

# CONTENTS

## Chapter 1

<b>Introduction .....</b>	1
I. Defining New Food Products .....	2
II. Classification and Characterization of New Food Products .....	2
A. Line Extensions .....	3
B. Repositioned Existing Products .....	4
C. New Form of Existing Products .....	5
D. Reformulation of Existing Products .....	5
E. New Packaging of Existing Products .....	6
F. Innovative Products .....	6
G. Creative Products .....	7
H. Summary .....	8
III. Why Go into New Food Product Development? .....	13
A. Product Life Cycles .....	13
B. Corporate Reasons for New Product Development .....	15
C. Marketplace Reasons for New Product Development .....	16
D. Technological Reasons for New Product Development .....	17
E. Governmental Influences on New Product Development .....	18
IV. Phases in New Food Product Development .....	24

## Chapter 2

<b>The Generation of New Product Ideas .....</b>	25
I. Encouraging an Environment for Generating Ideas .....	26
II. Sources of New Food Product Development Ideas .....	29
A. Internal Sources of New Ideas .....	30
1. Sales Representatives .....	30
2. Consumer Correspondence and Communication .....	30
3. Internal Product and Process Research and Development .....	32
4. Collective Memory .....	32
B. External Sources of New Ideas .....	33
1. Food Conferences, Exhibits, Trade Shows, and Research Symposia .....	33
2. Public Libraries .....	34
3. Specialized Libraries and Library Services .....	34
4. Trade Literature .....	37
5. Government Publications .....	37
C. Total Marketplace Analysis .....	38
1. The Competition .....	38
2. The Marketplace .....	39

3. Analysis of Purchases .....	40
4. The Consumer .....	42
<b>III. Generation of New Product Ideas: Reality .....</b>	<b>46</b>

## Chapter 3

<b>Screening for the Better Ideas .....</b>	<b>49</b>
I. The New Product Development Team .....	50
A. Management .....	51
B. Finance Department .....	52
C. Legal Department .....	54
D. Marketing and Sales Departments .....	55
E. Warehousing and Distribution Departments .....	56
F. Engineering Department .....	56
G. Production Department .....	57
H. Research and Development Department .....	57
I. Purchasing Department .....	58
J. Quality Control Department .....	58
K. Summary .....	59
II. The Objectives .....	59
III. The Criteria for Screening .....	60
A. Marketability and Marketing Skills .....	61
B. Technical Feasibility .....	62
1. Probability (or Fun with Numbers).....	62
2. Assessing the Projected Profitability .....	65
C. Manufacturing Capability .....	67
D. Financial Criteria .....	67
E. Summary .....	68

## Chapter 4

<b>From Product Concepts to Conceived Products: The Development Process .....</b>	<b>69</b>
I. Development Seen from the Market Sector .....	71
A. Market Research.....	71
1. Focus Groups .....	72
2. Interviews and Surveys .....	73
II. Technical Development: The Challenges .....	76
A. Recipe Development and Scale-up .....	77
B. Food Safety Concerns .....	80
C. Food Spoilage Concerns .....	83
III. Meeting the Challenge: Newer Food Stabilizing Systems.....	89
A. Thermal Processing of Foods .....	91
B. Ohmic Heating .....	92
C. Stabilizing with High Pressure .....	93
D. Other Nonthermal Stabilizing Systems .....	95

E.	Control of Water .....	95
F.	Controlled Atmosphere/Modified Atmosphere Packaging (CA/MAP) .....	96
G.	Irradiation .....	98
H.	Hurdle Technology for Preserving Foods .....	103
I.	Low Temperature Stabilization .....	107
J.	Summary .....	108
<b>IV.</b>	<b>Meeting the Challenge: New Ingredients .....</b>	<b>109</b>
A.	Fat Ingredients .....	110
B.	Sugars, Sweeteners, and Other Carbohydrate Ingredients .....	113
C.	Fiber Ingredients .....	116
D.	Textured Proteins .....	118
E.	Antioxidants .....	119
F.	Antimicrobial Agents .....	121
G.	Colorants .....	123
H.	A Cautionary Note .....	124
 <b>Chapter 5</b>		
<b>Refining the Screening Procedures for the Product .....</b>		<b>125</b>
I.	Sensory Techniques .....	126
A.	Objective Testing .....	127
B.	Preference Testing .....	128
C.	Considerations in Sensory Analysis .....	131
1.	To Test Blind or Not? .....	132
2.	What About the Sensory Testers? .....	133
II.	Shelf Life Testing .....	134
A.	Selecting Criteria to Assess Shelf Life .....	134
B.	Selecting Conditions for the Test .....	136
1.	Static Tests .....	137
2.	Accelerated Tests .....	138
3.	Use/Abuse Tests .....	139
C.	Guidelines to Determining Shelf Life .....	141
D.	Advances In Shelf Life Considerations .....	144
III.	Product Integrity .....	147
A.	Hazard Analysis Critical Control Point (HACCP) Programs .....	151
B.	Standards .....	152
C.	In-Process Specifications .....	153
D.	International Standards .....	154
<b>IV.</b>	<b>Simplifying the Work: Using Computers .....</b>	<b>155</b>
A.	Information Management .....	156
B.	Number Crunching .....	158
C.	Graphics .....	160

## Chapter 6

<b>The Final Screening: Going to Market .....</b>	163
I. Test Market .....	164
A. Where to Introduce .....	167
B. When to Introduce .....	169
C. How to Introduce .....	170
D. What Product to Market? .....	171
II. Evaluating the Results.....	171
III. Failures in the Marketplace .....	174
A. Causes of Failure .....	174
1. External Reasons for Product Failure .....	175
2. Internal Reasons for Product Failure .....	176

## Chapter 7

<b>New Food Product Development in the Food Service Industry .....</b>	179
I. Characteristics of the Food Service Market .....	180
II. Characteristics of the Commercial Sector .....	181
A. Food Preparation and Storage Facilities.....	182
B. Labor .....	183
C. Consistency: Price, Quality, and Safety .....	184
III. Characteristics of the Noncommercial Sector .....	184
A. Food Preparation and Storage Facilities.....	185
B. Labor .....	186
C. Consistency: Price, Quality, and Safety .....	186
D. The Military Sector of the Institutional Market .....	187
E. The Health Care Sector of the Institutional Market .....	188
IV. Customers and Consumers: What Are Their Needs? .....	189
A. Customers and Consumers .....	189
B. Physical Facilities of the Customer .....	189
C. Energy Requirements .....	190
D. Labor .....	191
E. Waste Handling .....	192
F. Consumers: General .....	192
G. The Consumer: Nutrition .....	193
V. Quality in the Food Service Market .....	193
A. Safety .....	194
B. Nutrition .....	194
VI. Development of Products for the Food Service Market .....	196
VII. Criteria for Evaluating a Test Market .....	197

## Chapter 8

<b>Product Development for the Food Ingredient Industry .....</b>	201
I. The Environment of the Food Ingredient Developer .....	202

II.	Focusing on the Customer/Consumer .....	205
A.	Customer Research.....	205
B.	Consumer Research .....	207
C.	What Criteria for Screening? .....	208
D.	The Ultimate Criterion: Test Marketing .....	209
III.	The Future for Ingredient Development .....	210
Chapter 9		
	<b>Organizing for New Product Development .....</b>	213
I.	Defining Research .....	214
II.	Constraints to Innovation .....	216
A.	The Corporate Entity .....	216
B.	Communication Problems .....	217
C.	Personnel Issues .....	221
III.	Organizing: For Whom? For What? .....	222
Chapter 10		
	<b>Back to the Future .....</b>	225
I.	Past Dreams and Promises .....	226
II.	Factors Shaping Future New Product Development .....	230
A.	Social Concerns .....	231
1.	Pollution and Environmental Concerns .....	231
2.	Less Processed, More Natural Foods .....	233
3.	Changing Food Habits .....	235
4.	Vegetarianism .....	236
B.	Impact of Technology .....	237
1.	Big Science: Biotechnology .....	238
2.	Factory Farming and Agricultural Practices .....	240
3.	Eating One's Way to Health: Nutrition and Pharmafoods .....	240
C.	Marketplace Influences .....	242
1.	Marketplace Changes .....	242
2.	Legislation and Other Government Intervention: Their Impact .....	243
3.	Economic Facts of Life .....	245
III.	New Food Products of the Future .....	245
	References .....	249
	Index .....	265