Developing New Functional Food and Nutraceutical Products

Edited by
Debasis Bagchi
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Dedicated to my beloved and respected
Professor Sidney J. Stohs, PhD, FACN,
CNS, ATS, FAPhA, FASAHP

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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
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CHAPTER

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

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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.

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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, Sibu 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 *Capsaicin* 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.