

Potato Production Processing And Technology

The book reviews the knowledge about the nutritional value of the potato and its role in the nutrition of both children and adults.

This book is open access under a CC BY 4.0 license. This book provides a fresh, updated and science-based perspective on the current status and prospects of the diverse array of topics related to the potato, and was written by distinguished scientists with hands-on global experience in research aspects related to potato. The potato is the third most important global food crop in terms of consumption. Being the only vegetatively propagated species among the world's main five staple crops creates both issues and opportunities for the potato: on the one hand, this constrains the speed of its geographic expansion and its options for international commercialization and distribution when compared with commodity crops such as maize, wheat or rice. On the other, it provides an effective insulation against speculation and unforeseen spikes in commodity prices, since the potato does not represent a good traded on global markets. These two factors highlight the underappreciated and underrated role of the potato as a dependable nutrition security crop, one that can mitigate turmoil in world food supply and demand and political instability in some developing countries. Increasingly, the global role of the potato has expanded from a profitable crop in developing countries to a crop providing income and nutrition security in developing ones. This book will appeal to academics and students of crop sciences, but also policy makers and other stakeholders involved in the potato and its contribution to humankind's food security.

Most of the world's poorest smallholders depend on tropical roots and tuber crops as their principal source of food and nutrition. This book compiles information on the origin, genetics, physiology, agronomy, pests and diseases and post harvest processing of these crops, while providing ideas for further research and development.

In the past 15-20 years major discoveries have been concluded on potato biology and biotechnology. Important new tools have been developed in the area of molecular genetics, and our understanding of potato physiology has been revolutionized due to amenability of the potato to genetic transformation. This technology has impacted our understanding of the molecular basis of plant-pathogen interaction and has also opened new opportunities for the use of the potato in a variety of non-food biotechnological purposes. This book covers the potato world market as it expands further into the new millennium. Authors stress the overriding need for stable yields to eliminate human hunger and poverty, while considering solutions to enhance global production and distribution. It comprehensively describes genetics and genetic resources, plant growth and development, response to the environment, tuber quality, pests and diseases, biotechnology and crop management. Potato Biology is the most valuable reference available for all professionals involved in the potato industry, plant biologists and agronomists. Offers an understanding of the social, economic and market factors that influence production and distribution. Discusses developments and useful traits in transgenic biology and genetic engineering. The first reference entirely devoted to understanding new advances in potato biology and biotechnology.

The potato is a significant food around the globe in the grand scheme of consumption. However, changes in the Earth's climate are threatening to negatively impact the growth and production of agriculture, namely potatoes, which in turn will greatly alter the dimensions of food. Sustainable Potato Production and the Impact of Climate Change is an authoritative publication that provides the latest research on potato production in the future climate change scenario. Featuring exhaustive coverage on a variety of topics associated with food fundamentals such as, availability, stability, utilization, and accessibility, this reference work is an essential source for professionals, researchers and students seeking current research on the importance of potato cultivation.

Sweet Potato Processing Technology systematically introduces processing technologies of sweet potato starch and its series products including sweet potato protein, dietary fibers, pectin, granules, anthocyanins and chlorogenic acids. The book provides a detailed and comprehensive account of physicochemical and functional properties of sweet potato products, the nutritional components extracted from sweet potato, as well as their utilization in food, medicine and cosmetic fields. This book can provide the scientific basis and technical support for virtuous circle promotion and structure upgrade of sweet potato processing industry. This book will be a valuable reference for undergraduate and graduate students, as well as specialists and enterprise research staff in the field of food technology. Introduces processing technologies for sweet potato starch and related products. Covers utilization of nutritional components extracted from sweet potato in various products. Provides the scientific basis and technical support for virtuous circle promotion and structure upgrade of the sweet potato processing industry.

Advances in Sweet Potato Chemistry and Technology presents foundational information, including identification, analysis and use of chemical components from sweet potato in a variety of food and non-food uses. Sweet potatoes can be easily propagated, are rich source of carbohydrates and functional components and are highly productive, which makes them most suitable for production of staple and functional foods. In this environment of increasing population and the challenges of providing healthful food to the world, there is an increasing consumer demand for new and better sweet potato products, particularly for those in developing countries. Providing a brief description of the specific sweet potato components, their role during processing, and strategies for quality optimization, this book also explores novel methods of sweet potato starch, protein and pectin modification providing students, researchers, and technologists working in the area of food science and others with the most recent information and state-of-the-art technology for developing new and beneficial uses of sweet potato. Includes the identification, analysis and use of the chemical components of sweet potatoes. Presents case studies, including problem, factors, proposed solutions and the pros and cons of each. Allows readers to identify an appropriate solution efficiently and effectively.

The basics through practical application—all in one book! Potatoes are a crucial food crop around the world, grown in nearly 150 countries. The Handbook of Potato Production, Improvement, and Postharvest Management compiles everything you need to know about potato crop production in one well-organized reference. Leading internatio

This text provides one of the first book-length studies on the innovative and sustainable development of complex systems in the era of digital transformations, combining quantitative data from several countries with detailed qualitative accounts at the national level. In particular, the book covers the basic concepts, methods, and cutting-edge research on innovation and sustainability in complex systems. Given its scope, the book will be of great interest and value to researchers and practitioners working across the social sciences and in a diverse range of areas in complexity science. Pursuing a multidisciplinary approach, the book is also an ideal resource for advanced undergraduate and graduate level courses in complexity science, sustainability research, economics, and development studies. This book is an excellent starting point for students and should be read by all concerned with the industry, researchers, growers, traders and processors - Journal of Agricultural Science.

During the International Year of the Potato, celebrated in 2008, FAO and the International Potato Center helped forge partnerships worldwide to address critical aspects of sustainable potato production. This technical guide collates that experience to review technical, socio-economic, policy and institutional factors that currently constrain increased potato production and productivity in tropical and sub-tropical countries. It presents Good Agriculture Practices relevant to potato production, and indicators and recommendations for action in key areas. It outlines a new policy and research agenda for the potato subsector that aims at making a real contribution to the eradication of hunger and poverty.

This comprehensive book is the result of the Potato Russia international conference that took place in August 2007 in Moscow. It begins with a series of papers that give an excellent overview of consumer behaviour and marketing with examples from various countries in the world. The quality of processing and ware potato and methods of quantifying it, is addressed by papers that highlight its need and reveal

new approaches and techniques. The newest developments in technology, mechanization and storage are highlighted in papers from eastern and western Europe. The importance and benefits of having adequately functioning seed potato systems with up to date rapid multiplication systems is shown in chapters from various countries with a special contribution on the commercial quality standards of the United Nations Economic Commission for Europe (UNECE). Developments of recent agronomic and crop management practices are illustrated with examples of countries in technological and market transition. Innovations in crop protection put special emphasis on diagnostics and detection of resistance levels, among others, against wart. The extensive Russian breeding programmes - with value for the global potato community are highlighted in the breeding section with additional papers from Japan and the Netherlands. The book ends with a series of papers on molecular aspects of innovative breeding. This book is of wide and ongoing interest to stakeholders around the world who are interested in all aspects of the rapidly evolving potato supply chains such as potato producers, breeding, chemical and machinery companies and potato specialists of all disciplines.

Potato is the world's fourth food crop after maize, wheat, and rice and is a staple crop in many diets throughout the world with a high source of proteins, carbohydrates, minerals, and vitamins. Biotic and abiotic stress factors give rise to decrease in yield. That is why improvement of new cultivars resistant to stress factors by conventional and biotechnological methods is extremely important. The most important factor in production increase is the use of healthy seed tubers along with using drought-, heat-, and salt-tolerant cultivars. On the other hand, protection and storage of surplus crops, which are the most important stage in its marketability, are the main problems in potato. In this book, all these issues are discussed, and it is hoped that the book Potato will help growers and researchers in solving problems in potato cultivation.

In this volume, world leaders in potato research review historical and contemporary discoveries resulting in a range of advances. Topics include nutritional quality, yield, disease and insect resistance, processing, plant growth and development, and other aspects. The book also examines research yielding significant molecular resources that facilit

Advances in Potato Chemistry and Technology, Second Edition, presents the latest knowledge on potato chemistry, including the identification, analysis, and uses of chemical components in potatoes. Beginning with a brief description of potato components, the book then delves into their role during processing, then presenting information on strategies for quality optimization that provides students, researchers, and technologists working in the area of food science with recent information and updates on state-of-the-art technologies. The updated edition includes the latest information related to the identification, analysis, and use of chemical components of potatoes, carbohydrate and non-carbohydrate composition, cell wall chemistry, an analysis of glycoalkaloids, phenolics and anthocyanins, thermal processing, and quality optimization. In addition, new and sophisticated methods of quality determination of potatoes and their products, innovative and healthy potato-based foods, the future of genetically modified potatoes, and the non-food use of potatoes and their products is discussed. Includes both the emerging non-food uses of potato and potato-by-products as well as the expanding knowledge on the food-focused use of potatoes Presents case studies on the problems, factors, proposed solutions, and pros and cons of each, allowing readers facing similar concerns and issues to effectively and efficiently identify an appropriate solution Written by a global collection of experts in both food and non-food potato science

This book introduces readers to volatile compounds of staple foods, while also systematically highlighting the processing technologies of potato staple foods, which will be of great importance in promoting the virtuous circle and structural upgrading of Potato consumption patterns are gradually changing from fresh to processed formulations, (e.g. mashed potatoes, potato chips, etc.) as a result of fast food habits adopted from developed countries. If the potato can be used to make staple foods, it will not only provide energy, but also nutrition. Though the book is primarily intended for researchers and students in the field of food technology, it will also be of interest to commercial research staff in food technology.

This book fills a need for a technological guide in a field that has experienced an almost explosive increase in the last two decades. No other book available to food scientists provides detailed coverage of the ingredients, processes, products, and equipment of nearly every type of snack food made today. Since publication of the First Edition, many changes have occurred in the snack industry, making necessary a thorough revision of all chapters. The text, illustrations, and bibliographies have all been brought up-to-date. My goal has been to provide an accurate and reasonably detailed description of every major snack processing method and product current in the United States. If any reader believes I have omitted an important topic, I would be glad to learn of it, in the hope that there will be a Third Edition in which I can incorporate the suggested additions. One of the main purposes of this volume is to provide a source for answers to problems that the technologist encounters in the course of his or her daily work. Extensive bibliographies, in which the emphasis is on recent publications (extending into 1983), should permit the reader to resolve more complex or new questions. With these bibliographies as guides, the food technologist can delve as deeply as he or she wishes into specialized aspects of the subject, while at the same time the reader who is interested in the broad overall picture will not be distracted by excess detail.

Taxonomy, history, and industry development; Morphological and anatomy; Physiology, biochemistry, and ecology; Genetics, breeding behaviour, and development of superior varieties; Seedstock selection and plant production; Soils, cropping systems, and commercial fertilizers; Field production practices and operation; Sweet potato pests; Harvesting, curing, and storing; Marketing the fresh product; Canning sweet potatoes; Dehydrating sweet potatoes; Freezing sweet potatoes; Production for industrial uses and feed.

The Book Potato and Potato Processing Technology covers almost all the basic and advanced details to setup own Product : Introduction. Origin, Description of Plant and Flower Parts, Nutritive Value, Growth and Development, Agro-Techniques, Management of Nutrients, Management of Water, Weed Management, Seed Production, Handling of Post Harvest Potato, Prospects for Potato Exports, Quality Parameters that Influence Export Quality of Potatoes, Areas Suitable for Producing Seed Potatoes, Areas Suitable for Producing Processing Potatoes, Grading of Potatoes, Packing of Potatoes, Potato Storage, Quality Requirements, Potato Processing, Dehydration of Vegetables, Potato Based Textured Snacks, Potato Chips/Waffers, Potato Chips (Automatic Plant) with Imported Machinery, Packaging of Snack Foods etc. The book has been written for the benefit and to prove an asset and a handy reference guide in the hands of new entrepreneurs & well established industrialists.

Potato Production, Processing and Technology Elsevier

This compilation focuses on the events of growing, processing, quality control, color, as well as freezing, canning, chip, and dried production. This potato processing operations

book, written in terms the nonprofessional plant worker will understand, is a must reference for all food processors, technologists, executives, students etc. as well as a valuable addition to the company technical reference library. Included are figures, tables and charts throughout the book.

Handbook of Vegetables and Vegetable Processing, Second Edition is the most comprehensive guide on vegetable technology for processors, producers, and users of vegetables in food manufacturing. This complete handbook contains 42 chapters across two volumes, contributed by field experts from across the world. It provides contemporary information that brings together current knowledge and practices in the value-chain of vegetables from production through consumption. The book is unique in the sense that it includes coverage of production and postharvest technologies, innovative processing technologies, packaging, and quality management. Handbook of Vegetables and Vegetable Processing, Second Edition covers recent developments in the areas of vegetable breeding and production, postharvest physiology and storage, packaging and shelf life extension, and traditional and novel processing technologies (high-pressure processing, pulse-electric field, membrane separation, and ohmic heating). It also offers in-depth coverage of processing, packaging, and the nutritional quality of vegetables as well as information on a broader spectrum of vegetable production and processing science and technology. Coverage includes biology and classification, physiology, biochemistry, flavor and sensory properties, microbial safety and HACCP principles, nutrient and bioactive properties. In-depth descriptions of key processes including, minimal processing, freezing, pasteurization and aseptic processing, fermentation, drying, packaging, and application of new technologies. Entire chapters devoted to important aspects of over 20 major commercial vegetables including avocado, table olives, and textured vegetable proteins. This important book will appeal to anyone studying or involved in food technology, food science, food packaging, applied nutrition, biosystems and agricultural engineering, biotechnology, horticulture, food biochemistry, plant biology, and postharvest physiology.

Developments in potato chemistry, including identification and use of the functional components of potatoes, genetic improvements and modifications that increase their suitability for food and non-food applications, the use of starch chemistry in non-food industry and methods of sensory and objective measurement have led to new and important uses for this crop. Advances in Potato Chemistry and Technology presents the most current information available in one convenient resource. The expert coverage includes details on findings related to potato composition, new methods of quality determination of potato tubers, genetic and agronomic improvements, use of specific potato cultivars and their starches, flours for specific food and non-food applications, and quality measurement methods for potato products. * Covers potato chemistry in detail, providing key understanding of the role of chemical compositions on emerging uses for specific food and non-food applications * Presents coverage of developing areas, related to potato production and processing including genetic modification of potatoes, laboratory and industry scale sophistication, and modern quality measurement techniques to help producers identify appropriate varieties based on anticipated use * Explores novel application uses of potatoes and potato by-products to help producers identify potential areas for development of potato variety and structure

Potato ranks fourth position in the world after wheat, rice and maize as non cereal food crop. Potato is probably the most popular food item in the Indian diet and India is one of the largest producers of potato. It is used in many ways like vegetable, potato wafers/chips, powder, finger chips etc. Potato tubers constitute a highly nutritious food. It provides carbohydrates, vitamin C, minerals, high quality protein and dietary fiber. Potato is a rich source of starch and it is consumed mainly for its calorific value, also contains phosphorus, calcium, iron and some vitamins. Boiling potatoes increases their protein content and almost doubles their calcium content. It is vastly consumed as a vegetable and is also used in various forms such as starch, flour, alcohol, and dextrin and livestock fodder. It is estimated that about 25 % of the potatoes, which are spoiled due to several reasons, may be saved by processing and preservation of various types of processed products. The potatoes can be processed for preservation and value addition in the form of wafers/ chips, powder, flakes, granules, canned slices. Potato granules are used for the preparation of various recipes, to add to vegetable and non vegetable recipes and to enhance the quantity as well as to enrich the food value. There is a huge potential for processed potato products such as potato flakes, potato powder, frozen potatoes, frozen French fries, potato chips/wafers are one of the most popular snack items consumed throughout world. International trade in potatoes and potato products still remains thin relative to production, as only around 6 percent of output is traded. High transport costs, including the cost of refrigeration, are major obstacles to a wider international marketplace. The industry is still growing at a rapid pace where French fries are showing the highest growth followed by potato chips and potato powder/flakes. It is by far the largest product category within snacks, with 85% of the total market revenue. This book basically deals with origin, evolution, history and spread of potato, potato products, quality requirements for processing, morphological, size and shape, defects, biochemical, dry matter, reducing sugars, phenols, inheritance, morphological attributes, tuber shape, growth cracks, hollow heart, internal rust spots, greening, biochemical attributes, glycoalkaloids, dry matter, reducing sugars, enzymic browning, development of varieties for processing, areas suitable for growing processing potatoes, processing quality of Indian potato varieties, processed potato products, dehydrated products at village level, potato chips, french fries and flakes commercial production, grading manual for frozen French fried potatoes for frozen French fried potatoes, areas of production, varieties, receiving, determining the quality and condition of raw potatoes for frying purposes, determining the quality and condition of raw potatoes for frying purposes, etc. The present book covers complete details of potato cultivation and processing in proper manner. This book is an invaluable resource for agriculture universities, students, technocrats and entrepreneurs.

Providing a clear, comprehensive overview of the industry, Snack Foods Processing is the definitive handbook on developing, preparing, and processing shelf-stable savory

snack foods. Contributors from leading companies and academic institutions provide practical information and guidance based on years of industry experience. Collectively, they review the principles and critical specifics of processing savory snacks, starting from raw materials selection and care, through types of equipment used and its proper operation, to product seasoning, and packaging. The book covers every major product type, including potato and corn chips, alkali-cooked corn tortilla chips, pretzels, popcorn, extruder puffed and baked/fried products, half-products, meat snacks, and rice-based snacks. It also discusses international snack foods, including those of China, India, and Japan. It details post shaping and drying operations, covering seasonings, flavorings application, product protection and packaging materials, and filling and cartoning equipment. Whether you are new to the field or you are a pro facing broader responsibilities, Snack Foods Processing provides valuable information gained through first-hand experience. It presents a clear introduction to the snack foods industry and its terminology and explains the technical interrelationships between the many materials and processes used in making the finished snack food. New entrants into the field will be able to confidently communicate with suppliers and associates. Managers and quality control personnel will gain a better idea of where to start in solving problems when they arise.

"Furnishes exhaustive, single-source coverage of the production and postharvest technology of more than 70 major and minor vegetables grown in tropical, subtropical, and temperate regions throughout the world. Provides comparative data for each vegetable presented. "

Purple sweet potato (PSP) is a special type of sweet potato with high concentration of anthocyanin pigment in the root. It is rich in starch, sugar, minerals, vitamins and antioxidants like phenolics, β -carotene, and has a strong prospect as substrate for alcoholic fermentation. The low cost of sweet potato and its prospective usage in the production of alcoholic beverages make it viable for commercialization. The book reviews the use of the roots of PSP for the production of three novel products, i.e. anthocyanin rich wine (red wine), herbal/medicinal sweet potato wine, and anthocyanin rich beer which have higher health benefit than other wines and beers. The book elucidates the use of novel technologies in the preparation of this non-conventional wine and beer, processing, biochemical and organoleptic quality of the finished products and health implications. It will be of interest to innovators, researchers and students. The novel technologies in wine and beer making described in the book will set a precedence for production of other alcoholic beverages from starchy sources.

Frying is one of the oldest and most widely-used of food processes. Its popularity relates to the speed with which a food is cooked, the distinctive flavour and texture frying gives the food and its contribution to increased shelf-life. As a result the process is used for a wide range of vegetable, meat and fish products, particularly ready meals and snack foods. Edited by a leading authority in the field and with a distinguished international team of contributors, Frying provides an authoritative review of key issues in improving quality in the manufacture of fried products. Part one of the book sets the scene by looking at the differing types of fried products and their markets as well as at the regulatory context. It also includes an important discussion of the role of dietary lipids, the impact of frying on lipid intake and its influence on consumer health. Part two looks in detail at frying oils, their composition, the factors affecting frying oil quality and ways of measuring frying oil quality and authenticity. Part three looks at quality issues relating to fried products. There are chapters on two of the main types of fried product: pre-fried potato products such as French fries and the manufacture of potato crisps. Three final chapters look at effective process control of frying operations, flavour development in frying and fried foods and ways of analysing and improving the texture and colour of fried products. Frying oils are the most important common influence on fried product quality. They not only need to withstand the stresses of high temperature in frying but also maintain their quality during subsequent product storage. Frying: improving quality is a standard reference for the food industry and all those concerned with the quality of fried products. An authoritative review of the key issues in improving quality in the manufacture of fried products

This book in its 20 chapters elaborates the latest scientific knowledge and technological achievements for development of potato in sub-tropics and also suggests the future strategies for likely adoption. It is our sincere belief that it would act as a compendium of potato research in the country and similar regions and researchers, students and other stakeholders will benefit from the compiled information in a big way. Note: T&F does not sell or distribute the Hardback in India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka. This title is co-published with New India Publishing Agency.

Roots and tubers are considered as the most important food crops after cereals and contribute significantly to sustainable development, income generation and food security especially in the tropical regions. The perishable nature of roots and tubers demands appropriate storage conditions at different stages starting from farmers to its final consumers. Because of their highly perishable nature, search for efficient and better methods of preservation/processing have been continuing alongside the developments in different arena. This book covers the processing and technological aspects of root and tuber foods, detailing the production and processing of roots and tubers such as taro, cassava, sweet potato, yam and elephant foot yam. Featuring chapters on anatomy, taxonomy and physiology, molecular and biochemical characterization, GAP, GMP, HACCP, Storage techniques, as well as the latest technological interventions in Taro, Cassava, Sweet potato, yam and Elephant foot Yam.

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