

Research Report
ABOUT Food

The global report on nutraceuticals

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FOOD



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Chapter 4 **New product development**

Government or university backed research centres are now playing a part in the research and development of nutraceuticals

The process of new product development (NPD) is interesting in the nutraceutical arena. With the market gathering pace, government or university backed research centres are now playing a part in the research and development of nutraceuticals. Initially, however, functional ingredients were developed by either pharmaceutical or ingredients companies, which then looked for a convenient food delivery. Herbals have enjoyed a renaissance thanks to an interest in natural nutraceuticals, boosting the role that once-unfashionable niche firms take in NPD. Small independent firms have also been generally able to carve a profitable niche in some countries, unhindered by the regulatory costs present in the traditional food industry. With slowing growth in the latter however, the growing nutraceutical market has begun to attract the interest of established food giants, seeking a high-profit share and a nutraceutical ingredient for a ready-conceived food product.

The rapidly evolving market will prove to be of great value to both food, ingredients and pharmaceutical companies

As the market matures, would-be manufacturers have a difficult task in both responding to and anticipating consumer desire and consumer trends. One of the greatest barriers to investment in NPD is the ease with which nutraceutical products can reach the market, but global regulation is changing. Capital limitations due to the costs of regulatory compliance as new laws are formulated, as well as difficulties surrounding the ability to patent new nutraceuticals, have required the creation of strategic alliances in order to continue technological advances. Thus at this stage, the relationships between pharmaceutical companies, food manufacturers and scientists are now at their most interesting and varied, and the rapidly evolving market will prove to be of great value to both food, ingredients and pharmaceutical companies over the next decade as they work together to exploit the opportunities.

Research institutes

Publicly funded national research centres, staffed by government or university scientists, are growing in importance in their identification and assessment of potential nutraceutical ingredients. Scientists at the Øresund-based Danish Centre for Advanced Food Studies reported in May 2003, for example, that certain peptides in fermented milk products have a lowering effect on blood pressure and could be used to produce drinking yoghurts to help affected people.

At the same time, researchers at the Brain Science Institute in Saitama, Japan, claimed that PQQ (pyrroloquinoline quinone) is the first vitamin to be discovered in 50 years¹. PQQ was first identified in 1979 but the team has now labelled it a vitamin, and shown that mice who do not get enough of it suffer from skin problems and reduced fertility. PQQ, found in foods such as papayas, kiwis, green peppers and green tea, is not yet included widely in multivitamins but this will likely change.

The scientific endorsement of such centres is already proving an important means of convincing consumers seeking credible nutraceutical foods. It may be expected that such centres multiply when legislation demands

Chapter 5 **Legislation**

Various countries have established their own regulatory systems

Nutraceutical manufacturers initially found a receptive regulatory environment in many countries, but as the market has matured and the range of new products increased, the legislative framework surrounding the development and marketing of nutraceuticals has also changed. Global differences in laws regulating the sale of manufactured herbal products, as well as nutritional claims on processed products, have had a major impact on the way manufacturers, even those with established supply chains and large budgets, participate in international trade.

In theory, the Codex Alimentarius nutrition standards¹ apply to the global market and facilitate international trade in harmonising regulatory procedures and permissible claims. In practice, however, a consensus at Codex about the reduction of disease risk claims, scientific substantiation and a risk-based approach to setting guidelines for the safe upper limits (SULs) of dietary supplements has not been reached, and various countries have established their own regulatory systems. In some cases these vary radically, fostering differing domestic nutraceutical industries.

US manufacturers are enjoying an increasingly permissive regulatory environment

US manufacturers are enjoying an increasingly permissive regulatory environment, but north of the border, Canadian companies have had to campaign for legal recognition. The European Commission (EC) is currently facing the enormous challenge of bringing order to the plethora of different laws (or lack of them) in the various EU states, and is encountering a fair amount of resistance to proposals for strict regulation. Many governments are meanwhile urged to correlate the success of the Japanese legislative framework. Through the FOSHU (Food for Specific Health Use) category, established in 1991, Japan controls the most regulated functional foods market in the world.

Many manufacturers are resisting moves to formalise the scientific claims made on the products' labels, fearing that the cost of regulatory compliance will force them out of business. Indeed, it is likely that smaller firms without the benefit of deep coffers will strive to cope with the rising costs, but it remains the case that the key barrier to market entry is the lack of well-defined intellectual property rights. The lack of patents makes product management critical: the functional food world is fast moving and competitors can reach the shelves with copies of your product within weeks.

Increased regulation should encourage manufacturers to devise long-term market strategies

In such a rapidly growing market, some manufacturers have been tempted to develop products in haste, releasing them with quickly conceived health claims. Consequently, ill-disciplined manufacturers have put confidence in the market at risk. Many consumers have experienced disappointment when the product failed to live up to expectations, or safety scares rock confidence due to sub-standard nutraceutical products or over-zealous product formulations that carry the threat of toxicity. Increased strict-yet-fair regulation should encourage manufacturers to devise long-term market strategies, and convince consumers of the legitimacy of product claims. This will protect the sustainable development of the market as a whole.

Chapter 6 **Marketing and branding**

Companies must be prepared to invest in educating consumers before they can expect to sell to them

For such a mature market in terms of sales, it seems surprising that companies are only just realising there is more to selling nutraceuticals than adding a new label to an enriched version of an existing product; brands must be built. Consumer sophistication is growing and while opportunities for shelf space in mainstream retailers are increasing, so too is the threat that a competitor will be hot on your heels, releasing a similar product within weeks. Also, many countries employ widely differing approaches to nutraceutical labelling regulation, making the creation of global marketing strategies difficult. In order to survive, it is imperative that manufacturers re-evaluate their marketing strategies to take account of brand development, product authentication and consumer education.

In some ways, being such a young market in terms of years, there is a reasonably level playing field. Dynamic new product development that creates, as well as responds to, consumer desire may come from independent companies as well as those with the financial backing of a multinational food behemoth. To some extent it is a question of tactics, flexibility and a strong clear message rather than muscle to ensure future viability and profitability. Companies must be prepared to invest in educating consumers before they can expect to sell to them, and be innovative in changing the point-of-sale environment.

Brand building is now essential to ensure consumer trust as well as interest

Competition is intensifying with growing sales however, spurring massive increases in media spend (which increased on average by 45% in 1999¹⁰): marketing is an increasingly risky business. And it is not just moving with the market trends that will guarantee success; companies must also steer through waves of consumer scepticism as media reports highlight supplement safety scares and herbals inefficacy. Brand building is now essential to ensure consumer trust as well as interest.

Building that brand

Who are the consumers – and what do they want?

Formulating brand-building strategies can prove more complicated than developing the products themselves

Formulating brand-building strategies can prove more complicated than developing the products themselves, requiring an understanding of the complex motivations that go into nutraceutical purchasing choices. Targeting consumers can be an inexact science due to the wide variety of factors that prompt nutraceutical purchases. Responding to the trends of food as medicine and general wellness, for example, is a wide range of consumer groups, and what they want is a complex mix determined by generation, medical, social and financial considerations.

Identifying your specific consumer is the first and most important step. It is not possible to distil census data and find an average consumer of nutraceuticals. Most fundamentally, should you be addressing ill consumers or consumers of healthy foods? Perhaps the only common denominator behind every purchase is the demand for what Linda Gilbert, CEO of HealthFocus, has identified as a sense of 'entitlement'. Healthy or not,

Chapter 7 **Company profiles**

To list all of the companies that are engaged in developing, producing and marketing functional food products and nutraceuticals would be very much like creating a 'who's who' encyclopaedia of the food manufacturing world. As the market expands, and the term nutraceutical offers a grab-bag for all nutritious foods, it is difficult to find a manufacturer who will admit that their products are not contenders for the consumers' holy grail; a food with a healthy advantage.

In this broad, eclectic and ever-growing category, the companies that once produced niche products and now control global brands, such as Yakult Honsha, rub shoulders with the food generalist giants such as Groupe Danone, Unilever, Kraft Foods, PepsiCo, Nestlé and General Mills. Meanwhile, established pharmaceutical players such as Roche Vitamins are learning the value of staying ahead of the pack, while agribusiness ingredients giants such as Archer Daniels Midland (ADM) have realised that building a branded nutraceutical product requires much more than mere functionality.

THE NICHE NUTRACEUTICAL FIRM - Yakult Honsha

Yakult has reinvigorated a dairy category that has traditionally been used to low prices and margins

Yakult is a product that has often been attributed with having created the functional food category and familiarised consumers with the importance of gastrointestinal health. Launched at a similar time to the soy-oligosaccharide drink Calpis, it has introduced the scientific notion of pro-biotics to a wide audience and dominated a global market for nutraceutical dairy products. In recent years it has pioneered the trend for 'good for you' convenience in the dairy sector and, being sold in premium price, single-serve bottles, has reinvigorated a dairy category that has traditionally been used to low prices and margins.

Dr Minoru Shirota, a medical microbiologist at Imperial Kyoto University, first created and distributed the fermented milk drink in Japan in 1935. For the next 20 years, Yakult was sold through his clinic and small franchises, until Yakult Honsha was established in 1955, with Dr Shirota as president. In the same year, Dr Shirota also established the Yakult Central Institute for Microbiological Research in Tokyo, which, with over 200 scientists, has since developed a wide range of other healthy foods, pharmaceuticals and skin-care products, adding increased scientific credibility to the fermented skimmed milk drink.

Network marketing is designed to convince those consumers to make the product part of their daily regime

Yakult is available widely in supermarkets as well as health food stores and independent retailers, adding to its bid to be included as part of a normal diet. In Japan, distribution is also via a network of around 54,000 'Yakult Ladies', who, like Avon ladies, deliver Yakult products direct to the consumer at home or in the workplace. Such network marketing is designed to convince those Generation X¹ consumers to make the product part of their daily regime, allowing peers and relatives to spread the word. Yakult is building a brand that represents a lifestyle choice before it addresses a specific medical condition.

Table 1: Major nutraceutical ingredients

Type of ingredient	Ingredient key		Use	Commercial application?	
Antioxidants	Including: • Vitamins A,C,E • Folic acid • Lycopene		<ul style="list-style-type: none"> • Protection from cancer, heart disease and neural tube defects. • Lycopene may help male infertility. 	Supplementation.	
Nutritional lipids and oils/polyunsaturated fatty acids (pufas)	Omega-3 fatty acids	Eicosapentanoic acid (EPA)	<ul style="list-style-type: none"> • Healthier heart and circulation. • Fights depression. • Fights inflammatory diseases. • Aids brain and eye function. • Helps maintain normal blood pressure and control cholesterol. • Found primarily in cold-water fish. ETA is found in Green Lipped Muscles. 	<ul style="list-style-type: none"> • Fortification, supplements (esp. dairy). • Omega Protein Corp markets heart-healthy fish oil containing Omega-3 fatty acids for use in mainstream consumer foods. • OmegaTech launched DHA Gold Circle Farm Eggs (1996). • Good for pregnant women, used synergistically with folic acid in bread. 	
		Docosahexaenoic Acid (DHA)			
		Eicosatetraenoic Acid (ETA)			
		Alpha-linolenic acid (ALA)	An Omega-3 fatty acid not found in fish, but primarily in dark green leafy vegetables, flaxseed oils, and certain vegetable oils. The body's enzymes convert ALA to EPA. Protects against heart and vessel disease, lowers cholesterol and triglyceride levels.	Fortification and supplements.	
		Omega-6 fatty acids	Gamma linolenic acid (GLA)	Body converts linoleic acid to GLA then to hormone-like substance called prostaglandin. <ul style="list-style-type: none"> • Aids rheumatoid arthritis, PMS, endometriosis, and fibrocystic breasts; • Controls eczema and psoriasis; • Clears acne and rosacea; and • Prevents/improves diabetic neuropathy. Omega-6 fatty acids are found in grains, most plant-based oils, poultry and eggs.	Fortification and supplements. Standard treatment for premenstrual symptoms.
		Conjugated linoleic acid (CLA)	Antioxidant found in beef and dairy. Aids weight control, positive effect on LDL cholesterol.	Supplements.	
		Linoleic acid (LA)	As GLA above.	Fortification and supplements.	
		Arachidonic acid (ARA)	Reduces risk of coronary heart disease.	Fortification – baby formula.	
		Omega-9 fatty acids	Oleic acid	Main fatty acid in olive oil; significantly reduces LDL cholesterol.	
Phytochemicals/Phytonutritionals	Carotenoids	Lycopene	Lycopene may cure degenerative diseases and slow the ageing process, and ensure prostate health. Certain carotenoids, such as those found in dark green leafy vegetables, may decrease the risk of developing advanced or exudative AMD, the most visually disabling form of macular degeneration in old people.	Highlight presence in foods such as tomatoes.	
		Betacarotene			
Lutein					
	Polyphenols	(Bio) flavanoids, e.g. Anthocyanins, proanthocyanins (tannins), isoflavones, catechins, quercetin	<ul style="list-style-type: none"> • Reduces cancer, cardiovascular disease, and osteoporosis; • Antioxidant; • Antibacterial; • Antiviral; • Anti-inflammatory; and • Anti-allergenic. 	Highlight presence in a wide variety of foods, including green and black tea, wine, soy, cocoa, nuts, seeds and whole grain cereals.	

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