Dairy Processing & Quality Assurance

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WILEY-BLACKWELL
A John Wiley & Sons, Ltd., Publication

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Preface

The objective of our book *Dairy Processing and Quality Assurance* is twofold. First, this book should provide an updated hands-on textbook on Dairy Food Processing for upper-level students enrolled in Food Science programs in various universities. Second objective is to provide an updated applied reference book for professionals engaged in management, quality assurance, and manufacturing in the dairy food industry.

The editorial team assembled 28 authors from the United States, Australia, New Zealand, United Kingdom, and Ireland to write the chapters. These contributors represent diverse expertise from academia, food industry, and government research institutions to insure current practical information, scientifi accuracy, and potential instructional value to all engaged in the processing and quality assurance disciplines of dairy food industry. This book is not meant to be a treatise on the subject but presents basic information on the subject in a concise, easily understandable style.

This book gives a description of the processing and manufacturing stages of market milk and major dairy products from the receipt of raw materials to the packaging of the products, including quality assurance aspects. Modern quality and safety management techniques have been incorporated to appraise the reader with current trend in the field Information is conveniently grouped under 23 chapters written by multiple authors. The individuality of authors' contribution has been retained by the editors in order to give diversity of regulatory practices prevalent in the authors' domicile. No attempt has been made to provide a comprehensive rules and regulations controlling production of dairy foods in various parts of the world. The state of dairy food industry in the United States has been discussed in firs two chapters. Chapter 1 gives an overview of the dairy industry. Chapter 2 discusses production and consumption trends in the United States. Chapter 3 deals with the fundamental information about the mammary gland of the cow and biosynthesis of milk and milk constituents. Chapters 4 and 5 describe chemical, physical, and microbiological basis of milk processing. Chapter 4 deals with chemical composition, physical structure, and functional properties of milk. Chapter 5 contains information on microbiological considerations related to milk processing. Chapter 6 discusses regulations for product standards and labeling in the United States. Chapter 7 covers steps in the transportation to the processing plant including milk storage and handling at the plant. The theme is how to assure quality and safety of milk. Chapter 8 describes some of the ingredients used in processing of dairy products. Chapters 9–17 are dedicated to processing and production of market milk and various dairy foods. Coverage includes flui milk products (Chapter 9), cultured milk and yogurt (Chapter 10), butter and spreads (Chapter 11), cheese (Chapter 12), evaporated and condensed milk (Chapter 13), dry milk products (Chapter 14), whey and whey products (Chapter 15), ice cream and frozen desserts (Chapter 16), followed by puddings and dairy desserts (Chapter 17). The role of milk and dairy foods in human nutrition is described in Chapter 18. Strategies for new product development are given in Chapter 19. Chapter 20 is devoted to packaging milk and milk products. Nonthermal processing technologies for dairy products are discussed in Chapter 21. Chapter 22 is devoted to modern management systems for safety and quality. Chapter 23 describes a myriad of laboratory analysis techniques related insuring quality and safety of milk and dairy products.

In general, an attempt has been made to support manufacturing processes on sound scientific technological, and engineering principles prevalent in dairy food industry. Quality assurance procedures are given for each product at the end of the appropriate chapter. The book presents a contemporary update and a unique approach to the topics, and is designed to augment related books in the existing market. The editorial team is comprised of individuals with significan experience in the science and applications of dairy products manufacture. It is hoped that Dairy Processing Technology and Quality Assurance will appeal to professors, extension staff, and students in dairy science for its contemporary information and experience-based applications. Also, the book should be useful for food scientists, regulatory personnel, dairy equipment manufacturers, and technical specialists in the dairy food industry.

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