

Developing New Functional Food and Nutraceutical Products



Edited by
Debasis Bagchi
Sreejayan Nair



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*Dedicated to my beloved and respected
Professor Sidney J. Stohs, PhD, FACN,
CNS, ATS, FAPhA, FASAHP*

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Contents

Contributors	xxiii
Preface.....	xxix

CHAPTER 1 Growth Patterns and Emerging Opportunities in Nutraceutical and Functional Food Categories: Market Overview..... 1

Jeff Hilton

1.1	Introduction.....	1
1.2	Trend One: The Power of Convergence to Change a Marketplace ...	2
1.2.1	Category Convergence.....	2
1.2.2	Channel Convergence	2
1.2.3	Technology Convergence.....	3
1.2.4	Consumer Convergence	3
1.3	Trend Two: Functional Foods and Beverages	3
1.3.1	What is a Functional Food?	4
1.3.2	How Big is this Sector?	4
1.3.3	What Sales Channels are Performing Best?	4
1.3.4	Searching for Naturally Functional Ingredients	4
1.3.5	Functional Versus Inherently Functional	5
1.3.6	Revisiting Food/Supplement Convergence.....	5
1.3.7	Doctor, Doctor	6
1.3.8	Not So Easy	6
1.3.9	Why Do New Products Fail?	6
1.3.10	Regulatory Roadblocks.....	8
1.3.11	A Sweet Story	8
1.3.12	OH to be Green and Sustainable.....	8
1.3.13	Super Fruits Still Going Strong	9
1.3.14	Just Add Spice.....	9
1.3.15	Ingredient Power Players	9
1.3.16	Keep It Simple for the Consumer	9
1.3.17	Taste Comes First.....	10
1.3.18	Closing the Gap	10
1.4	Trend Three: Growth in Cobranding Activity.....	10
1.4.1	Is Branding Always the Right Strategy?.....	11
1.4.2	Survey the Market and Act Accordingly.....	11
1.4.3	Consistently Communicate the Key Brand Messages	11
1.4.4	Work to Create Brand Value	12

1.5	Trend Four: Increased Importance of Science and Clinical Validation.....	12
1.5.1	Marketing Science to Trade and Consumer Audiences	12
1.5.2	Integrate Science into the Brand Positioning.....	12
1.5.3	Break it Up.....	16
1.5.4	Name that Structure	17
1.5.5	Summarize the Findings	17
1.5.6	Reach Them at the Right Place and Time.....	18
1.6	Trend Five: More Brands Touting Sustainability and Eco-Friendly Messaging	19
1.6.1	What is Green or Sustainable?.....	19
1.7	Trend Six: The Emergence of the Active Nutrition Category	21
1.7.1	Actively Tuned-In	21
1.7.2	Performance Driven	22
1.7.3	Gracefully Maturing	22
1.7.4	Driven to Lose.....	22
1.8	Trend Seven: Innovation in Dosage and Delivery Formats.....	23
1.8.1	Pill Fatigue—Not Just for Seniors	23
1.8.2	What are the Key Consumer Drivers?	24
1.8.3	What’s Social Got to Do with It?.....	24
1.8.4	Targeting Specific Consumer Segments with Delivery Technology.....	24
1.8.5	So What?.....	25
1.9	Trend Eight: How Millennials are Changing the Conversation and the Marketplace	25
1.9.1	So What’s All the Fuss About Millennials?.....	25
1.9.2	Millennials are the Next Consumer Wave for Healthy Lifestyle Products	25
1.9.3	Millennials Want and Demand Both Choice and Engagement.....	26
1.9.4	Millennials Have a Peculiar Relationship with Brands.....	26
1.9.5	Millennials Look at Health and Wellness Differently.....	27
1.9.6	Millennials Value User-Generated Content (UGC)	27
1.9.7	Why Does Social Media Matter?.....	27
1.9.8	Storytelling is Key to Reaching and Persuading Millennials	28
1.9.9	A Word of Caution	28

CHAPTER 2	Market Analysis and Concept Development of Functional Foods.....	29
	<i>Joe Bogue, Orla Collins, Amy Jane Troy</i>	
2.1	Introduction.....	29
2.2	Functional Foods: Key Markets, Consumer Trends, and New Product Trends.....	30
2.3	Marketing and Technological Challenges for the Conceptualization of New Products.....	32
2.3.1	NPD Trends and Challenges Within the Functional Foods Industry.....	32
2.3.2	NPD Process for Functional Foods and Beverages.....	33
2.3.3	Developing Foods for Aging Consumers.....	34
2.4	Conceptualization of New Products: Case Study on Concept Development of Functional Foods for Aging Consumers.....	35
2.4.1	Introduction to the Case Study.....	35
2.4.2	User-Centered Design Methodology.....	35
2.4.3	Data Analysis.....	37
2.4.4	Conceptualization Through User-Centered Design.....	37
2.5	Conclusions.....	42
	Summary.....	42
	References.....	43
CHAPTER 3	Marketing Challenges and Strategies.....	47
	<i>Sourya Datta</i>	
3.1	Introduction.....	47
3.2	Early Development of Functional Food and Current Status.....	47
3.3	Objective of Functional Food.....	49
3.4	Upstream Marketing.....	49
3.4.1	Preconditions for Sale of Nutraceuticals and Functional Foods.....	49
3.4.2	Steps to be Followed After Clearance of All Compliances.....	52
3.5	Downstream Marketing.....	53
3.5.1	Key Factors for Successful Product Marketing.....	53
3.6	Creating Brand Value.....	57
3.7	Effective Advertising.....	58
3.7.1	Formats of Advertising.....	58
3.7.2	Forms of Advertising.....	58

3.8	Challenges with Advertising Functional Foods	59
3.9	Analysis of Minds of Customers.....	59
3.10	Risk Factors Analysis.....	60
3.11	A Few Examples	61
3.11.1	Weight Loss	61
3.11.2	Prevention of Skin Wrinkling	61
3.12	Conclusions.....	61
	References.....	62
CHAPTER 4	The Strategic Viewpoints of Innovation and Marketing Teams on the Development of Novel Functional Foods	63
	<i>Karin Tollin, Antonia Erz, Jesper Vej</i>	
4.1	Introduction.....	63
4.2	Innovation of Functional Food Products.....	64
4.2.1	Understanding Innovation.....	64
4.2.2	A Supplier View	66
4.2.3	An Integrated View	69
4.3	Marketing of Functional Food Products: Understanding the Consumer	72
4.3.1	Extant Research: The Product at Center-Stage.....	73
4.3.2	An Integrated View: The Customer as a Cocreator/“Business Partner”	75
4.4	Drivers and Barriers to Industry Development	79
	References.....	81
CHAPTER 5	Food Safety: Marketing Trends Intended for Consumer Awareness and Partnership	85
	<i>Palma Ann Marone</i>	
5.1	Introduction.....	85
5.2	Factors Influencing Food Choices.....	86
5.2.1	Biological.....	86
5.2.2	Economic and Physical.....	87
5.2.3	Social	88
5.2.4	Psychological.....	89
5.2.5	Attitudinal	89
5.3	Megatrends in Marketing Awareness	90
5.3.1	Recent Policy Initiatives Directing Food Safety Awareness	90
5.3.2	At the Forefront of Food Technology	91

5.3.3 Wellness and Lifestyle 94
 5.3.4 Convenience..... 98
5.4 Behavioral Interventions 101
 5.4.1 Social 101
 5.4.2 Dietary Patterns and Practices 102
 5.4.3 Environmental..... 102
**5.5 Generating Awareness: The Consumer as Partner
 in Food Safety 103**
 References..... 104

CHAPTER 6 Intellectual Property Considerations 109

Brent Batzer, Joseph Cwik, George Carrera, Jr.

6.1 Introduction..... 109
6.2 Patents 109
 6.2.1 Developing a Patent Portfolio 111
 6.2.2 Enforcement Considerations..... 114
 6.2.3 Risk Management and Defense Considerations 116
6.3 Trade Secrets 118
6.4 Trademarks..... 119
6.5 Copyright 121
6.6 Conclusions..... 121
 References..... 121

**CHAPTER 7 Regulatory Constraints on New Product
 Development and Approval Procedures
 in the United States 123**

Jennifer Shield, Jacqueline Kuler, Abhishek Gurnani

7.1 Introduction..... 123
7.2 Product Formulation 123
 7.2.1 Conventional Foods 123
 7.2.2 Medical Foods..... 126
 7.2.3 Dietary Supplements..... 128
 7.2.4 Specific Constraints on Formulation..... 130
7.3 Product Manufacturing 134
 7.3.1 Facility Registration..... 134
 7.3.2 Good Manufacturing Practices (GMPs) 135
7.4 Product Claims..... 137
 7.4.1 Product Claims Defined by Regulation 138
 7.4.2 Litigated Claims that May Become Regulated 144

7.5 Conclusions.....	145
References.....	145

CHAPTER 8 Formulations and Challenges: A Special Emphasis on Stability and Safety Evaluations..... 149

Surashree Sen Gupta, Mahua Ghosh

8.1 Introduction.....	149
8.2 Nutraceuticals Formulation and Design.....	150
8.2.1 Isolation of Nutraceuticals from Natural Sources	150
8.2.2 Liposomal Carrier Systems.....	150
8.2.3 Microsponges and Nanosponges	151
8.2.4 Cyclodextrin Complexation.....	151
8.2.5 Biodegradable Hydrogels	151
8.2.6 Nanotechnology-Based Formulations for Nutraceutical Delivery	151
8.2.7 Solid Dispersions	152
8.3 Challenges in the Formulation of Food Supplements.....	152
8.3.1 Poor Aqueous Solubility	152
8.3.2 High Melting Point of Nutraceuticals.....	153
8.3.3 Chemical Instability.....	153
8.3.4 Probiotic Compounds	153
8.4 Risks and Safety.....	154
8.4.1 Characterization of the Molecules	154
8.4.2 Addition of Chemical Inhibitors During Formulation	155
8.4.3 Control of Degradation Due to Light Scattering and Absorption.....	155
8.4.4 Controlled or Targeted Release.....	155
8.4.5 Regulatory Measures	155
8.5 Conclusions.....	156
References.....	156

CHAPTER 9 Nutraceutical Formulations and Challenges 161

*Raj K. Keservani, Rajesh K. Kesharwani, Anil K. Sharma,
Surya P. Gautam, Santosh K. Verma*

9.1 Introduction.....	161
9.2 Nutraceutical Formulation	162
9.3 Challenges and Opportunities	165
9.4 Stability and Safety of Nutraceuticals.....	167
9.5 Indian Market.....	169
9.6 Global Regulatory Market	169

9.7 Current Scenario 170
 9.8 Future Prospects..... 170
 9.9 Conclusions..... 171
 References..... 171

CHAPTER 10 Sourcing, Supply Chain, and Manufacturing of Nutraceutical and Functional Foods 179

Sourya Datta

10.1 Introduction Statement..... 179
 10.2 Scope and Opportunity 179
 10.3 Manufacturing..... 180
 10.3.1 Preconditions for Manufacturing of Nutraceuticals/Functional Foods..... 180
 10.3.2 Activities of Various Departments for Manufacturing of Product 181
 10.3.3 Planning..... 181
 10.3.4 Procurement/Buyer 182
 10.3.5 Quality/Quantity Check 182
 10.3.6 Warehousing 183
 10.4 Manufacturing/Execution..... 184
 10.4.1 Quality Control Measures 184
 10.4.2 Packaging, Warehousing, and Distribution 184
 10.4.3 Manpower and Safety Measures 185
 10.4.4 Pollution Control Measures..... 186
 10.4.5 Risk Factors from Manufacturing 186
 10.5 Outsourcing..... 187
 10.5.1 Conditions for Outsourcing..... 187
 10.5.2 Pricing 187
 10.5.3 Quality..... 187
 10.5.4 Quantity..... 187
 10.5.5 Consistent Supply..... 188
 10.5.6 Other Factors for Outsourcing 188
 10.6 Supply Chain Management..... 189
 10.6.1 Vendor Management..... 189
 10.7 Inventory Management 190
 10.7.1 Can Nutraceutical Companies Control the Supply Chain and Emerge as Leaders?..... 191
 10.7.2 Factors for Future Success 192
 10.8 Conclusions..... 192
 References..... 193

CHAPTER 11 Raw Materials Analysis and Quality Control 195*Varuzhan Sarkisyan, Vladimir Bessonov, Alla Kochetkova*

11.1	Introduction.....	195
11.2	Classification of Raw Materials.....	195
11.3	Prerequisites for Raw Materials Analysis.....	196
11.4	Basics of Analytical Methods.....	198
11.5	Analysis of the Raw Materials.....	200
	11.5.1 Water Analysis.....	200
	11.5.2 Animal- and Plant-Based Materials.....	202
11.6	Authentication Methods.....	207
11.7	Conclusions.....	209
	References.....	210

**CHAPTER 12 Strategize the Research Investigations:
Pre-Clinical and Clinical Evaluations.....213***Victor Tutelyan, Alla Kochetkova, Vasily Isakov, Elena Smirnova,
Varuzhan Sarkisyan*

12.1	Introduction.....	213
12.2	Toxicological Investigations.....	216
	12.2.1 Toxicokinetics Studies.....	217
	12.2.2 Subchronic, Chronic, and Carcinogenicity Toxicity Studies.....	219
	12.2.3 Genotoxicity.....	220
	12.2.4 Reproductive and Developmental Toxicity.....	221
	12.2.5 Human Studies.....	222
12.3	Efficacy Evaluation.....	222
	12.3.1 Preclinical Research.....	223
	12.3.2 Clinical Trials.....	224
12.4	Conclusions.....	227
	References.....	228

**CHAPTER 13 Concepts of Flavor Creation in Novel
Nutraceuticals and Functional Food Formulations231***Shane T. McDonald*

13.1	Introduction.....	231
13.2	Why is Flavor Important in Nutraceuticals and Functional Foods?.....	231
13.3	What is Flavor?.....	232
13.4	Legal Definitions.....	233
	13.4.1 21 CFR101.22(a)(3).....	233

13.5 Flavor Chemistry..... 235

13.6 Sources of Flavoring Materials 235

13.7 Forms of Flavors 237

13.8 Challenges to Flavoring Functional Foods
and Nutraceuticals..... 238

13.9 Base Strategies 238

13.10 Strategies for the Finished Product 239

13.11 Bitter Blocking..... 239

13.12 Masking..... 240

13.13 Choice of Flavorings 242

13.14 Processing and Other Considerations 242

13.15 Labelling and Other Marketing Considerations..... 243

13.16 Working With a Flavor House..... 243

13.17 If You want to Do Your Own Flavoring of Bases 244

13.18 Partnering With a Flavor Company..... 245

References..... 246

**CHAPTER 14 Product Design for Bread through
Mind Genomics and Cognitive Economics 249**

*Howard Moskowitz, Stephen Rappaport, David Moskowitz,
Sebastiano Porretta, Brigitte Velema, Livia Rossi,
Margie Atwater*

14.1 A Short Background About Mind Genomics
and Cognitive Economics 249

14.2 A Short Introduction to Mind Genomics 250

14.3 Pragmatics—Doing the Mind Genomics/Cognitive
Economics Study 252

14.4 The Raw Materials 253

14.5 The Experimental Design..... 255

14.6 The Rating Questions..... 256

14.7 Executing the Interview 256

14.8 The Respondents 258

14.9 Levels of Learning 258

14.10 Building Models..... 258

14.11 The Interest and Dollar Models for the Total Panel 260

14.12 The Emergent Cognitive Economics Narrative..... 263

14.13 From Total Panel to Key Subgroups 264

14.14 Underlying Mind-Sets in the population Uncovered
by Mind-Set Segmentation 265

14.14.1 Strong-Performing Elements from Segment S1: European, Artisan Seekers	268
14.14.2 Strong-Performing Elements from Segment S2: Healthful, Simple, Fresh.....	268
14.14.3 Strong-Performing Elements from Segment S3: Bread with a History.....	269
14.15 The Relation Between Interest (INT) and Dollar Value (Price) Differs Across Segments	269
14.16 Differences Among Segments Arise from the Patterns of Interest and Value.....	269
14.17 The Importance of Sensory/Emotional Attributes	272
14.18 Mixing Messages to Raise Interest and Value: Mind Genomics, Cognitive Economics, and Communicating Artisanal Bread.....	273
14.19 Conclusions.....	276
References.....	277

CHAPTER 15 Global Market Entry Regulations for Nutraceuticals, Functional Foods, Dietary/Food/Health Supplements.....279

Andrew Shao

15.1 Introduction.....	279
15.2 Market Entry Requirements.....	279
15.2.1 Positive and Negative Ingredient Lists.....	281
15.2.2 Botanicals.....	282
15.2.3 Notification Versus Registration.....	285
References.....	288

CHAPTER 16 US Regulation of Food Label Claims.....291

James E. Hoadley

16.1 Overview	291
16.2 FDA's Authority for Regulating Food Label Claims	293
16.3 Health Claims.....	294
16.3.1 Validity Standard of Health Claims.....	294
16.3.2 General Health Claim Regulation	295
16.3.3 Authorized Health Claims.....	297
16.3.4 Qualified Health Claims.....	300
16.4 Structure/Function Claims	302
16.5 Nutrient Content Claims	306
References.....	308

CHAPTER 17 Nutraceutical and Functional Food Regulations in the European Union.....309

Nicola Luigi Bragazzi, Mariano Martini, Teresa Concetta Saporita, Daniele Nucci, Vincenza Gianfredi, Francesco Maddalo, Annamaria Di Capua, Flavio Tovani, Lorenzo Marensi

17.1	Introduction.....	309
17.2	The EU's Legislation and Policy on Food	310
17.3	Food Definition According to the EU	314
17.4	Definition of Food Improvement Agents According to the EU	315
	17.4.1 Food Additives	315
	17.4.2 Food Enzymes	317
	17.4.3 Flavorings.....	317
	17.4.4 Extraction Solvents	318
	17.4.5 Processing Aids	318
17.5	Food/Dietary Supplement Definition According to the EU	318
17.6	Enriched/Fortified Foods Definition According to the EU	319
17.7	Dietetic Foods/Foods for Particular Nutritional Use (PARNUTS) Definition According to the EU.....	319
17.8	Novel Food Definition According to the EU	320
17.9	Nutraceutical Definition According to the EU.....	321
17.10	Genetically Modified Organisms (GMOs).....	321
17.11	Conclusions.....	321
	References.....	322

CHAPTER 18 Health Foods and Foods with Health Claims in the Asian Subcontinent: Countries of the Association of Southeast Asian Nations..... 323

Jerzy Zawistowski

18.1	Introduction.....	323
18.2	Indonesia.....	325
	18.2.1 Functional Foods and Regulatory Framework	325
	18.2.2 Health Claims and Nutrition Labeling	326
18.3	Malaysia.....	329
	18.3.1 Functional Foods and Regulatory Framework	329
	18.3.2 Health Claims and Nutrition Labeling	330
18.4	Philippines.....	334
	18.4.1 Functional Foods and Health Claims	334
	18.4.2 Nutrition Labeling.....	336

18.5	Singapore	337
18.5.1	Health Foods and Regulatory Framework.....	337
18.5.2	Health Claims and Nutritional Labeling	337
18.6	Thailand	345
18.6.1	Functional Foods and Regulatory Framework	346
18.6.2	Nutrition Claims and Nutrition Labeling	346
18.7	Brunei Darussalam.....	348
18.7.1	Alternative Medicine and Regulatory Framework.....	349
18.7.2	Health Supplements as Functional Foods	349
18.7.3	Nutrition Claims and Nutrition Labeling	350
18.8	Cambodia	350
18.8.1	Functional Foods and Natural Health Products	351
18.8.2	Regulations of Traditional Medicine.....	351
18.8.3	Regulatory Framework and Adoption of Food Standards	352
18.8.4	Labeling and Health Claims.....	353
18.9	Vietnam	353
18.9.1	Herbal Health Products	354
18.9.2	Functional Foods and Regulatory Framework	354
18.9.3	Health Claims and Nutritional Labeling	356
18.10	Laos.....	356
18.10.1	Food and Health Regulatory Framework	358
18.10.2	Health Claims and Nutrition Labeling	359
18.11	Myanmar.....	359
18.11.1	Food and Health Regulatory Framework	360
18.11.2	Food Claims and Nutritional Labeling.....	360
	References.....	361

CHAPTER 19 Nutraceutical Innovation and Health Claims in China

Chun Hu

19.1	Introduction.....	369
19.2	History and Evolution of Chinese Health (Functional) Foods.....	369
19.3	The Use of Allowed Ingredients in Approved Health Foods	374
19.4	Recent Notable Ingredient Innovation and Applications in Health Foods	380
	References.....	386

**CHAPTER 20 Functional Foods in Line with Young Consumers:
Challenges in the Marketplace in Slovenia391**

Tina Vukasović

20.1 Introduction..... 391
20.2 Functional Foods Concept and Definition 392
20.3 Functional Food: European Perspectives 394
20.4 The Consumer Self-Care Phenomenon..... 394
20.5 The Future of Functional Foods..... 395
20.6 Markers: A Key to Development of Functional Foods 396
20.7 Research Material and Methods..... 397
 20.7.1 Method and Sample..... 397
 20.7.2 Questionnaire 398
 20.7.3 Data Analyses..... 398
20.8 Results and Discussion 399
 20.8.1 Level of Recognition of the Term
 “Functional Foods” 399
 20.8.2 Consumers’ Functional Foods Buying Behavior..... 399
 20.8.3 Perception of Functional Foods 400
 20.8.4 Price Willingness and Future Buying Intentions..... 401
20.9 Future Trends for Functional Foods Market 402
20.10 Conclusions..... 403
References..... 403

CHAPTER 21 Medical Foods and US Regulations.....407

*Claudia Lewis, Michelle Jackson, Kristen Klesh,
Matthew Poliner*

21.1 What Exactly is a “Medical Food”?..... 407
21.2 A Brief History of Medical Food Regulation..... 408
21.3 “Medical Foods” Versus Other Food Categories Regulated
 by FDA..... 409
21.4 Considerations for Bringing a Medical Food to Market
 in the United States 412
 21.4.1 Premarket and Administrative Requirements..... 412
 21.4.2 Formulation Considerations 413
 21.4.3 Labeling Requirements 413
 21.4.4 Compliance with FDA’s Good Manufacturing
 Practices and Other Manufacturing Restrictions..... 413
 21.4.5 Claim Substantiation Requirements..... 414
 21.4.6 FDA Enforcement 415
21.5 Conclusions..... 416

CHAPTER 22 Regulatory Approvals, Intellectual Property, Branding and Trademark in Nutraceuticals and Functional Foods	417
<i>Leighton K. Chong, Lawrence J. Udell, Bernard W. Downs</i>	
22.1 Introduction.....	417
22.2 Nutraceuticals, Patent Rights, and Bioprospecting.....	418
22.3 Branding, and a Hypothetical Case Scenario.....	423
22.3.1 Now That We have Patent Protection, We can Market Our Natural Creations with the Confidence That They are Completely Protected ... Right? (Not Quite ... More is Needed!)	423
22.3.2 Protecting Your Patents with Coded Identities and Branding ... the Right Way	425
22.4 Conclusions.....	427
References.....	427
 CHAPTER 23 Nutritional Supplements in Wound Care.....	429
<i>Ryan Dickerson, Scott Chaffee, Amitava Das, Sashwati Roy, Chandan K. Sen</i>	
23.1 Introduction.....	429
23.2 Nutrition Status and Malnutrition in Wound Healing.....	430
23.3 Phases of Wound Healing	431
23.4 Fatty Acids and Inflammation.....	433
23.5 Dietary Intervention and Inflammation.....	434
23.6 Nutraceuticals and Functional Foods.....	434
23.7 Fermented Papaya Preparation.....	436
References.....	437
 CHAPTER 24 Development of Low Cost and Eco-Friendly Feed for Various Candidate Species for the Sustainability of Commercial Aquaculture and Reduction of Aquatic Pollution.....	441
<i>Kartik Baruah, Parisa Norouzitallab, Asim Kumar Pal</i>	
24.1 Introduction.....	441
24.2 Phytic Acid: The Chelator of Nutrients.....	442
24.3 Phytic Acid: Tough to Ingest and Digest.....	443
24.4 Phytase: A Novel Nutraceutical to Digest Phytate.....	444
24.5 Significance of Phytase in Aquafeed.....	445
24.5.1 Impact on Phosphorus Bioavailability	445
24.5.2 Impact on the Bioavailability of Other Minerals	446

24.5.3 Impact on Protein Digestibility 447
 24.5.4 Impact on Growth Performance 447
 24.5.5 Impact on Formulation of Low-Cost Feed 447
 24.5.6 Impact on Aquaculture Pollution 448
**24.6 Synergism Between the Nutraceutical Phytase
 and Acidifiers 448**
24.7 Drawbacks of Using Exogenous Phytase in Feed..... 449
24.8 Need of the Hour..... 449
24.9 Flavor of Fish Fed a Vegetarian Diet..... 450
24.10 Conclusions..... 450
 References..... 450

**CHAPTER 25 Strategies on Adverse Event Reporting:
 A Global Framework for Nutraceutical Industry 455**

Kristy Appelhans, Joyce Cao

25.1 Introduction..... 455
**25.2 Nutraceutical Industry Backlash for Perceived Lack
 of Regulatory Oversight..... 456**
25.3 Regulatory Overview for Nutraceuticals 458
25.4 US Codification for Marketing Nutraceuticals 458
25.5 Global Codification for Nutraceuticals 459
**25.6 Global Postmarket Safety Surveillance Requirements
 for Nutraceuticals..... 460**
**25.7 Overview of Good Manufacturing Practice Requirements,
 Specifications, and Standardizations..... 462**
25.8 Where Quality Meets Pharmacovigilance..... 463
25.9 Ways to Use Postmarket Data: Safety Reviews 464
**25.10 Scrutiny of Current Good Manufacturing Practice
 for Nutraceuticals..... 465**
**25.11 Where Should Our Next Best Efforts in Product Safety
 Be Directed: Premarket, Postmarket, or Both? 466**
25.12 Social Media: Tweets, Blogs, Posts, Oh My! 468
**25.13 Postmarket Data Collection and Review: What to
 Do with Adverse Event Data Once You Have It 469**
25.14 Incidence Trending..... 470
25.15 Signal Detection..... 471
25.16 Relevant Adaptations for Nutraceuticals..... 473
25.17 Determining Causality: Causality Assessment Criteria 474
25.18 Conclusions..... 476
 References..... 477

CHAPTER 26 Genetically Modified Products and GMO Foods: A Game of Chance?	481
<i>John Hudson</i>	
26.1 Introduction.....	481
26.2 The Benefits and Costs to the Farmer	483
26.3 The Benefits and Costs to the Environment.....	484
26.4 The Benefits and Costs to the Consumer	485
26.5 Public Concerns and the Regulatory Environment	487
26.6 GM Animals.....	489
26.7 Conclusions.....	490
References.....	493
Index.....	495

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Preface

Let food be thy medicine, and let medicine be thy food.

Hippocrates, Father of Medicine (460–377 BC)

Nutraceuticals and functional foods are becoming increasingly popular worldwide. The “Ayurvedic Medicine” from India and the Chinese Traditional Medicine have demonstrated the therapeutic efficacy of a number of botanical or herbal medicines for thousands of years. The Unani (or Yunani) system of medicine is a Persian Arabic traditional medicine practiced in India (1526–1707 AD) and South-Central Asia, which was based on the teachings of the Greek physician Hippocrates. In recent years, there have been significant advances in the development of pharmaceuticals and drugs aimed at treating a variety of disease conditions. However, most of these pharmaceuticals or drugs are expensive and are associated with a number of adverse side effects. More recently, a significant number of nutraceuticals and functional/medical foods have been introduced to the worldwide marketplace, backed by broad-based safety and efficacy studies. These natural products are often less expensive, and are available as over-the-counter products and have therefore gained popularity. To keep up with these changes medical and allied-health schools are training physicians and health-care professionals on the use and benefits of alternative and complementary medicine.

This book was conceptualized with a vision to convey to our eminent readers the diverse nature of nutraceuticals and functional and medical foods and the challenges and opportunities associated with developing, characterizing, and marketing them. The rationale for the development of these products is the documented long history of their use. It is important to recognize however that some of the nutraceuticals and functional and medical foods may exhibit untoward adverse effects, and therefore must undergo rigorous safety, toxicity, and mutagenicity tests. Especially, long-term safety studies are warranted to rule out potential harm caused by these agents. There are several important considerations that need to be addressed before developing nutraceuticals and functional foods, including (1) availability, (2) cost-effectiveness, (3) safety, (4) efficacy in clinical settings, (5) regulatory constraints and approval, (6) marketability, (7) supply chain and effective distribution, and (8) customers’ acceptance.

The introductory chapter in this book is by Jeff Hilton, a 25 year veteran of the healthy lifestyles category and brand strategist. This chapter describes the growth pattern and emerging opportunities in the nutraceuticals and functional foods market. The chapter that follows, by Joe Bogue and coworkers from the Department of Food Business and Development, University College Cork, Ireland, highlights market analysis and concept development of functional foods. The third chapter by

Sourya Datta, from eBay, focuses on the diverse marketing challenges and strategies, while the fourth chapter describes the strategic viewpoints of innovation and marketing teams in the development of novel functional foods. Staying with the theme of marketing, the subsequent chapter by Dr. Palma Ann Marone alludes to marketing trends in the context of food safety and consumer awareness.

Amin Talati & Upadhye, LLC, a well-respected legal team from Chicago, dwell on intellectual property in relation to nutraceuticals and functional foods, in [Chapter 6](#). An additional chapter by this group extends the discussion to regulatory aspects of new product development and product-approval procedures and guidelines in the United States. Formulation of nutraceuticals and challenges associated with formulation development, with special emphasis on stability and safety evaluations, form the basis of the next two chapters designed individually by Dr. Ghosh and Dr. Keservani and their eminent teams. The chapter by Sourya Datta, eBay, which alludes to the challenges associated with sourcing, supply chain, and manufacturing of nutraceuticals and functional foods. Next we include a chapter that describes the analysis of raw materials and their quality control. The following chapter describes the strategies for preclinical and clinical evaluations of nutraceuticals. Given the growing importance of flavors, we chose to include a chapter by Dr. Shane T. McDonald, a renowned flavor chemist, that deals with the concepts of flavor creation in novel nutraceutical and functional food formulations. Howard Moskowitz and his team discuss issues related to mind genomics and cognitive economics in [Chapter 14](#).

[Chapters 15–18](#) focus on the regulatory aspects relating to nutraceuticals and functional foods. This includes a chapter by Dr. Andrew Shao (Herbalife Inc., CA), which alludes to the regulations governing global market entry for nutraceuticals and functional foods. Another chapter by James E. Hoadley, who has years of experience with the US Food and Drug Administration (FDA), discusses the salient features of new dietary ingredient (NDI) and generally recognized as safe (GRAS) aspects of regulations related to nutraceuticals. Trials and tribulations associated with nutraceutical development in Europe, the Asian subcontinent, and China are discussed in chapters by Drs Bragazzi, Zawistowski, and Hu, respectively. The challenges associated with the functional foods marketplace in Slovenia, especially among young customers, is described in [Chapter 20](#) by Dr. Tina Vukasović. In the subsequent chapter, Claudia A. Lewis et al. discuss the overall regulatory status of medical food. The concluding [Chapter 22](#) by Bernard W. Downs highlights the intricate issues associated with regulations, including intellectual property, branding, and trademark of nutraceuticals and functional foods. We have also included two chapters as examples for the cutting-edge research on nutraceuticals and functional foods. Dr. Chandan K. Sen (Associate Dean and Director, Ohio State University Wound Healing Clinic) and coworkers discuss the value of nutritional supplements in diabetic wound healing, which is a rapidly emerging problem, given the rise in global obesity. Dr. Kartik Baruah from Ghent University, Belgium describes the development of novel aquaculture for fisheries.

Dr. Kristy Applehans from Herbalife Inc., CA, discusses the strategies on adverse event reporting by the nutraceutical industries worldwide in [Chapter 25](#). Genetically modified products, also known as GMO foods, are gaining popularity globally, and Prof. John Hudson provides a compelling analysis of GMO in [Chapter 26](#).

We sincerely thank our eminent authors for their invaluable contribution to this book and we expect that the book will be useful to our readers. The editors sincerely thank Namrata Bagchi, BE, for her valuable inputs and suggestions.

Debasis Bagchi, PhD, MACN, CNS, MAIChE
Sreejayan Nair, PhD, FACN

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Growth patterns and emerging opportunities in nutraceutical and functional food categories: market overview

Jeff Hilton

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1.1 INTRODUCTION

This chapter is perhaps unique in that it is written by a 25-year veteran of the natural products industry. My background includes positions with Nature's Way, Nutraceutical Corporation, and consulting work with many of the top United States supplement and food companies including Solgar, NBTY, Natrol, Schiff, Dupont, and LESAFFRE. So I do come at this from somewhat of an insider's perspective. It's what I do every day. In that way, I hope my perspective is insightful for you. You will probably also note a slightly instructional tone as I tend to write as if I am speaking to a client.

Where do I begin to dissect trends in this \$150+ billion sector? It's growing overall at over 10% per year with functional food and beverages leading the way, followed by nutraceuticals and supplements at a somewhat lower growth rate. It is an industry going through almost constant change and evolution, partly due to the changing regulatory environment, and partly due to the ever-changing attitudes of everyday consumers regarding health and wellness.

As an overview to the content for this chapter, I have identified *eight major market trends* that I think are changing the face of the functional food, beverage, and dietary supplement business from a macro perspective. Those eight trends are:

1. Marketplace convergence of categories, channels, technology and consumers,
2. Accelerated growth of functional foods and beverages,
3. Cobranding partnerships between ingredient suppliers and manufacturers,
4. Increased focus on science and claims validation,
5. Growing demand for sustainable and eco-friendly products,
6. Explosion in active nutrition as consumers become more health conscious,
7. Emergence and popularity of innovative dosage and delivery forms, and
8. Rise of the millennials and a new paradigm on health and wellness.

1.2 TREND ONE: THE POWER OF CONVERGENCE TO CHANGE A MARKETPLACE

There's something in the air these days. It's the sound of change and evolution in the healthy lifestyles sector. It's a movement with momentum and it is driving the marketplace. I like to call it *convergence*. And it manifests itself in a number of ways that provide insight into where we are headed as an industry. Any savvy industry observer can feel the winds of change uprooting "business as usual" and turning the paradigms we have all operated under for decades on their heads, frankly. I have identified four specific types of convergence that I think are changing the way consumers think and buy healthy or better-for-you products and services.

1.2.1 CATEGORY CONVERGENCE

The lines are blurring between supplements, foods, beverages, and pharmaceuticals. As consumers become aware of validated nutrients that they want to incorporate into their diets, they want to consume them in the most convenient and nonintrusive manner possible. So they are increasingly relying on enhanced and fortified foods and beverages to supply the dietary supplementation traditionally and historically delivered through tablets and capsules. Smart dietary supplement manufacturers and suppliers should already be developing plans to make sure they have a primary or co-branded presence in the burgeoning functional food and beverage categories. In addition, convenience and portability are driving consumers toward alternative dosage forms that are more easily consumed and transported including liquids, gels, shots, gummies, and stick packs. Smart dietary supplement manufacturers are already testing alternative delivery forms or partnerships for their nutrients. Actual and virtual retail shelves are changing, and for good reason. Pill fatigue is not just a seniors concern.... it's a people concern.

1.2.2 CHANNEL CONVERGENCE

The paradigm of control in the marketplace has been turned upside down, with the consumer now in control and wielding all the power. They can quickly and easily price shop and compare retail offerings with direct-to-consumer websites. They can dissect and research claimed features and benefits and access product reviews in seconds. Today's consumer is all about transparency and authenticity, so there is no place to hide. Plus increasingly more integrative health providers are recommending and even dispensing dietary supplements to their patients. So as these various distribution channels continue to overlap and merge, the competition for consumer mind share is intensifying. Smart marketers are establishing revenue streams in each of these growing channels to tap into consumer trends in self-care that show no signs of diminishing. The name of the game in today's environment is to be wherever the customer is, and that's not easy.

1.2.3 TECHNOLOGY CONVERGENCE

If the 23 & Me, Fit Bits, Apple watches, and other innovations in wearable technology have taught us anything, it is that consumers don't need (or want) a doctor to tell them what's up with their day-to-day health status. For catastrophic illness, MDs are still the first resort. However, for more general maladies and aging/prevention strategies, consumers are self-diagnosing in droves and using technology to monitor their cholesterol, blood pressure, sleep patterns, and even genetic propensities. Who knew? And that's just the beginning. According to thought leaders and professionals, the "quantified self" is only just off in the distance as consumers take charge and proactively work to monitor their own health and wellness needs. Smart marketers are working on plans now to integrate their products with these emerging self-assessment technologies or get left behind.

1.2.4 CONSUMER CONVERGENCE

So in my opinion, where all of this is leading is to a significant marketplace opportunity that rivals any we have seen in the past few decades. Consumers I think are empowered but they are also confused. They are armed with tactics, but don't have an overall integrated plan of action for improved or sustained health as they age. They have their enhanced beverages, nutritional gummies, nutricosmetics, and their digital devices, but they don't understand how to bring it all together in a cohesive and efficient and effective way. Where this is heading is toward a more customized, personalized healthcare delivery that takes into consideration the whole patient or consumer. What is lacking is an approach that integrates these elements into an actionable, credible, and easy-to-follow plan or regimen that can be tracked, customized, and replicated across a broad population.

Smart industry players are working to capitalize on this explosive megatrend resulting from the convergence of multiple categories, channels, technologies, and consumer demographics. Smart marketers recognize that this multifaceted convergence is one of the single biggest market opportunities we've seen in this nation of aging baby boomers and entitled millennials.

1.3 TREND TWO: FUNCTIONAL FOODS AND BEVERAGES

I remember back in the 1990s sitting in meetings talking about the potential of the functional food and beverage sector, which at that point was in its infancy. Now, over a decade later, we are in the ramp-up to significant expansion of the category with new products entering the market on an almost daily basis. A simple walk down the beverage aisle of Whole Foods provides an excellent example of the proliferation that has occurred. The sheer volume of functional beverage entries is both staggering and intimidating. Even more sobering, probably 50% of those brands won't be on the shelf one year from now. The beverage aisle is a brutal retail battleground where

brands either thrive or die. Functional food brands have not yet proliferated to the extent that functional beverages have, but based upon a review of marketplace activity and trends, many more functional food product introductions are on the horizon. And the key driver here is the consumer, believe it or not. In survey after survey, consumers have stated that they prefer their health and wellness to result primarily from what they eat and drink on an ongoing daily basis, so it is not a huge leap to expect expanded growth for these once vertically niched market segments.

The following seeks to identify, review, and discuss some significant and relevant ingredient and formulation trends in these growing categories.

1.3.1 WHAT IS A FUNCTIONAL FOOD?

As defined by the Institute of Medicine in Washington, functional foods are “those foods that encompass potentially healthful products, including any modified food or ingredient that may provide a health benefit beyond the traditional nutrients it contains.” Functional foods can include foods like cereals, breads, yogurts, snacks, and beverages that are fortified with vitamins, herbs, or other specialty ingredients. A specialty ingredient may be a naturally nutrient-rich whole food source such as spirulina, garlic, or soy, or a specific component of a food, like Omega-3 fatty acids from salmon.

1.3.2 HOW BIG IS THIS SECTOR?

Functional foods and beverages represent roughly a \$50 billion category in the United States retail market. Recent years have seen the discontinuation of many slow-moving entries particularly in the beverage sector. That said, the functional category is still outpacing traditional food and beverage sales in the United States. So the first trend of note is brand proliferation followed by a shakeout of slow movers. We are already seeing this happen within the beverage sector, and foods will follow suit as the number of market entries expands.

1.3.3 WHAT SALES CHANNELS ARE PERFORMING BEST?

Not surprisingly, nearly 90% of functional food sales occur in mass-market channels including food, drug, mass volume stores (Walmart/Target), and club stores (Costco/Sam’s). Large CPG (consumer packaged goods) companies like General Mills, Kraft, Nestlé, Tropicana, and Coca Cola have led the charge in this sector over the past several years, and they continue to own the category in the minds of consumers looking for added functionality. It is also interesting to note that almost 60% of functional product sales are in the beverage sector, which has taken the lead in both product development and consumer education.

1.3.4 SEARCHING FOR NATURALLY FUNCTIONAL INGREDIENTS

Increasingly consumers are looking for foods and ingredients that are “naturally functional” such as blueberries, pomegranates, whole grains, protein, fiber, and soy.

These types of ingredients have formed the basis of the functional food offerings we have seen in the marketplace to date as they already have some consumer awareness and acceptance. Finally, these ingredients have ODI (old dietary ingredient) status, and are also generally recognized as safe (GRAS) for food and beverage formulations. That means manufacturers can make nutritive value-based health claims that are less likely to be challenged by regulators.

1.3.5 FUNCTIONAL VERSUS INHERENTLY FUNCTIONAL

At a basic level, there are two primary types of functional food/beverage products:

1. “*Better for you*” foods contain less or none of certain ingredients perceived by consumers to be less desirable. Examples include:
 - a. low-sodium soups
 - b. reduced fat-, mayonnaise-, cholesterol-, and or cholesterol-free baked goods
 - c. no sugar added desserts.

These products are not truly “functional” in my opinion, but do offer consumers a way to manage their nutrient intake and improve their health.

2. “*Added functionality*” foods offer nutrients in efficacious doses added to food products for improved consumer health and wellness. Examples include:
 - a. high-fiber products,
 - b. soy products,
 - c. juices with added calcium or vitamins,
 - d. fortified waters, and
 - e. naturally antioxidant-rich juices.

These types of products fit the classic profile of a functional food.

While both categories are growing, added functionality foods have captured the interest and imagination of those consumers looking for the convenience of eating foods that contain supplement-level doses of health-improving nutrients.

1.3.6 REVISITING FOOD/SUPPLEMENT CONVERGENCE

Again, one trend in product development and consumer demand that is hard to ignore is the merging of foods and dietary supplements. It’s no secret that consumers would prefer to get their nutrients primarily through the foods and beverages they consume, rather than taking additional supplements to fill in the gaps. Not surprisingly, manufacturers on both sides of the equation are working to find ways to deliver efficacious doses of nutrients that deliver on taste and performance expectations when formulated into a food or beverage product.

Several factors are driving this convergence, including:

- reduced discretionary income,
- 2-for-1 mentality,
- pill fatigue among older baby boomer consumers,

- rise in overall health awareness among Americans,
- convenience, and
- trend toward simplifying life and nutritional intake.

Another clear factor in the convergence of foods and supplements is the emergence of “gateway nutrients.” Consumers are becoming increasingly aware of and perceive certain nutrients as having added value. As their perception of added value increases, they become more willing to pay a higher price for foods that include these nutrients. Examples of gateway nutrients include probiotics, Omega-3’s, antioxidants, soy, and green tea.

1.3.7 DOCTOR, DOCTOR

Whether you are talking foods, beverages, or supplements, the product development and marketing focus has turned to condition-specific applications. Increasingly, consumers are shopping to meet their specific and identified health needs. Today’s consumers expect more targeted health solutions and are honing in on potential solutions that meet their condition-specific needs. Some of this targeted shopping behavior is recession-driven, and it helps that retailers are increasingly merchandising products by health needs. But even beyond that, consumers are looking for a more focused approach to wellness that allows them to assess the results of taking a product. They look for specific health improvements, or lack thereof, and modify their shopping accordingly. Some of the most dominant health conditions include energy/performance, healthy aging, immunity, digestion, cardiovascular, joint support, weight loss, and diabetes. See [Table 1.1](#) for ingredients that extend the promise of a condition-specific health benefit.

1.3.8 NOT SO EASY

It is estimated that roughly 80% of new functional products fail in the marketplace. This is largely due to inadequate promotion, inadequate consumer and trade education (just because it is a food, don’t assume that consumers will readily see the added value or be willing to pay more for it), and the fatal flaw of introducing what is basically an undifferentiated me-too product (how many energy drinks can the market support?). Despite increased creativity and innovation in the functional products sector, don’t expect this failure rate to improve anytime soon.

1.3.9 WHY DO NEW PRODUCTS FAIL?

The majority of new product failures have to do with what companies didn’t do enough of, specifically promotion, education, and market differentiation. As a result, the brand failed to make a connection with the consumer and sales fell short of projections.

Other issues have emerged which have more to do with product development than with marketing. One concern is the lack of efficacious doses offered in functional

Table 1.1 Condition-specific Functional Foods

Conditions	Ingredients	Examples
Energy	Green tea, caffeine, guarana, phytochemicals	Perky Jerky, Dynapep, Guru Energy Drink, 180°
Performance	Electrolytes, amino acids, protein	O.N.E. Coconut Water, Nasoya Tofu, Silk Soy Milk
Healthy aging	Omega-3s, antioxidants, trans resveratrol, sea buckthorn	Tofu Plus, Vitamin water, Welch's Healthy Start, Fruit2Day, Sibub Beauty, Gummy Pandas, Drench water
Heart health	Soy, fiber, cocona, phytosterols	Fiber One, Soy Joy, Barilla Plus Pasta, Progresso (w/added fiber), Kashi Heart to Heart Oatmeal
Joint & bone health	Turmeric, soy, calcium, antioxidants (inflammation management)	Yoplait (w/added calcium), Joint Juice, POM Wonderful
Cognitive health	Citicoline, resveratrol, selenium, L-theanine (in tea leaves)	Nawgan, red wine extracts, green teas, Kaia Foods Sprouted Sunflower Seeds
Digestion	Fiber, probiotics, whole grains, oats, enzymes	Barilla Plus Pasta, Mojo Milk, GT's Kombucha Teas, Activia, Tropicana juice w/fiber
Immunity	Camu camu, echinacea	Wildly Nutritious Immunity Blend, Praeventia, Yogi Immunity Tea, Immune Water
Weight management	Turmeric, soy, capsaicin, green tea, caffeine	Lychee Wasabi <i>Capsaicin</i> Spiced Elixir, Naga chocolate bar (w/Indian curry)
Diabetes	Stevia, yacon	Zevia Natural Sodas, Yerbamate Royale Tea (w/stevia), Terramazon Yacon Slices, LovingEarth Organic Yacon Syrup
Stress management	Omega-3s, magnesium, nuts, oats	
Sleep support	Melatonin	Tru2U Tart Cherry Juice

food and beverage products. If the products lack enough of the active ingredient to provide results for the consumer, the repeat purchase and word-of-mouth referrals will not happen. The consumer is trying to justify the added cost of a value-added product and they are definitely taking delivery of promised health benefits into consideration as they assess whether the benefits delivered are worth the price paid.

Another critical issue is the lack of legitimate consumer research on both the ingredients added to the products as well as the composite functional product itself. Increasingly consumers know how to do their homework to see if the added ingredients are clinically proven to be effective.

Finally, the consumer is open to information but needs to be educated about new ingredients with which he or she is not familiar. Ingredients such as fiber, protein,

and calcium bring with them a cachet of awareness and other attributes, while natural ingredients, such as antioxidants, probiotics, and Omega-3's generally require a more thorough job of education and promotion to get seated with the consumer. Product education takes time and money, something that most companies underestimate when planning for a product introduction.

1.3.10 REGULATORY ROADBLOCKS

One emerging problem within the category, which definitely impacts the consumer, is the increased use of exaggerated or inaccurate health claims for functional products. Not only does this represent a significant area of risk for manufacturers with regulatory agencies, but it also erodes trust and credibility for all products at the consumer level. This type of offence occurs across the board, but is particularly rampant in the immunity, heart, and cognitive and weight loss categories. Both the FTC (Federal Trade Commission) and FDA (Food and Drug Administration) have stepped up their policing of these types of violations and FTC legal actions with Coca Cola for Vitamin Water, Kellogg's for Rice Krispies, and Frosted Mini-Wheats, and also POM Wonderful demonstrate their desire to clearly define and separate conventional foods and beverages from dietary supplements. That said, the marketplace battle is far from over and as consumer demand and education increase, the temptation for companies to make aggressive health claims for their functional offerings will only grow stronger. Meanwhile, both sides show no signs of slowing in the race both to meet consumer needs and to protect the consumer from misleading or exaggerated claims.

1.3.11 A SWEET STORY

Probably one of the most significant events in the functional food and beverage sector over the past few years has been the proliferation of functional sweeteners, specifically stevia and agave. These sweetener alternatives offer the sweetness of sugar without the calories, plus they have a low glycemic index and comparable taste. This has spurred a bonanza of opportunities for companies to reformulate with one of these alternatives, offering less of what consumers don't want and additional health benefits at the same time.

1.3.12 OH TO BE GREEN AND SUSTAINABLE

While consumer demand and awareness are growing slowly, they are increasingly interested in earth-friendly packaging options that offer ecological benefits in addition to standard product benefits. Particularly as highly visible companies like Coca Cola and Pepsi announce bottles made mostly from plants or other postconsumer material, the expectations of consumers will rise as they begin to consider the origins, footprint, and postconsumer life of various packaging alternatives. Green attributes and sustainability are certainly not compelling reasons to buy at any price, but when

other factors are equal they do carry increased weight in the purchase decision. This is particularly true with single-use convenience products that are consumed and discarded promptly after purchase.

1.3.13 SUPER FRUITS STILL GOING STRONG

There are literally hundreds of undiscovered fruits hidden in the rain forests of the world. Don't expect this trend to disappear anytime soon. Americans are enamored with these healthy superfoods, at least for now. But the category is showing some signs of fatigue, particularly as mainstream fruits such as blueberries, grapes, cranberries, and pomegranates spend heavily to secure their rightful piece of the superfruit market pie. Meanwhile, keep your eyes peeled for newcomers sea buckthorn berries (beauty), yacon (diabetes), and camu camu (immunity).

1.3.14 JUST ADD SPICE

One of the newest (and oldest) players in the functional ingredient space is spices and seasonings, which have long provided flavor to food but are now being positioned as providing health benefits in the proper dosage. Examples of this trend include rosemary, red peppers, oregano, turmeric (curry), cinnamon, and ginger.

Spices support numerous conditions according to scientific literature. Turmeric is widely recognized as an antiinflammatory agent, making it a top choice for joint health formulations. Red peppers jumpstart metabolic activity and aid in weight loss. Ginger has a calming effect on the stomach and is a favorite in digestive health products. Cinnamon helps manage blood sugar and rosemary boosts liver function. In short, spices make a valuable addition in nearly every condition-specific category.

1.3.15 INGREDIENT POWER PLAYERS

Antioxidants continue to be the belle of the ball, primarily due to increased consumer awareness and demand. Shoppers may not know what antioxidants are, but they do know they are good for health and wellness. Likewise, the other power players in functional foods and beverages continue to be fiber, soy or whey protein, Omega-3's, and probiotics/prebiotics.

1.3.16 KEEP IT SIMPLE FOR THE CONSUMER

Consumer research supports what we all suspect. Moms are totally overwhelmed with food choice and making the right decisions for themselves and their families. Generally, the fewer ingredients on the nutrition facts panel the better. Keeping it simple is their new mantra. In particular, moms are keeping an eye out for overly processed food products and trying to avoid them whenever possible. Trans fats, high fructose corn syrup, preservatives, and artificial flavors and colors are securely

on the radar of things to watch out for. Particularly when it comes to staples for the household, such as milk, bread, and eggs, they are attempting to change entrenched habits and begin buying whole grains and organic alternatives. In addition, mothers are increasingly concerned about incorporating more fresh items in the meals they serve. There is tremendous opportunity for functional food and beverage products to take advantage of this desire for foods that provide a dose of medicine. Research shows that the healthier a product is perceived to be, the less processed it is also perceived to be.

1.3.17 TASTE COMES FIRST

Don't go thinking that because consumers are seeking greater functionality in the foods and beverages they consume, taste is a secondary consideration to performance. Successful brands must deliver on both great performance and great taste. Delivery on those two key benefits has been the driver behind the success of functional brands like Corazonas, Fiber One, and Special K in recent years. The old adage "if it doesn't taste good, nothing else matters" is still true.

1.3.18 CLOSING THE GAP

It's important to remember that product education in this category is in its infancy. Consumers may talk about eating healthy and making better food choices, but that doesn't always translate to purchase behavior. The more your customers know about your products' health benefits and clinical support, the more likely they are to embrace your brand and act on their convictions.

Without a doubt, functional foods and beverages is definitely a category to watch over the coming years. Consumers are clamoring for new products and are looking to food first for enhanced nutrition and functionality. Eventually demand will exceed supply.

1.4 TREND THREE: GROWTH IN COBRANDING ACTIVITY

The business of suppliers cobranding ingredients with manufacturers has steadily expanded over the past 10 years, and for good reason. It's basically a win-win proposition driven by joint research, promotion, and education at both the trade and consumer levels. With the escalating cost manufacturers pay for research-backed, branded raw ingredients, they are increasingly looking to suppliers to share the burden of funding the education and promotional activities required to launch a successful ingredient brand. In short, suppliers are being asked to step up and participate more aggressively in terms of both effort and dollars. And that seems fair. Why should manufacturers be required to foot the branding bill alone? After all, the comarketing concept is to share both the risks and the rewards.

1.4.1 IS BRANDING ALWAYS THE RIGHT STRATEGY?

Branding is the ongoing process of creating and maintaining a unique and compelling brand image in the minds of current and potential customers. Building brand awareness, acceptance, preference, and most important loyalty for an ingredient is not a simple or inexpensive process, and companies should carefully consider whether or not branding and/or eventually cobranding is the best choice.

In general, companies should brand when they:

- hold valuable patents or trade secrets,
- have scientific support specific to their ingredient,
- will be doing business in substantial, active categories, and
- have potential cobranding partners to share risk and invest in the brand.

In general, companies should not brand when they:

- are selling in undifferentiated commodity categories,
- have no compelling scientific support relating to their specific ingredient,
- have minimal funds to devote to promotion and education, and
- have no meaningful intellectual property.

1.4.2 SURVEY THE MARKET AND ACT ACCORDINGLY

As companies make branding decisions, they should be sensitive to what is happening in the marketplace. It is easy to see as we survey the consumer landscape that confidence in dietary supplements has been eroding for some time. Consumers are more skeptical, confused, and unsure about dietary supplements and functional foods. They are looking for ways to assess and understand product quality and make better purchase decisions. As a result, we find in our marketing research with consumers that science and technical superiority are increasingly driving the brand message. And that has important implications for marketers in both dietary supplements and functional foods. It requires manufacturers and suppliers to:

- create brand value through science and other intellectual property,
- integrate science into the brand value proposition,
- take a more education-focused approach to marketing,
- expand their intellectual property portfolio, and
- look for research-driven marketing partners.

1.4.3 CONSISTENTLY COMMUNICATE THE KEY BRAND MESSAGES

Once the brand value proposition has been defined and honed, it is important to integrate that message through all marketing communications. Effective branding means consistently and persuasively communicating the product positioning at all points of customer contact.

1.4.4 WORK TO CREATE BRAND VALUE

There are a number of potential strategies for creating and sustaining brand value for an ingredient. Outlined briefly next are several ideas to consider:

- Launch a third-party website to promote the health benefits of a product category.
- Sponsor an annual symposium or gathering of scientists working in a category.
- Conduct consistent retailer training.
- Plan and execute trade show seminars and events.
- Create a distinctive new logo for a brand to differentiate it in the marketplace.
- Consider distributing a matte story focusing on a newsworthy aspect of the ingredient story.
- Contract with a celebrity spokesperson.
- Find an author to write a book promoting an ingredient.
- Sponsor an athlete who benefits from taking the product.

The future growth of the natural products industry lies in smart manufacturers and savvy suppliers partnering to bring innovative and science-based ingredients to market. Consumers are demanding it. Retailers will support it. And it can drive business to new heights if it's done right.

1.5 TREND FOUR: INCREASED IMPORTANCE OF SCIENCE AND CLINICAL VALIDATION

1.5.1 MARKETING SCIENCE TO TRADE AND CONSUMER AUDIENCES

As an industry, finished goods manufacturers and raw material suppliers need to improve the way in which they talk about science in their marketing materials. Much of what circulates today is overwritten, needlessly complicated, and often irrelevant to its intended audience. Here are some basic guidelines that can help to keep a science-based message both focused and relevant.

1.5.2 INTEGRATE SCIENCE INTO THE BRAND POSITIONING

The surest way to accomplish this is to make the scientific validation and support generated for the product central to the product's positioning and value proposition. That means more than just adding a line of copy to ads and brochures about the clinical research that has been conducted. Consider the following options:

- Revise the product name or identity/logo to communicate a more clinical or science-focused attitude.
- Revise the packaging to reflect a more science-driven image.
- Consider putting the product in a box with a consumer-friendly product insert or booklet summarizing and visualizing relevant research findings. Also consider a standing fifth panel on the box highlighting the product's technical superiority.
- Make science more central to consumer seminars, retailer training, trade show activity, and product literature.