver near 100% of human daily intake of plant food calories while nearly 7,000 other food plant species are used in other parts of the world. This report focuses on the situation when novel food items from these 7,000 plants are to enter the European or other regional market.

This book provides in-depth insights into the regulatory frameworks of five countries and the EU concerning the regulation of genome edited plants. The country reports form the basis for a comparative analysis of the various national regulations governing genetically modified organisms (GMOs) in general and genome edited plants in particular, as well as the underlying regulatory approaches.The reports, which focus on the regulatory status quo of genome edited plants in Argentina, Australia, Canada, the EU, Japan and the USA, were written by distinguished experts following a uniform structure. On this basis, the legal frameworks are compared in order to foster a rational assessment of which approaches could be drawn upon to adjust, or to completely realign, the current EU regime for GMOs. In addition, a separate chapter identifies potential best practices for the regulation of plants derived from genome editing.

Genetically Modified Foods

Three Bio-realms

Production and Commercialization of Insects as Food and Feed

Evaluating the Safety of New Ingredients

Law and Modern Biotechnology

Advocacy and Opportunity for Civil Society

Infant Formula

This book provides a comprehensive and in-depth discussion on the development of herbicide resistance during the past 50 years, emphasizing the biochemical pathways of herbicide resistance in weeds. It discusses the principles of plant genetics, different methods of genetic engineering, makingof transgenic plants, various transgenic crops conferred

The rapid progress of modern biotechnology has given rise to new legislative needs in order to safeguard human health and the environment while at the same time taking advantage of the opportunities offered by biotechnology. Recent years have seen important new legislation being adopted and older law amended in order to respond to the new challenges. The purpose of this study is to indicate the extent to which

international agreements and a small selected group of national laws may already be assisting societies to realize modern biotechnology's potential and avoid its possible risks.

UV light is one of several food processing technologies that can be used in a broad range of applications producing food products with longer shelf-life, more safe, and with higher nutritional quality. The new edition of Ultraviolet Light in Food Technology: Principles and Applications will present recent understanding of the fundamentals of UV light along with new applied knowledge that has accumulated during the 7 years since the first edition published in 2009. The new edition of the book will have 11 chapters including 2 new chapters- on chemical destruction with UV light and food plant safety-along with 6 chapters greatly expanded and updated.

Biotechnology has a long history of use in food production and processing. For ten thousand years fermentation, a form of biotechnology, has been used to produce wine, beer and bread. Selective breeding of animals such as horses and dogs has been going on for centuries. Selective breeding of essential foods such as rice, corn and wheat have created thousands of local varieties with improved yield compared to their wild ancestors. Wheat that is best for bread is different from wheat that is best for pasta. This was accomplished through conventional breeding over many years using traditional methods. However, such methods were often unpredictable and inefficient, resulting in undesirable traits passed along with desirable ones. Today, through newer biotechnology and genetic engineering, scientists use techniques such as recombinant DNA (rDNA). Scientists, by using rDNA, can move one gene, the inherited instruction for specific traits, from one organism to another and omit the undesirable traits. This enables food producers to obtain animal and crop improvements in a much more precise, controlled and predictable manner. The book presents a thorough and accessible account of modern food biotechnology and will make an ideal course book. It is useful not only to the undergraduate and postgraduate students but also to the researchers involved in the biological sciences, biotechnology, and food science and technology.

Genomics and the Global Bioeconomy

Aquaculture Law and Policy

Animal Feed Contamination

EU Regulation and Transatlantic Trade

International Food Law and Policy

Our Chemical Selves

Risk assessment and risk management of novel plant foods : concepts and principles

Biotechnology is a rapidly developing sector of the economy for coun tries throughout the world. This rapid development has led to heated debate over its risks and benefits. Advocates of biotechnology point to the potential benefits offered by products that promise to elimi nate disease, provide for more efficient diagnostic techniques, treatments and drugs, yield increased food production, and so forth. Others fear that the rapid developments of this technology have occurred without appropriate consideration having been given to the ethical ramifications, the potential health risks and long-term envi ronmental impacts, implications for income distribution, and potential for abuse. Consumers and producers share concern for the future of biotechnology: the realities and even the perceptions, informed or otherwise. This book is the outcome of a research project on Biotechnology and the Consumer sponsored by the Office of Consumer Affairs of Industry Canada. The project was designed to foster informed public policy on biotechnology, particular, to contribute to and inform the Canadian government's development of a Canadian Biotechnology Strategy. The Office funded a group of authors to prepare a series of analytical papers on a range of consumer and informational issues related to biotechnology. This project also involved an interim workshop in which the authors presented their papers, and culmi nated in a symposium on Biotechnology and the Consumer Interest, held on September 24-25, 1997, in Ottawa, Canada.

International Food Law and Policy is the first interdisciplinary piece of academic literature of its kind with a comprehensive, reader-friendly approach to teaching the major aspects of food regulation, law, policy, food safety and environmental sustainability in a global context. The sections are grouped by continents and focus on a range of cross-disciplinary subjects, such as public health, international food trade, the right to food, intellectual property and global regulatory aspects of food production. With its systematic approach, this book will be a valuable resource both for professionals working in food regulation and anyone interested in the subject. It provides a solid foundation for courses and master's programs in environmental management, food law, policy and regulation, and sustainable development around the world.

Nutraceuticals is a broad umbrella term used to describe any product derived from food sources with extra health benefits in addition to the basic nutritional value found in foods. This book is a comprehensive look at two themes in the area: technical and biological considerations. Technical considerations include an in-depth look at the process of bioactive identification and extraction and factors controlling bioactive concentrations in food. It also includes details of how these products are regulated and the steps needed to utilize these products in human populations. Biological considerations include looking at how these products can be used in the prevention and treatment of chronic diseases, and a discussion on the process of formulations and how these influence bioavailability. This will be the first book to comprehensively examine the entire process of nutraceutical development from food to supplement creation and all the important considerations in between. This serves as an excellent and up-to-date reference for food scientists, dietitians, and nutraceutical and human nutrition.

Nutraceutical and Functional Food Regulations in the United States and Around the World, Third Edition addresses the latest regulatory requirements designed to ensure the safe production and delivery of these valuable classes of foods. The book is well recognized, showing how food and nutrition play a critical role in enhancing human performance, and in overall health. The book discusses the scope, importance and continuing growth opportunities in the nutraceutical and functional food industries, exploring the acceptance and demand for these products, regulatory hurdles, the intricate aspects of manufacturing procedures, quality control, global regulatory norms and guidelines. Contains five new chapters that address regulations in Germany, New Zealand, Saudi Arabia, the United Arab Emirates, South Africa and Brazil, Argentina and other Southern American Countries Provides foundational regulatory terminology Describes GRAS status and its role in functional food Presents a complete overview of cGMP and GMP Identifies defines the roles of NSF, DSHEA, FTC and FDA

Plant Cell and Tissue Culture for the Production of Food Ingredients

Regulation of Genome Editing in Plant Biotechnology

Genetically Modified Plants

Experiences and Prospects

Handbook on Natural Pigments in Food and Beverages

Biotechnology in Functional Foods and Nutraceuticals

Canadian Struggles on the BioCommons

Genetically Modified Plants, Second Edition, provides an updated roadmap and science-based methodology for assessing the safety of genetic modification technologies, as well as risk assessment approaches from regulators across different agroecosystems. This new edition also includes expanded coverage of technologies used in plant improvement, such as RNA-dependent DNA methylation, reverse breeding, agroinfiltration, and gene-editing technologies such as CRISPR and TALENS. This book is an essential resource for anyone interested in crop improvement, including students and researchers, practitioners in regulatory agencies, and policymakers involved in plant biotechnology risk assessment. Provides a roadmap for assessing the safety of genetically modified plants Expands coverage of technologies used in plant improvement, such as RNA-dependent DNA methylation, Reverse Breeding and Agro-infiltration Introduces new chapters addressing the potential applications and associated risks of new gene editing technologies such as CRISPR and TALENS

Ensuring Global Food Safety: Exploring Global Harmonization, Second Edition, examines the policies and practices of food law which remain top contributors to food waste. This fully revised and updated edition offers a rational and multifaceted approach to the science-based issue of "what is safe for consumption?" and how creating a globally acceptable framework of microbiological, toxicological and nutritional standards can contribute to the alleviation of hunger and food insecurity in the world. Currently, many laws and regulations are so stringent that healthy food is destroyed based on scientifically incorrect information upon which laws and regulations are based. This book illuminates these issues, offering guidelines for moving toward a scientifically sound approach to food safety regulation that can also improve food security without putting consumers at risk. Presents the progress and current status of regulatory harmonization for food standards Provides a science-based foundation for global regulatory consensus Approaches challenges from a risk-benefit approach, also including safety assurance Includes global perspectives from governmental, academic and industry experts

This Brief describes in three concise chapters one of the newest 'hot topics' under EU Food Law and Policy: the new Regulation (EU) No 2015/2283 from the European Parliament and by the Council, November 25, 2015, on novel foods, applicable from January 2018. In this work, the Authors discuss the long-time criticized EU Regulation on novel foods ((EC) No 258/1997) and how it has been significantly altered by the adoption of the new regulation. In the first chapter, the Authors provide a comprehensive analysis of the genesis of the new Regulation, its rationale and the policy's goals. In particular, they describe what food business operators shall do in order to get a new product allowed on the EU market, providing updated information on the regulatory developments from the European Food Safety Authority in nanofoods, cloned animals and insect foods. The role of the European Food Safety Authority is also discussed. The second Chapter summarizes the current toxicological studies used to evaluate novel foods safety, which are an extremely important pillar when speaking of food safety and commercial introduction of new products. Finally, the third Chapter discusses the 'history of safe use' approach to the problem of novel foods, and factors such as consumption period analysis, preparation advices and processes, intake levels, nutritional composition, and results of animal studies. Food lawyers, professionals and auditors working in the area of official inspections, quality assurance, food traceability, and international regulation, both in academia and industry, will find this Brief an important account.

Genetically engineered (GE) crops were first introduced commercially in the 1990s. After two decades of production, some groups and individuals remain critical of the technology based on their concerns about possible adverse effects on human health, the environment, and ethical considerations. At the same time, others are concerned that the technology is not reaching its potential to improve human health and the environment because of stringent regulations and reduced public funding to develop products offering more benefits to society. While the debate about these and other questions related to the genetic engineering techniques of the first 20 years goes on, emerging genetic-engineering technologies are adding new complexities to the conversation. Genetically Engineered Crops builds on previous related Academies reports published between 1987 and 2010 by undertaking a retrospective examination of the purported positive and adverse effects of GE crops and to anticipate what emerging genetic-engineering technologies hold for the future. This report indicates where there are uncertainties about the economic, agronomic, health, safety, or other impacts of GE crops and food, and makes recommendations to fill gaps in safety assessments, increase regulatory clarity, and improve innovations in and access to GE technology.

Transgenic Herbicide Resistance in Plants

Genetically Engineered Crops

Socio-Economic Considerations in Biotechnology Regulation

Concepts and Principles

Assessing Safety and Managing Risk

Risk Assessment and Risk Management of Novel Plant Foods

1. Introduction and research problem -- 2. A theoretical framework -- 3. The European leghold trap regulation -- 4. The European ban on the use of growth-hormones in meat production -- 5. Genetically modified foods and food products -- 6. The European data protection directive -- 7. Summary and conclusions.

Food process engineering, a branch of both food science and chemical engineering, has evolved over the years since its inception and still is a rapidly changing discipline. While traditionally the main objective of food process engineering was preservation and stabilization, the focus today has shifted to enhance health aspects, flavour and taste, nutrition, sustainable production, food security and also to ensure more diversity for the increasing demand of consumers. The food industry is becoming increasingly competitive and dynamic, and strives to develop high quality, freshly prepared food products. To achieve this objective, food manufacturers are today presented with a growing array of new technologies that have the potential to improve, or replace, conventional processing technologies, to deliver higher quality and better consumer targeted food products, which meet many, if not all, of the demands of the modern consumer. These new, or innovative, technologies are in various stages of development, including some still at the R&D stage, and others that have been commercialised as alternatives to conventional processing technologies. Food process engineering comprises a series of unit operations traditionally applied in the food industry. One major component of these operations relates to the application of heat, directly or indirectly, to provide foods free from pathogenic microorganisms, but also to enhance or intensify other processes, such as extraction, separation or modification of components. The last three decades have also witnessed the advent and adaptation of several operations, processes, and techniques aimed at producing high quality foods, with minimum alteration of sensory and nutritive properties. Some of these innovative technologies have significantly reduced the thermal component in food processing, offering alternative nonthermal methods. Food Processing Technologies: A Comprehensive Review covers the latest advances in innovative and nonthermal processing, such as high pressure, pulsed electric fields, radiofrequency, high intensity pulsed light, ultrasound, irradiation and new hurdle technology. Each section will have an introductory article covering the basic principles and applications of each technology, and in-depth articles covering the currently available equipment (and/or the current state of development), food quality and safety, application to various sectors, food laws and regulations, consumer acceptance, advancements and future scope. It will also contain case studies and examples to illustrate state-of-the-art applications. Each section will serve as an excellent reference to food industry professionals involved in the processing of a wide range of food categories, e.g., meat, seafood, beverage, dairy, eggs, fruits and vegetable products, spices, herbs among others.