# Food & Beverage Information Project 2011
# Depth Sector Stream – Nutraceuticals & Foods For Health

Final Report

*October 2011; v1.7*

## Coriolis is a strategic management consulting and market research firm

We work with organisations to help them grow. For corporations, that often means developing strategies for revenue growth. For governments, it means working on national economic development. For non-profits, it means helping to grow their social impact.

We address all the problems that are involved in growth: strategy, marketing, pricing, innovation, new product development, new markets, organisation, leadership, economic competitiveness.

We bring to our clients specialised industry and functional expertise. We invest significant resources in building knowledge. We see it as our mission to bring this knowledge to our clients and we publish much of it for the benefit of others.

A hallmark of our work is rigorous, fact-based analysis, grounded in proven methodologies. We rely on data because it provides clarity and aligns people.

However, we deliver results, not reports. To that end, we work side by side with our clients to create and implement practical solutions.

**The Coriolis name**

The coriolis force, named for French physicist Gaspard Coriolis (1792-1843), may be seen on a large scale in the movement of winds and ocean currents on the rotating earth. It dominates weather patterns, producing the counterclockwise flow observed around low-pressure zones in the Northern Hemisphere and the clockwise flow around such zones in the Southern Hemisphere. *To us it means understanding the big picture before you get into the details.*

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The objective of this report is to provide a **factual** source of high quality **information** on the current situation in the New Zealand **nutraceuticals & food for health/functional foods** sector for four audiences:

- **Investors** (domestic or international)
- **Industry** participants (firms & individuals)
- **Government** (across all roles and responsibilities)
- **Scientific researchers** (academic, government & firm)

It creates a common set of **facts** and **figures** on the current situation in the industry.

It draws conclusions on potential industry **strategic directions** and highlights **opportunities** for further **investment**.

It forms a part of the wider Food & Beverage Information Project and will be updated annually.

The opinions expressed in this report represent those of the industry participants interviewed and the authors. These do not necessarily represent those of Coriolis Limited or the New Zealand Government.

Note: Sectors analysed in more depth on a rotating schedule, in 2011 this included Seafood and Nutraceuticals

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# GLOSSARY OF TERMS

## This report uses the following acronyms and abbreviations

| | |
|---|---|
| **A$/AUD** | Australian dollar |
| **ABS** | Absolute change |
| **ANZSIC** | AU/NZ Standard Industry Classification |
| **AU** | Australia |
| **Australasia** | Australia and New Zealand |
| **E Asia** | East Asia |
| **EBITDA** | Earnings before interest, tax, depreciation and amortization |
| **C/S America** | Central & South America (Latin America) |
| **CRI** | Crown Research Institute |
| **CY** | Calendar year (ending Dec 21) |
| **CAGR** | Compound Annual Growth Rate |
| **FY** | Financial year (of firm in question) |
| **£/GBP** | British pounds |
| **IP** | Intellectual Property |
| **JV** | Joint venture |
| **m** | Million |
| **n/a** | Not available/not applicable |
| **NA/ME/CA** | North Africa / Middle East / Central Asia |
| **N.H** | Northern Hemisphere |

| | |
|---|---|
| **NZ** | New Zealand |
| **NZ$/NZD** | New Zealand dollar |
| **Oceania** | Australia, New Zealand & Pacific Islands |
| **R&D** | Research and Development |
| **T/O** | Turnover |
| **S Asia** | South Asia (Indian Subcontinent) |
| **SE Asia** | South East Asia |
| **US/USA** | United States of America |
| **US$/USD** | United States dollar |
| **UK** | United Kingdom |
| **YE** | Year ending |
| **YTD** | Year to date |

**Sources**

| | |
|---|---|
| **AR** | Annual report |
| **Ce** | Coriolis estimate |
| **Ci** | Coriolis interview |
| **K** | Kompass |
| **Ke** | Kompass estimate |
| **ws** | Website |

# METHODOLOGY & DATA SOURCES

## This project has a number of specific data-related limitations, relating to the industry being in the early stages of the development curve

- This report uses a range of information sources, both qualitative and quantitative.

- There is no standardised product or industry definition widely or universally accepted in New Zealand.

- The numbers in this report come from multiple sources. While we believe the data is directionally correct, we recognise the limitations in what information is available.
  - Many data sources incorporate estimates of industry experts.
  - There is no source of the total turnover of the New Zealand nutraceuticals or functional foods industry.

- The Australian and New Zealand Standard Industry Classification system (ANZSIC) or the Global Harmonised Commodity Description and Coding System (HS codes) trade/tariff codes do NOT have any classifications that in any way catch firms involved in nutraceuticals or functional foods.

- Statistics New Zealand does NOT collect information on nutraceuticals or functional foods (foods for health)
  - For an example of what government collected data on the sector looks like see: http://www.statcan.gc.ca/pub/88f0006x/88f0006x2009001-eng.pdf
- In addition, in some places, we have made our own clearly noted estimates.

- Coriolis has not been asked to independently verify or audit the information or material provided to it by or on behalf of the Client or any of the data sources used in the project.
  - The information contained in the report and any commentary has been compiled from information and material supplied by third party sources and publicly available information which may (in part) be inaccurate or incomplete.
  - Coriolis makes no representation, warranty or guarantee, whether express or implied, as to the quality, accuracy, reliability, currency or completeness of the information provided in the report.

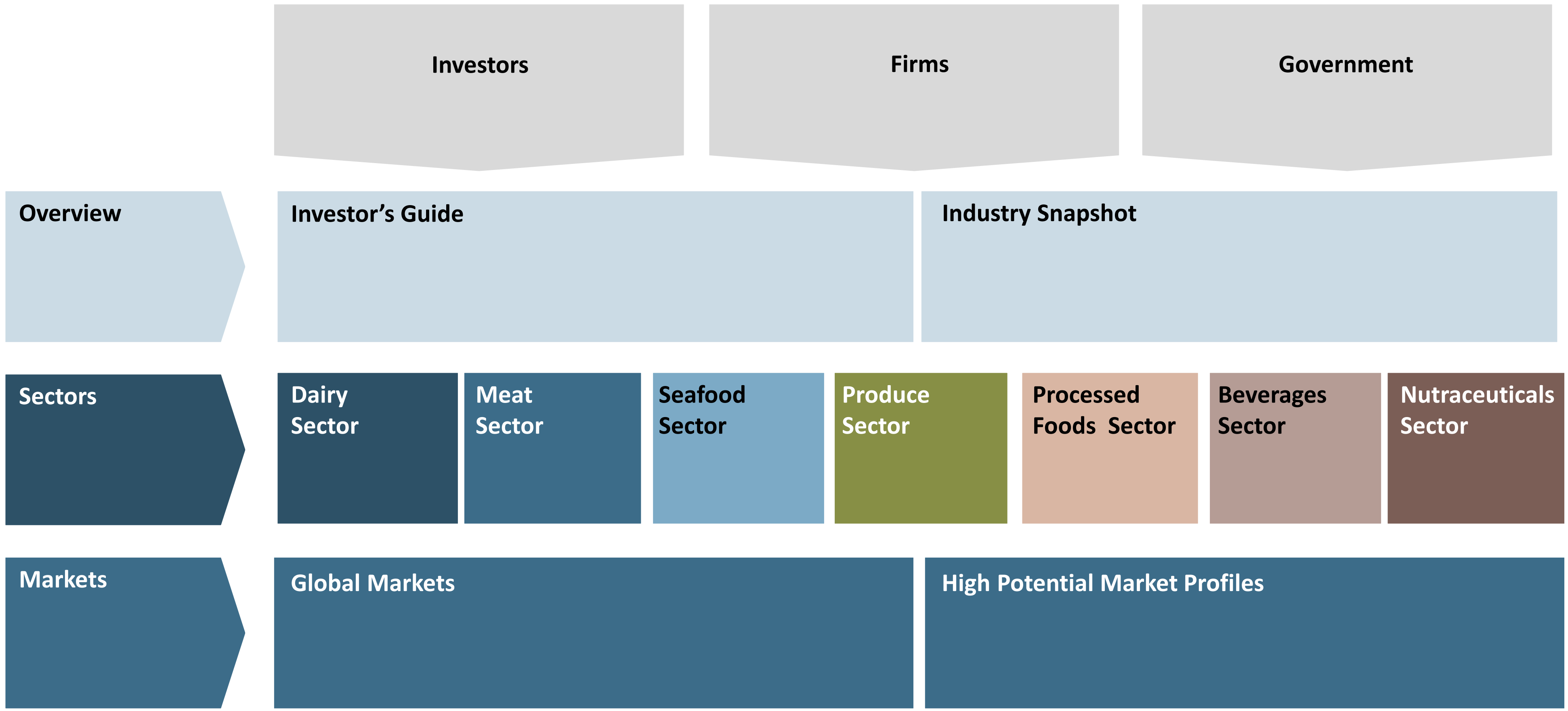
- All trade data analysed in all sections of the F&B Information project are calculated and displayed in US$. This is done for a range of reasons:
  1. It is the currency most used in international trade
  2. It allows for cross country comparisons (e.g. vs. Denmark)
  3. It removes the impact of NZD exchange rate variability
  4. It is more comprehensible to non-NZ audiences (e.g. foreign investors)
  5. It is the currency in which the United Nations collects and tabulates global trade data

- If you have any questions about the methodology, sources or accuracy of any part of this report, please contact Tim Morris, the report's lead author at Coriolis, on +64 9 623 1848

# F&B INFORMATION PROJECT

## The New Zealand Food & Beverage Information Project is designed to be the foundation of facts and figures on which a range of audiences can build

Structure of the New Zealand Food & Beverage Information Project
*(2011)*



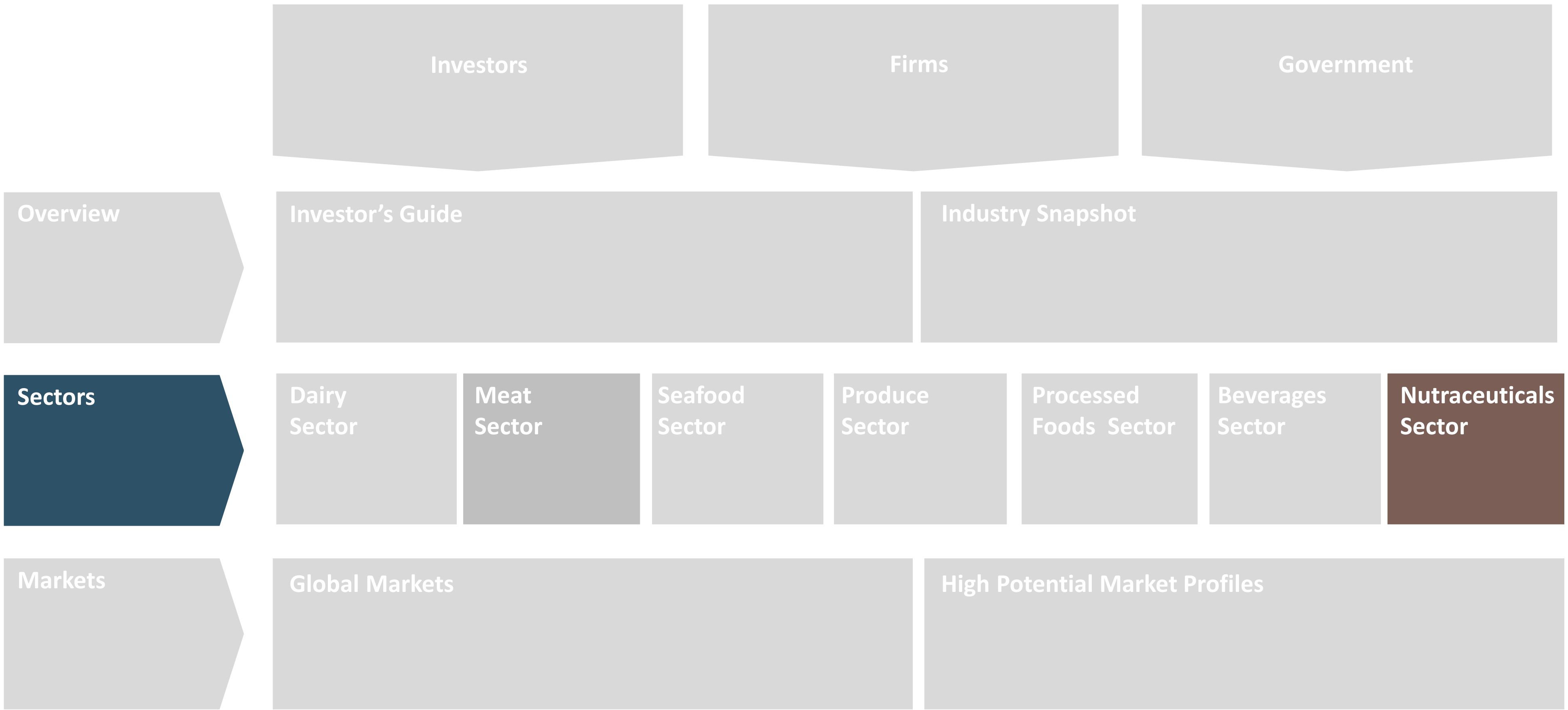



*Note: Every year two subsectors are completed in more detail. Seafood and Nutraceuticals in 2011*

# NUTRACEUTICALS SECTOR ANALYSIS

## This analysis of the New Zealand nutraceuticals sector forms a part of the wider Food & Beverage Information Project

Structure of the New Zealand Food & Beverage Information Project
*(2011)*



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# A DIFFICULT AREA TO STUDY

## Nutraceuticals and functional foods (foods for health) are a difficult area to define globally; data availability is poor

- "Quantifying the value of the functional food market is a difficult task." *Colette Shortt, Opportunities for Health-Enhancing Functional Dairy Products, 2004*

- "At present there is no universally accepted definition for nutraceuticals and functional foods." *Handbook of Nutraceuticals and Functional Foods, 2nd Ed., 2004*

- "There is no universal consensus in the definition of the terms functional food or natural health products, although they are commonly used around the world." *Statistics Canada, 2007*

- "From a market perspective, functional foods are difficult to quantify because different definitions are used." *J.A. Weststrate, Functional foods, trends and future, British Journal of Nutrition 2002*

- "All natural products areas are tricky to define, they have such a huge scope, and lots of small players." *CEO, NZ Company*

# WHAT ARE THEY?

## We are using the following definitions as the basis for our sector analysis

Definitions used in our research
*(2010)*

*There are a lot of proposed definitions, many conflicting or vague; we have effectively adopted the definition used by Health Canada as this is the only official government definition available[3]*

| RFP Term | Coriolis definition – simple | Widely accepted industry term(s) | Coriolis definition – more detailed | Comments/Notes |
|---|---|---|---|---|
| Nutraceuticals ❶ | Natural product extracts sold in dosage form (capsules, tablets, powders, etc.) | - Supplements<br>- Nutritional supplements<br>- Natural health products | - Product that is prepared from foods and other natural products, but is isolated and sold in the form of capsules, tablets, or powders, or in other dosage forms not normally associated with foods.<br>- A nutraceutical is demonstrated to have a physiological benefit or provide protection against ills or assist with general health and wellbeing. | - We include within this definition all essential nutrients (vitamins, minerals, α-Linolenic acid[1], etc.) and other non-essential nutritional supplements<br>- We exclude industrial proteins[2] |
| Functional Foods (aka "Foods for Health") ❷ | Foods with added nutraceuticals | - Functional foods | - Foods fortified with added or concentrated ingredients to functional levels, which improve health or performance.<br>- Foods that, by virtue of the presence of physiologically active components, provide a health benefit beyond basic nutrition.<br>- Added nutraceutical are outside standard recipe or formulation. | - We exclude non-health related functional foods wherever possible (for example Red Bull and V energy drinks) |

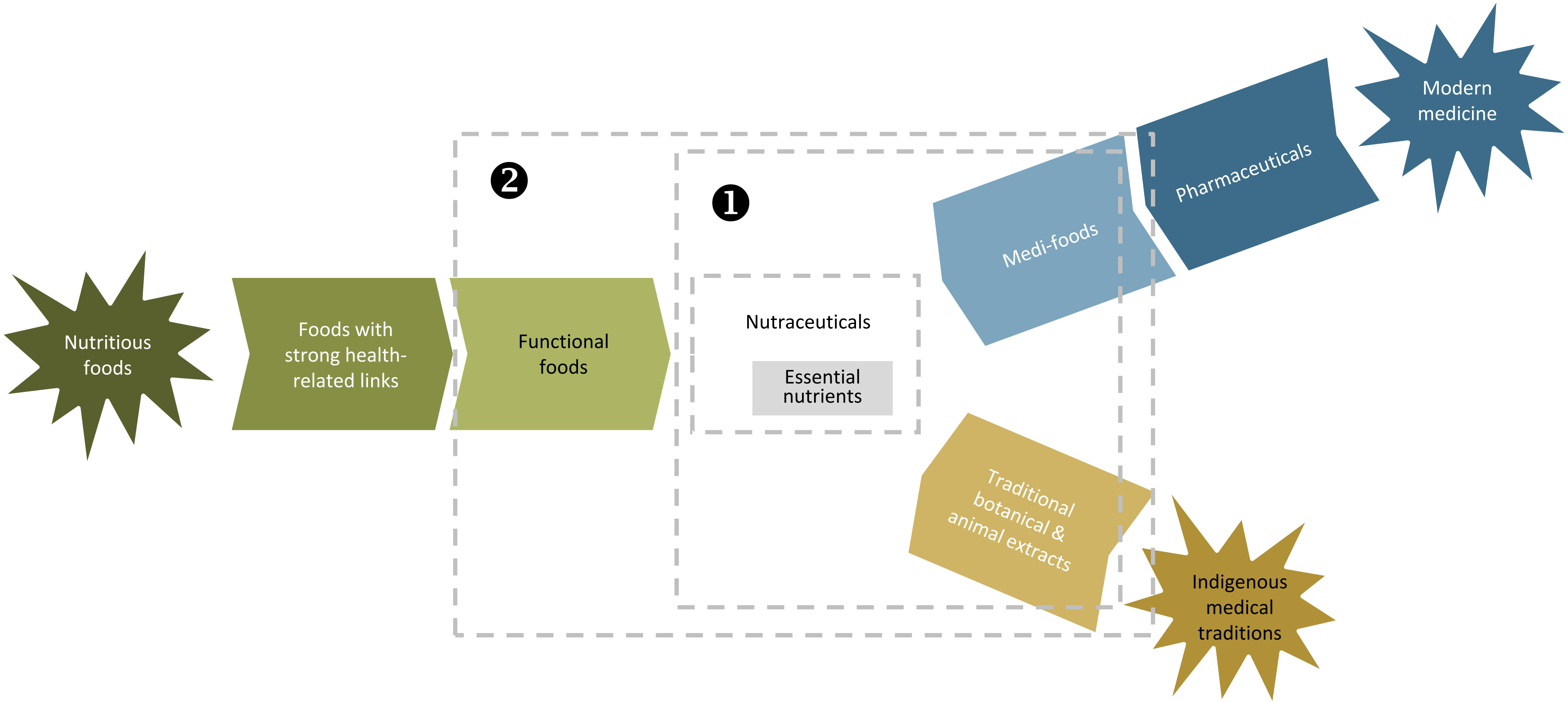


1. The shortest chain omega-3 fatty acid; 2. For example ribonuclease A, casein, whey and albuminoids; 3. We had serious reservations about most definitions proposed by international industry lobby groups and/or industry proponents due to their vague wording leading to additional confusion

# MODEL

## Nutraceuticals exist at the intersection of food and medicine

Proposed model of nutraceuticals and related classes of health-related products
*(model; 2010)*





Source: Coriolis

# EXAMPLES

## Examples of all these types of product can easily be identified

Definitions and examples of terminology used in model
*(2010)*

<table>
<tr><th colspan="2">Category</th><th>Definition</th><th>General examples</th><th>New Zealand examples</th></tr>
<tr><td colspan="2">Nutritious foods</td><td>- Conventional food from natural sources containing essential nutritional elements</td><td>- Apples as part of a healthy diet (“An apple a day keeps the doctor away”)<br>- Oranges and vitamin C</td><td>- New Zealand grass-fed beef</td></tr>
<tr><td colspan="2">Foods with strong health-related links</td><td>- Conventional foods strongly associated with specific health claims</td><td>- Ocean Spray cranberry juice and urinary tract infections<br>- Kellogg’s All-Bran and fibre</td><td>- Calcium in milk</td></tr>
<tr><td colspan="2">❷ Functional foods (Foods for Health)</td><td>- Conventional foods to which high concentration nutraceuticals have been added to give health benefits</td><td>- Yakult probiotic drinking yoghurt<br>- ResVes WineTime chocolate bar with Resveratrol</td><td>- Anchor Symbio yoghurt containing ProDigestis™, Acidophilus and Casei bacteria</td></tr>
<tr><td colspan="2">Traditional botanical and animal extracts</td><td>- Plant and animal extracts with historical tradition of being used for health</td><td>- Wal-Mart Spring Valley organic flaxseed oil</td><td>- Silberhorn Sir Bob Charles SportsVel 100 (deer velvet extract)</td></tr>
<tr><td rowspan="2">❶ Nutra-ceuticals</td><td>Essential nutrients</td><td>- Nutrient required for normal body functioning that cannot be synthesised by the body (at all or in adequate quantities)</td><td>- GNC Alpha Lipoic Acid (to aid with weight loss)<br>- Bayer One-A-Day™ complete women’s multivitamin</td><td>- Nature’s Own Omega 3</td></tr>
<tr><td>Nutritional supplements</td><td>- Isolated compounds presented in semi or pseudo-medical form</td><td>- Schiff Glocosamine Plus<br>- Natures Bounty Gingko Boloba</td><td>- Vitaco’s Biolane™ advanced joint health (containing mussel extract)</td></tr>
<tr><td colspan="2">Medi-Foods</td><td>- Food or food derivatives that have been through some level of clinical trials</td><td>- Novartis Fibersource HN™ to dispense via an IV drip</td><td>- Comvita Medi-Honey™ for wound treatment</td></tr>
<tr><td colspan="2">Pharmaceuticals</td><td>- Patented chemical substance intended for use in medical treatment which have been through stages I-III clinical trials and are government approved for use</td><td>- Pfizer Lipitor™ treatment for high cholesterol (US$12b sales in 2007)</td><td>- Amsacrine (only identified successful pharmaceutical drug developed in NZ)</td></tr>
</table>



Source: Coriolis

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# NUTRACEUTICALS – SITUATION

## Nutraceuticals, while still fragmented globally, is consolidating as the sector matures

**New Zealand**

- The New Zealand industry is relatively young and filled with many passionate individuals; most firms are small; the median firm in NZ would have 2-3 employees
- Industry regulation is increasing as the sector matures
- New Zealand produces a handful of nutraceuticals at any scale:
  - Manuka honey – derived from the native manuka tree; honey sourced from the high factor trees is valued for its antibacterial properties
  - Green lipped mussels assist with joint mobility
  - Deer velvet used primarily for male impotence
  - A range of dairy derivatives and dairy-related bacteria
- High sector innovation with new products constantly emerging; many products are fads and many have a natural lifecycle; while Manuka is still on rise, deer velvet has clearly peaked
- The New Zealand sector has produced a number of mid to large firms
  - Vitaco ($168m; Private Equity [Next Capital AU])
  - Comvita ($85m; NZX listed)
  - New Image (82m; NZX listed)
  - Alpha Laboratories ($85m; private)
- The sector has been a focus of Government science funding over the past decade, but results for this research, limited to date

**Competitors**

- Production of key ingredients (e.g. vitamin C) typically occurs in large scale factories (e.g. China, Germany) and are traded globally
- Globally the nutraceuticals sector is highly fragmented
  - Vitamins & supplements consolidating at a pace; large players emerging, often around major pharmaceutical companies
  - Still a large group of mid-sized firms, typically narrow focus
  - Large number of small, single product firm selling "snake oil"
- There is intense competition in the market; new brands, products, compounds, and items are constantly evolving

**Consumers/Markets**

- Nutraceuticals are typically consumed in Western countries by wealthy/ city dwellers & aging baby boomers trying to repair the damage of modern living
- Nutrcaceuticals consumed in Asian countries is cultural
- Consumer often looking for more proactive health solutions as medical costs rise
- Consumers often purchase sporadically and have inconsistent consumption (e.g. a cupboard full of half finished jars of pills)
- Two key channels: (1) retail supermarkets which want two key brands and private label and (2) pharmacies/supplements specialists which want a wider range of non-supermarket brands



Source: Interviews; Coriolis

# NUTRACEUTICALS – SWOT ANALYSIS

## New Zealand needs to continue moving forward and adapting; success is not guaranteed

| Strengths | Weaknesses |
|---|---|
| - Unique flora and fauna due to New Zealand's geographic isolation<br>- Unique products proven success (e.g. Manuka honey)<br>- New Zealand trusted country and products with secure food source<br>- Able to leverage favourable opinion of New Zealand in key markets (e.g. China, Korea, Japan)<br>- Cheaper to manufacture than in Australia | - High cost of robust scientific validation of claims (e.g. clinical trials)<br>- Fickle market often fad products with inconsistent consumption<br>- Narrow consumer market<br>- Regulatory environment in export markets challenging to understand and frequently changing; no global standards or agreements<br>- Most NZ firms have low/no economies of scale<br>- Lack of capital for research and capital investment |
| **Opportunities** | **Issues/Threats/Risk** |
| - Large waste streams from existing food and beverage manufacturing<br>- Expansion into high demand nutraceuticals markets (e.g. East Asia)<br>- Native, unique plants<br>- Research into key high potential products with proven track record (e.g. manuka honey, blackcurrants)<br>- Marketing New Zealand's unique environment and products<br>- Marketing to tourists in New Zealand<br>- Online shopping<br>- "Country of Origin" labelling supporting New Zealand products<br>- Special dietary requirements (e.g. for use in retirement homes, hospitals etc.) | - Counterfeiting of New Zealand products, particularly in China<br>- False claims bring disrepute on the industry<br>- Increasing amount of regulatory restrictions<br>- Backlash, negative publicity in sector with products with unproven claims<br>- Companies repacking imported ingredients as produced in New Zealand<br>- Scares/contaminations/disease damaging consumer image of New Zealand |



Source: Interviews; Coriolis

# NUTRACEUTICALS – POTENTIAL STRATEGIC DIRECTIONS

## Five potential strategic directions are identified for the nutraceutical sector

| Situation creating opportunity | Resulting potential strategic direction | Opportunity | Challenges |
|---|---|---|---|
| - Large number of new nutraceuticals being developed by scientists<br>- Entrepreneurs developing new nutraceuticals<br>- Existing global nutraceuticals being launched in New Zealand (e.g. Noni)<br>- Handful of key products account for most of industry export growth<br>- Highly crowded world market | 1. Focus on proven winners (e.g. manuka) instead of spreading efforts widely | - Build on and amplify success of existing winners<br>- Amplify consumer cut-through with winning message | - Missing out on high potential new nutraceuticals |
| - Most nutraceuticals only delivered in single form to consumer (e.g. pill)<br>- Consumers have a wide range of consumption and use occasions | 2. Line extensions to leverage functional properties into new forms | - Build strong consumer perception of health benefits of product (e.g. cranberries) through wider exposure<br>- Sell more volume to consumers | - Succeeding in new channels<br>- Coming up with ideas<br>- In market execution |
| - Industry still highly fragmented with large number of small players<br>- Few NZ brands have any in-market awareness or presence<br>- Cost structures and overheads per unit are high | 3. Industry consolidation to drive scale | - Roll-up strategy by larger firms and emerging leaders<br>- Drive economies of scale around production and marketing | - Low barriers to entry (currently) |
| | 4. More collaborative marketing | - Firms work together to jointly market NZ as suppliers<br>- Similar to wine industry | - Egos and personalities<br>- Cooperating and competing at the same time |



Source: Interviews; Coriolis

## NUTRACEUTICALS – POTENTIAL AREAS FOR INVESTMENT

Investors should focus on proven products achieving traction in export markets; opportunities beyond there more speculative and only for those with strong transferrable capabilities; opportunities exist for industry roll-up

- Wide range of opportunities for investors with leverageable or transferable skills
  - Marketing/market access
  - Distribution/infrastructure

- Fragmentation suggests significant opportunity for consolidation and /or industry roll-up, driven by economies of scale

- Wide range of acquisition targets
  - Most companies for sale at the right price

**Waste streams & by-products**

- Clearest opportunity is in adding value to waste streams emerging from existing large food production industries
  - Seafood
  - Meat
  - Dairy
  - Fruit (kiwifruit, apples)
- Large amount of waste give economies of scale in refining and processing

**NZ Unique**

- New Zealand has a wide range of plants and animals found nowhere else on earth due to New Zealand's isolated location
  - Huge range of unique native plants
  - Wide range of sea organisms
  - Extraction from native land animals likely rejected for non-economic reasons
- These unique plants and animals create opportunities and success to date comes from a handful of these

**Manuka honey**

- Manuka honey is achieving cut through and strong consumer acceptance; consumers "get" the concept
- Product is highly defensible as it is only in New Zealand (& AU)
- Production fragmented across a wide range of geographically disperse beekeepers; low/no opportunities here
- In production Comvita is largest firm; another 4 firms at any scale

**Green-lipped mussel extract**

- Waste-stream of production of green lipped mussels
- Product is defensible as it is only in New Zealand; however, wide range of competing products in joint-mobility space

**Dairy related**

- Wide range of dairy derived or related nutraceuticals being developed or promoted in New Zealand
- Consumer success to date primarily colostrum; leader is New Image selling via direct marketing in Asia
- Other dairy (bioactive milk components and probiotics) controlled by farmer-owned cooperatives

- Beyond these three proven success in the market, opportunities are more speculative



Source: Interviews; Coriolis

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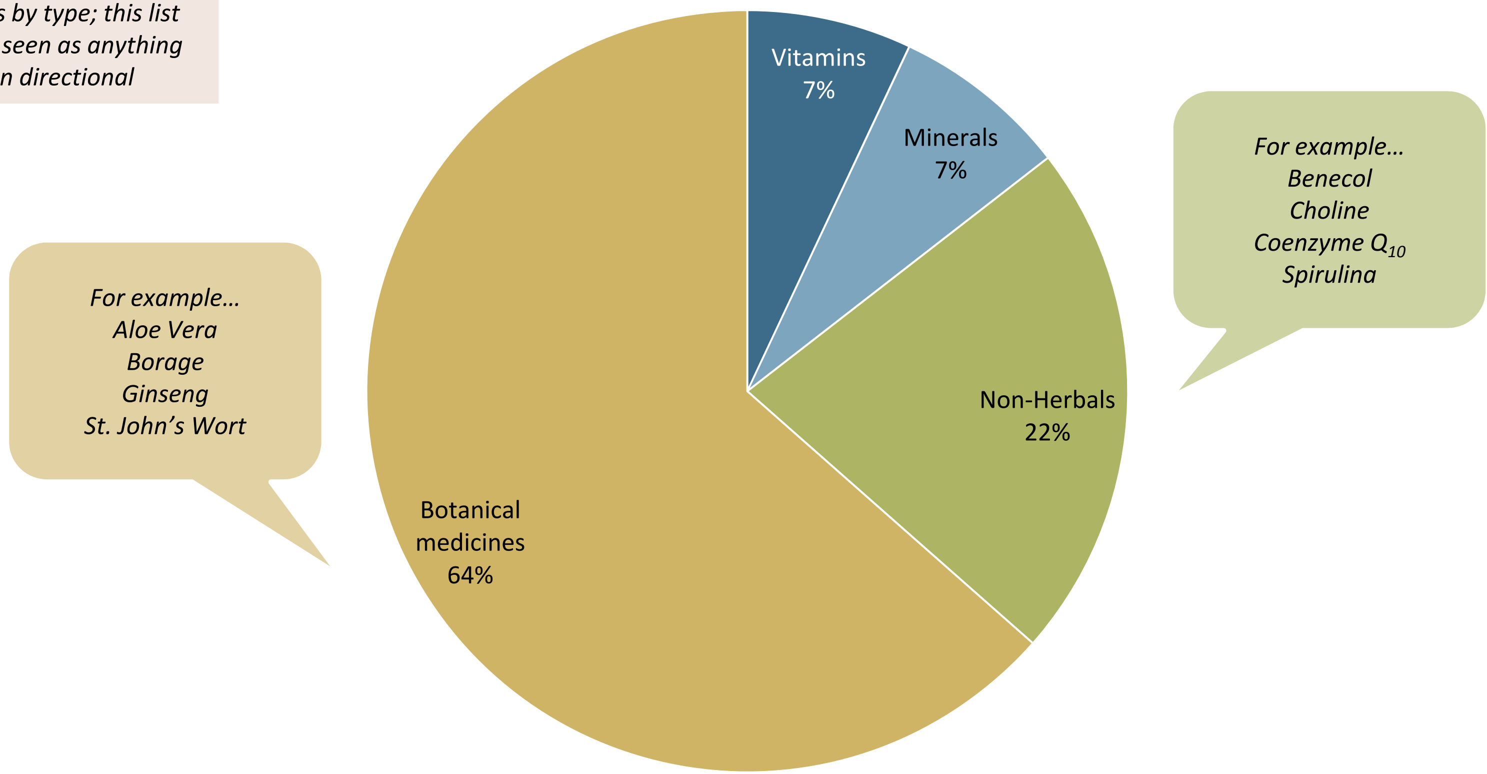
# TOP 200 NUTRACEUTICALS BY TYPE

## Analysis of the "Top 200" nutraceuticals indicated two thirds of the range of nutraceuticals are botanical medicines, followed by non-herbal "other"

Classification of the "Top 200" nutraceuticals by type
*(#; 2001)*

*A nutraceuticals encyclopaedia offered a list of the "top 200" nutraceuticals by type; this list should not be seen as anything other than directional*



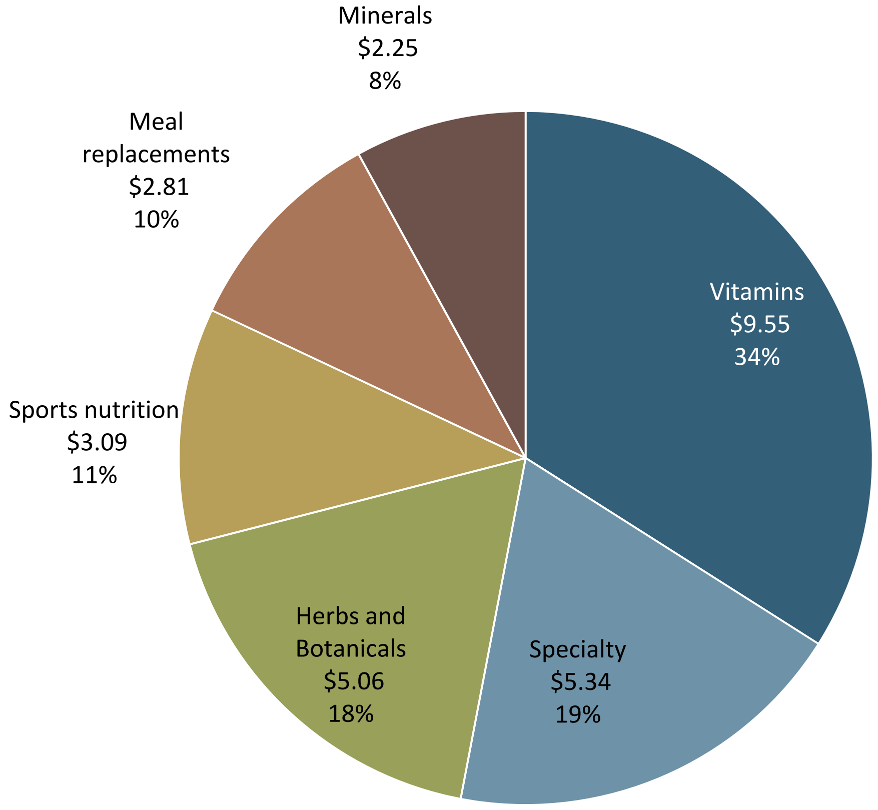



Source: Nutraceuticals: The Complete Encyclopaedia (Penguin Putnam 2001); Coriolis analysis

# USA SUPPLEMENTS INDUSTRY

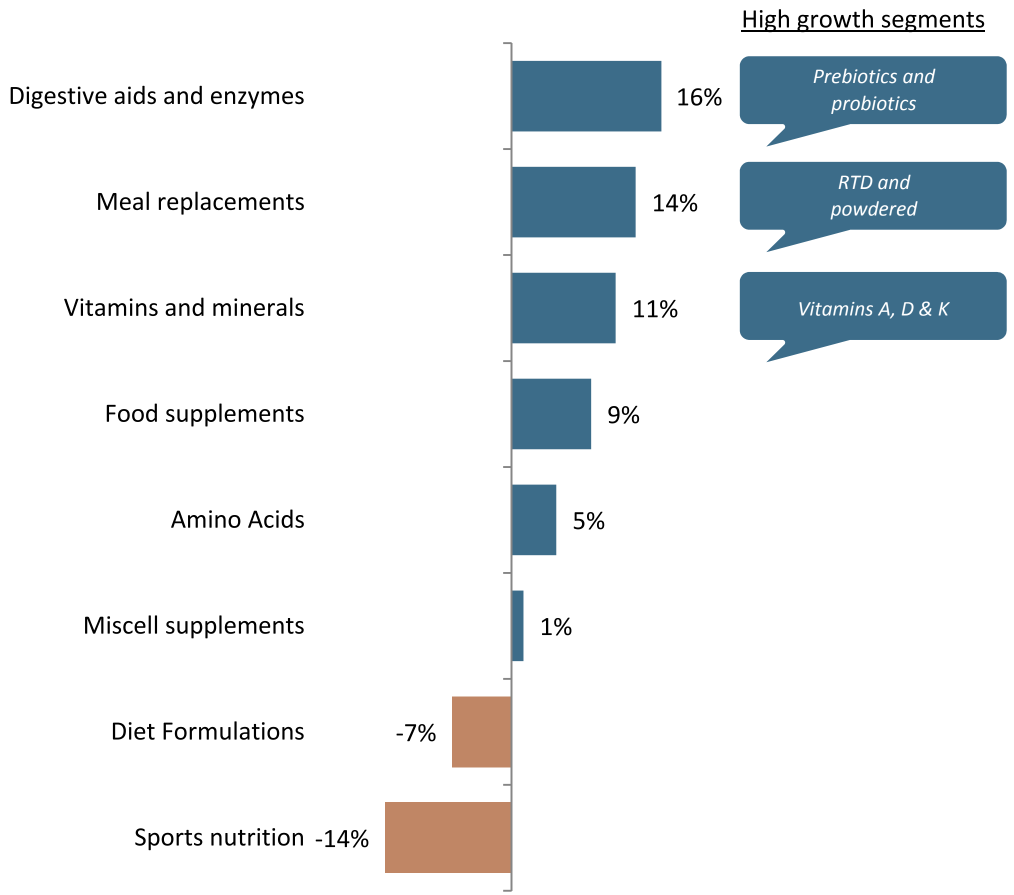
## The USA has grown its nutritional supplements industry to over US$28b

USA Supplements industry sales
*(US$m; 2010)*




Total = US$28.1b

USA Supplements industry sales growth by category in specialist supplement stores
*(US$m; 2009 vs. 2010)*






Source: Nutrition Business Journal; Natural Scantrack published in Naturalfoods merchandiser; Coriolis analysis

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# NEW PRODUCTS

## New products are constantly emerging; sector growth combined with consumer-eagerness for novelty has led to a more crowded field

Examples of select new natural product derivatives launched (or heavily promoted/marketed) in the last five years
*(2006-2011)*

| New products | Health claims |
|---|---|
| Chia seeds | Omega-3 and protein rich |
| Krill oil | Omega-3 |
| Pomegranate oil | General health, skin care |
| Hawaiian coffee cherry | Antioxidant |
| Bilberry | Eyesight, heart disease |
| Lingonberry | Antibacterial, UTI treatment |
| Tamarind extract | Antibacterial, digestive health |
| Goji berry extract | Antioxidant, immune regulation |
| Pumpkin seed oil | Omega-3, prostrate health |
| Cactus fruit extract | Diabetes, hangover, digestion |
| Brown seaweed extract | Weight loss, skin care, cancer |
| Broccoli extract | Cancer, immune enhancement |
| Euphoria fruit (Longan) | Antioxidant, hair loss |
| Cili fruit | Antioxidant, heart disease |
| Yumberry | Antioxidant, eyesight, circulation |
| Sea buckthorn | Skin care, wound healing |
| Dragonfruit | Diabetes, general health |
| Kombucha tea | Cancer recovery, liver detox |

| New products | Health claims |
|---|---|
| Mulberry | Antioxidant, blood pressure |
| Agave | Sugar substitute, prebiotic |
| Sugarbeet fibre | Digestive aid, diabetes |
| Sugarcane fibre | Digestive aid |
| Long pepper extract | Nutrient absorption |
| Grapefruit seed extract | Antibacterial, detoxification |
| Amla (Indian gooseberry) | Antibacterial, diabetes, immune |
| Aronia (chokeberries) | Antioxidant, cancer, immune |
| Camu camu | Antioxidant, mood enhancer |
| Maca | Menopause, virility, energy |
| Noni juice | Antioxidant, cancer |
| Menhaden fish oil | Omega-3 |
| Red yeast rice (fermented) | Heart health |
| Burdock root | Skin conditions, liver detox, cancer |
| Barley grass | Inflammation, cancer, aging, heart |
| Acai | Antioxidant, diabetes |
| Mangosteen | Anti-inflammatory, heart health |



Source: various published articles; Nutraceuticals World magazine; Coriolis analysis

# NEW ZEALAND POSITION

## In this highly competitive, fashion forward environment, New Zealand's current nutraceutical portfolio is starting to show its age

Profile of key New Zealand nutraceuticals
*(#; 2011)*

| Key New Zealand nutraceuticals | Year bioactivity first identified | Where bioactivity first identified | Current market situation |
|---|---|---|---|
| Deer velvet | ? | China | - In decline<br>- Struggling against Viagra |
| Probiotic | ~1935 | Japan | - Mature<br>- Widespread use as ingredient |
| Lactoferrin | 1939/1961 | USA | - Mature; slowing growth; falling prices<br>- All major global dairy coops now produce |
| Colostrum | 70's-80's | Various | - Growth slowing |
| Green Lipped mussel extract | 1980 (?) | Australia | - Mature |
| Manuka Honey | 1988 | New Zealand | - Growth slowing but still strong<br>- Supply constrained |
| Totarol | 1992 | United States | - First identified 1937 in NZ<br>- Stable<br>- No clear consumer cut through<br>- Wide range of competing sources |
| Kiwifruit extract | 2001 (?) | United Kingdom | - Mature to decline (?)<br>- No clear consumer cut through |

What's hot according to Nutraceuticals World
*(1998 vs. 2010)*

| Hot Herbs 1998 | Hot Herbs 2010 |
|---|---|
| - Echinacea<br>- St. John's Wort<br>- Kava kava<br>- Ginkgo biloba<br>- Ginseng<br>- Garlic<br>- Saw palmetto | - Acerola<br>- Maca<br>- Maqui<br>- American ginseng<br>- Camu camu<br>- Noni<br>- Pomegranate<br>- Kombucha |
| - Asian<br>- Traditional herbal remedies | - New & trendy<br>- "Superfruit" |



Source: Nutraceuticals: The Complete Encyclopaedia (Penguin Putnam 2001); Coriolis analysis

# INDUSTRY BIFURCATION

## The traditional nutraceuticals industry appears to be bifurcating (splitting) into fashion nutraceuticals and science based ones

Proposed model of changing nature of nutraceuticals
*(model; 2010)*

**Traditional nutraceuticals**

- Emerges from mainstream traditional sources
- Product taken as a supplement
- Product made from simple extract with vague health benefits
- Health benefits unclear, unproven; no scientific evidence

*For example…*
- *Deer velvet*
- *Ginseng*
- *Liver cleansing*

**Fad or fashion nutraceuticals**

- Appears "on the radar" through marketing efforts of committed individual(s)
- Added to indulgent food as new health promoting or guilt-removing flavour
- Product made from simple extract with vague health benefits
- Health benefits unclear, unproven; no scientific evidence

*For example…*
- *Noni juice*
- *Kombucha tea*

**Science-based nutraceuticals**

- Emerges from scientific research program
- Product administered in most effective form
- Single compound isolated with specific claims
- Compound completes clinical trials and is fully medically certified, used in hospitals

*For example…*
- *Sleep-enhancing peptides derived from milk using DNA-tested cows*



Source: Coriolis

# FAD OR LONG TERM?

## There are strong indicators as to whether a new nutraceutical is a likely to be a fad or a long-term success

Requirements for success in nutraceuticals today
*(model)*

| Indicator | Details | Example |
| --- | --- | --- |
| **Indicators for fad or fashion product (boom and bust cycle)** | | |
| Traditional wisdom | - Product derived from indigenous traditions in far away land | - Açaí berries consumed by traditional peoples of Brazil for centuries |
| Scenic source | - Source of product is sourced from highly scenic, romantic or mysterious source | - Hawaiian coffee cherry (aka. unroasted coffee)<br>- Siberian pineapple (aka sea buckthorn) |
| Unsubstantiated claims | - Unsubstantiated claims product is cure for major heretofore incurable conditions | - Promotional material claiming that Tahitian Noni juice could treat, cure or prevent numerous diseases, including diabetes, clinical depression, haemorrhoids and arthritis |
| Multiple claims | - New product makes wide range of health claims | - Gac fruit promote energy, enhance the immune and liver functions and can be used to treat skin diseases |
| **Indicators of long-term success (not a fad)** | | |
| Immediate effect | - Product provides immediately or rapidly noticeable effect to consumer | - Caffeine in energy drinks<br>- Activa |
| Aligned with pre-existing concepts | - New usage aligned with historic consumer belief system or product association | - Fruit and health<br>- Yoghurt and health |
| Actual functionality | - Product delivers on promised health benefits | - Cranberries and urinary tract health in women |
| Growing scientific support | - Growing body of scientific evidence reinforcing claims<br>- Clinical trials | - Manuka honey and wound healing |



Source: Coriolis

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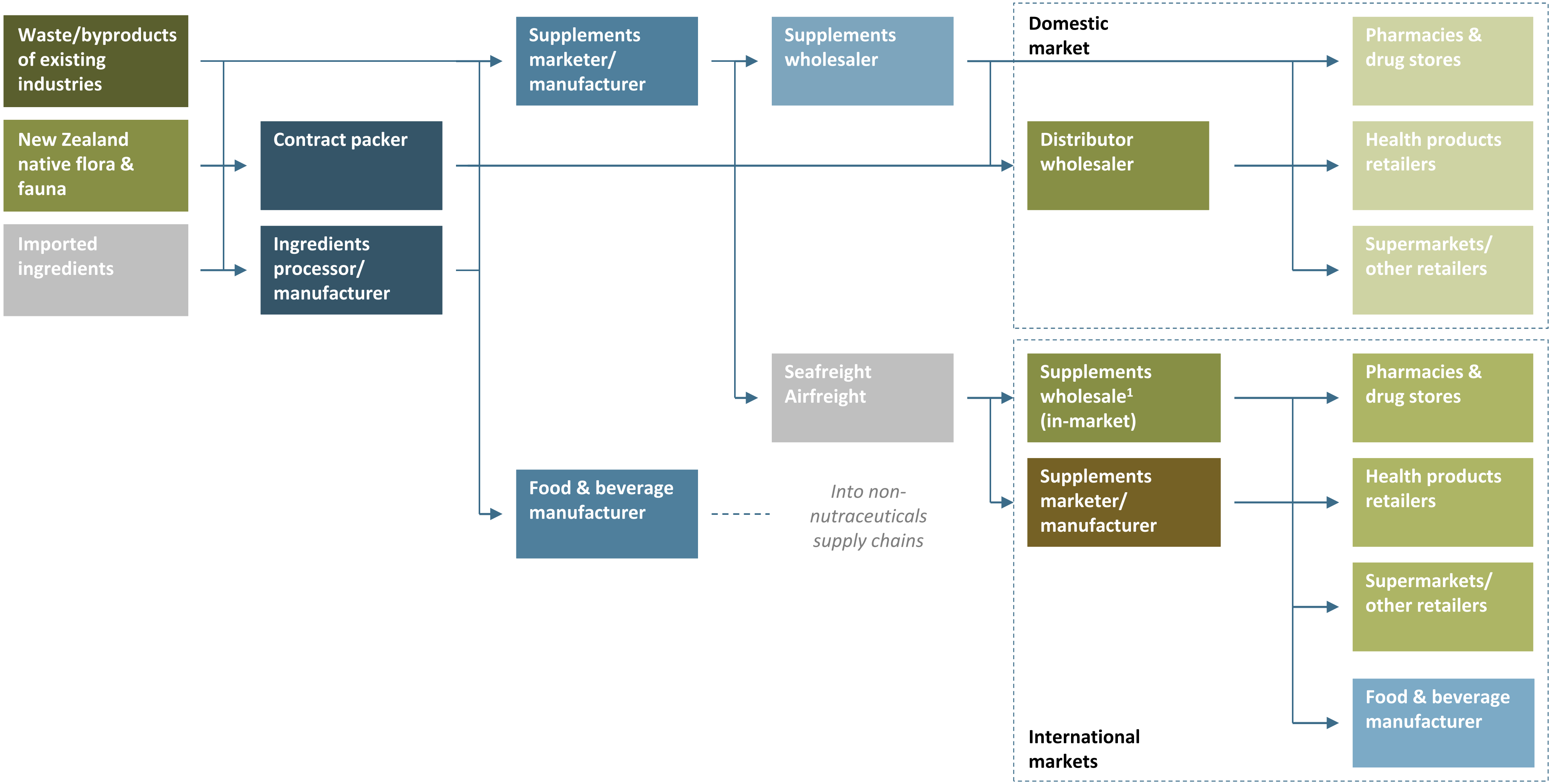
# NUTRACEUTICALS – SUPPLY CHAIN

## The nutraceuticals supply chain is relatively simple for any one product

Simplified model of New Zealand nutraceuticals supply chain
*(model; ANZSIC codes as available))*




1. There may be one or more layers of wholesaling, depending on product or market; some wholesale functions may captive inside retailers; Source: Coriolis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# NZ PORTFOLIO

## New Zealand has a limited portfolio of major nutraceuticals[1]; most are by-products, often extracted from waste streams; while clearly defensible, few nutraceuticals are currently from native New Zealand species

New Zealand nutraceuticals by-products of existing sectors
*(2010)*

| Sector | Product | By-product or waste product |
|---|---|---|
| Dairy | Milk | Lactoferrin |
| | | Colostrum |
| Meat | Venison | Deer velvet |
| Seafood | Green lipped mussel | Green lipped mussel extract |
| | Seafood | Fish oil |
| | Shark | Shark cartilage<br>Shark liver oil |
| Produce | Kiwifruit | Kiwifruit extract |
| | Blackcurrants | Blackcurrant extract |
| Beverages | Wine | Grape seed extract |
| Processed/other | Honey | Bee propolis<br>Bee venom |
| Forestry | Wood | Pine bark extract |

Nutraceuticals derived from NZ native species
*(2010)*

| Species | Product | Origin |
|---|---|---|
| Leptospermum scoparium | Manuka honey | - Tree native to NZ and AU |
| Pseudowintera colorata | Horopito | - Tree native to NZ |
| Perna canaliculus | Green lipped mussel extract | - Shellfish native to NZ |
| Podocarpus totara | Totarol | - Tree native to NZ<br>- Substance now known to occur in range of plants (e.g. rosemary) |

See detailed analysis in Appendix 1 and 2



1. Defined as being exported in any commercial quantity

## PRESENCE IN SELECT RETAILERS

New Zealand products have had limited success in achieving in-market cut through – Manuka honey key standout to date

Treat as directional
Additional Asian retailers[1]

Presence of select nutraceuticals in select international retailers
*(# of items; May 2011)*

| Retail Chain | # of stores | Presence of by-product or waste product [not necessarily from NZ] | | | | | | NZ-unique | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Fish oil (all types) | Black currant | Colostrum | Shark cartilage | Deer velvet | Kiwifruit extract | UMFManuka honey | GL Mussel Extract | Totarol | Horopito |
| priceline | 330 (Australia) | 50 | 8 | - | 2 | - | 5 (all cosmetics) | 1 (in cosmetic cream) | 1 | - | - |
| coles | 742 (Australia) | 45 | 1 | - | - | - | - | 3 (Arataki; Bee Products) | - | - | - |
| Walgreens | 7,600 (USA) | 75 | 1 (seed oil) | 1 | 2 | 1 (as ingredient) | - | -- | 1 | - | - |
| GNC LIVE WELL | 6,000 (USA, other) | 126 | - | 1 | 1 | 2 | - | - | - | - | - |
| Boots | 3,250 (UK, other) | 80 | 17 | - | 1 | - | - | 5 (Comvita; Golden Hills) | 1 | - | - |
| Lloydspharmacy Healthcare for life | 1,600+ (UK) | 72 | 15 | - | - | - | - | 10 (Comvita; Green Bay) | 1 | - | - |
| SHOPPERS DRUG MART | 1,149 (Canada) | 18 | 2 (1 seed oil) | - | 1 | - | - | - | - | - | - |
| mypharmacy | Online only (Singapore) | 6 (Healtheries; other) | - | 1 (Ripple [NZ]) | 1 | - | 1 (as ingredient) | 5 (Comvita; Woodland's) | - | - | - |

*Note: Non NZ-unique mostly do not list source of raw materials; clearly not all NZ sources (particularly fish oil, blackcurrant and shark cartilage)*



1. Due to lack of online pharmacy sites in English (e.g. Watson's HK doesn't sell online); Source: various firm websites; Coriolis analysis

# IDENTIFIED BUSINESS MODELS

## There are three broad business models for firms involved in nutraceuticals and functional foods – marketing, manufacturing and IP

Identified business models in nutraceuticals
*(model)*

| | Marketing focus ❶ | Manufacturing focus ❷ | | IP focus ❸ |
|---|---|---|---|---|
| | Supplements marketer | Contract packer | Ingredients manufacturer | |
| Description | Firm marketing nutraceutical supplements to consumers | Firm processing/packing supplements into a consumer-ready form (capsule, pills, etc.) | Firm refining raw organic material into isolated/ concentrated form | Firm spun-out of government funded research with some level of IP protection |
| Point of leverage / driver of success | - Strong, trusted, historical/heritage brands at retail<br>- Ongoing advertising and promotional spending<br>- Large salesforce able to regularly visit and sell into retail channels (e.g. health stores)<br>- Own manufacturing plant | - Large scale production lines using modern equipment<br>- Efficient manufacturing processes<br>- Large factory throughput | - Per contract packer plus…<br>- Location near raw material supply (if perishable)<br>- Access to raw material (if waste product of existing process)<br>- IP protection around process or product | - Strength of IP protection<br>- Capital to finance clinical trials<br>- Ability to raise capital from government or VC<br>- Ability to sell discovery<br>- Size of health segment |
| Barriers to entry | - Limited shelf space already full of existing brands<br>- Retailers wanting fewer not more brands<br>- Achieving scale to be able to visit individual accounts/stores | - Government regulations<br>- Certification requirements<br>- Capital cost<br>- Existing contracts and relationships | - Limited market size controlling number of refiners possible at scale<br>- Process or product IP<br>- Capital requirement | - IP protection<br>- Difficulty of production or extraction process |
| Winners | - Existing category leader who add new "flavour" to range<br>- Global F&B multi-nationals and leading regional players in category | - If generic, global manufacturer with largest scale in product *(e.g. vitamin c)*<br>- If region-specific, regional refiner/processor with largest scale | - Firms with access to raw materials from existing activity<br>- Firms already refining similar products<br>- Firms with strong IP | - Firms that sell out for a good price |
| Strugglers | - Undercapitalised single-product startups<br>- Me-too late entrants without leverage | | | - Firms without strong IP |



Source: Coriolis

# EVOLUTION OF FIRMS AND BUSINESS MODELS

## Firms in the nutraceuticals space go through common evolutionary pathways

Simplified model of how nutraceutical-focused firms evolve over time
*(model)*

| Stage I | Stage II | Stage III | Stage IV |
|---|---|---|---|
| **1 Marketing focus** | | | |
| - New category of nutraceutical is discovered[1] or comes to light due to research or new waste product becomes available[2]<br>- Passionate individual develops strong belief in product due to personal experience<br>- Startup is formed and develops prototype production equipment<br>- Product is contract packed by others<br>- Firm achieves initial success due to lack of competition and novelty factor | - Category becomes more crowded as new firms enter<br>- New firms use contract packers rather than invest in production capacity<br>- Category growth rate slows as novelty wears off (no longer the "new" thing)<br>- Firms either invest in own production capacity or remain contract packed<br>- Firms often move into alternative marketing and distribution systems (e.g. online, multi-level marketing) | - Large marketers notice category and launch products<br>- Existing players launch new products in new categories to leverage fixed costs<br>- Smaller me-too players struggle and often go out of business<br>- Effectiveness of product is questioned or challenged by further research | - No single product firms remain; surviving startups now broad range marketers<br>- Now just a "flavour" for existing big players<br>- Product has found its level in the market with growth at or below general sector growth |
| **2 Manufacturing focus** | | | |
| - Person with engineering or manufacturing experience identifies specific niche process opportunity<br>- Startup is formed, often using mixture of off-the-shelf and self-designed equipment | - Firm has high capital cost relative to sales<br>- Firm seeks volume by fully leveraging capabilities of process/equipment | - Firm expands into new underserved areas<br>- Hands-on founder ensures production process is innovative and efficient<br>- Full service one-stop-shop product development/packaging design | - Industry consolidation<br>- Firms now large, full range suppliers<br>- Increasing emphasis on R&D<br>- Attempts to develop proprietary ingredients |
| **3 IP focus** | | | |
| - Government funded research leads to new product or process IP<br>- IP is relatively weak (i.e. not a patentable drug/NME[3]) | - Inventor starts firm which may move into government funded incubator<br>- Firm might receive matched government funding for R&D<br>- Firm raises additional outside capital diluting ownership of founder | - Firm launches product containing compound<br>- Firm often poor marketing skills<br>- Success more difficult than anticipated<br>- Firms changes focus to licensing | - Firm either:<br>1. runs out of cash<br>2. is acquired by major player<br>3. metamorphoses into manufacturer or marketer (above) |



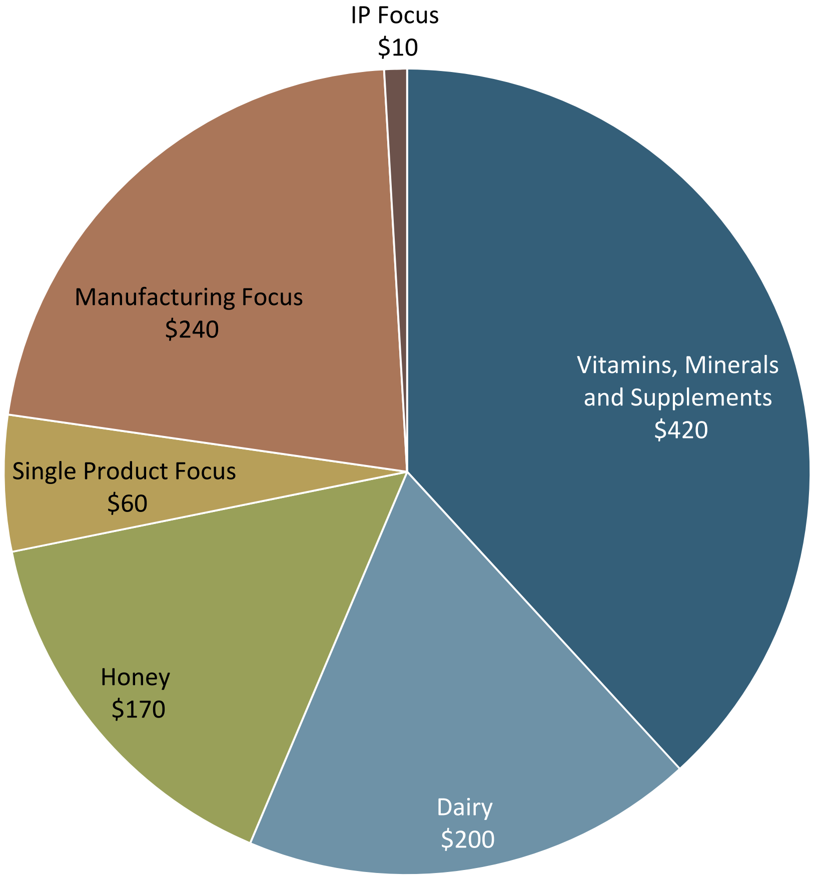
1. "discovered" can mean identified in traditional use in remote area; 2. For example growth of venison and kiwifruit production in New Zealand; 3. New Molecular Entity (aka potential pharmaceutical drug); Source: Coriolis

# NEW ZEALAND – INDUSTRY TURNOVER

## We estimate aggregate turnover of firms in nutraceuticals is ~$1b

CAUTION: turnover here includes significant non-nutraceutical products (e.g. non-UMF honey)
- Includes non-NZ sales on non-NZ products (e.g. Vitaco Australia)

Estimated size of New Zealand nutraceuticals industry
*(NZ$m; 2010)*




TOTAL = $1,100m

Comments/Notes

- As discussed elsewhere, there is no reliable publicly available source of industry size data
- Our analysis is preliminary and should be treated as directional
- This analysis has significant limitations, for example:
  - Honey is currently all honey not just UMF manuka honey
  - Supplements includes vitamins and minerals
  - Dairy is a Coriolis “back of the envelope” estimate subject to revision; excludes Fonterra’s Anlene and Anmum
  - The total is built up from an aggregation of identified firms turnover however most of these turnovers are themselves estimates
  - Most firms use total sales not nutraceutical component of sales

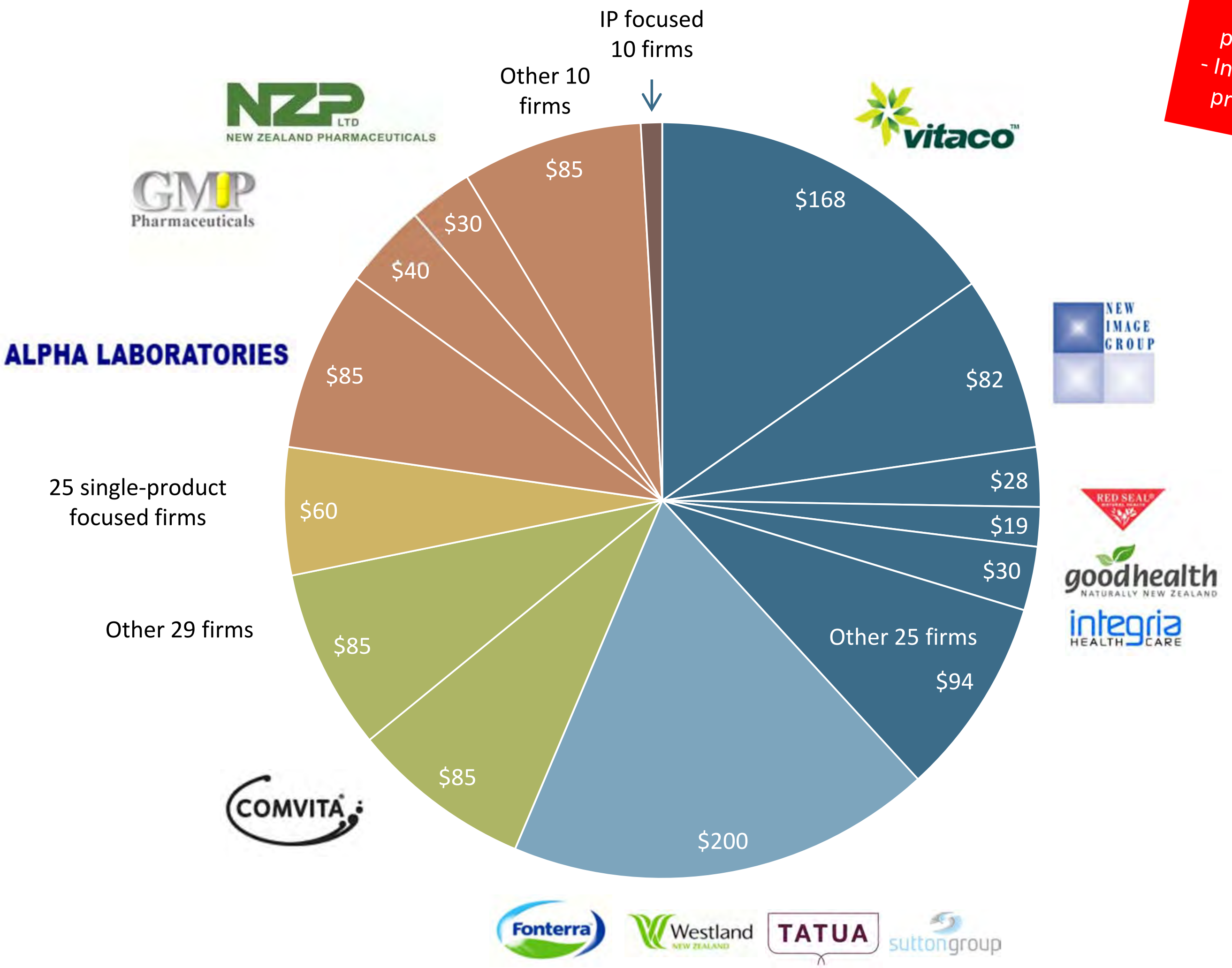


Source: Coriolis

# NEW ZEALAND – INDUSTRY TURNOVER

## Breaking out the key firms from total highlights the relative level of consolidation by sector

Estimated size of New Zealand nutraceuticals industry
*(NZ$m; 2010)*




CAUTION: turnover here includes significant non-nutraceutical products (e.g. non-UMF honey)
- Includes non-NZ sales on non-NZ products (e.g. Vitaco Australia)

TOTAL = $1,100m



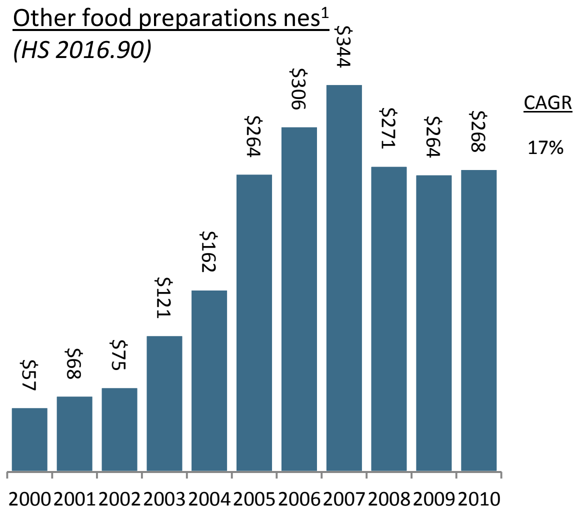
Source: Coriolis (by adding up every company we could find – see elsewhere in document)

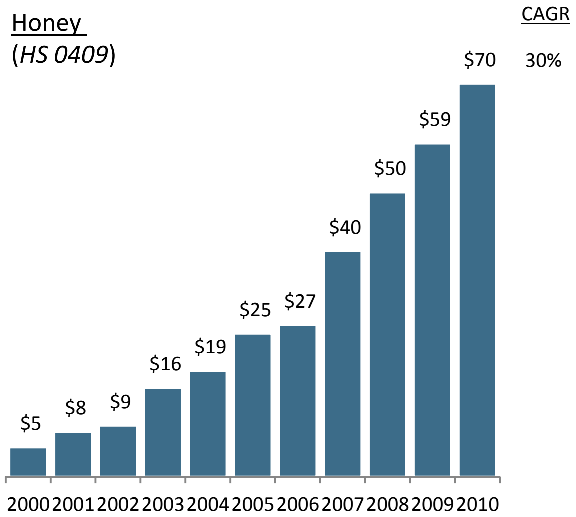
# NUTRACEUTICALS ETC. - EXPORTS BY TYPE

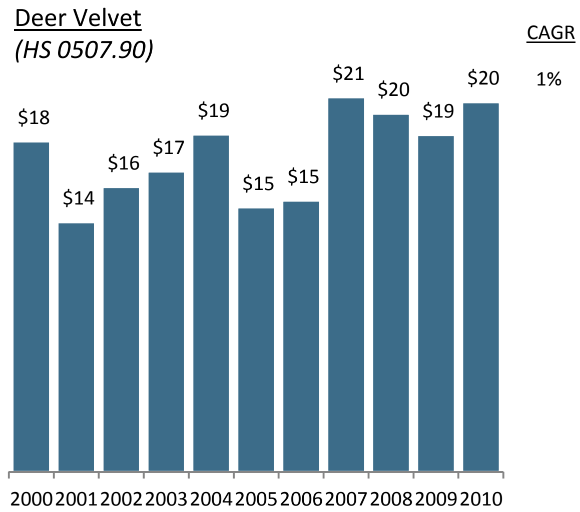
## It is difficult to untangle most nutraceuticals from the trade data; available data shows "other food preparations not elsewhere specified"[1] and honey as the main successes

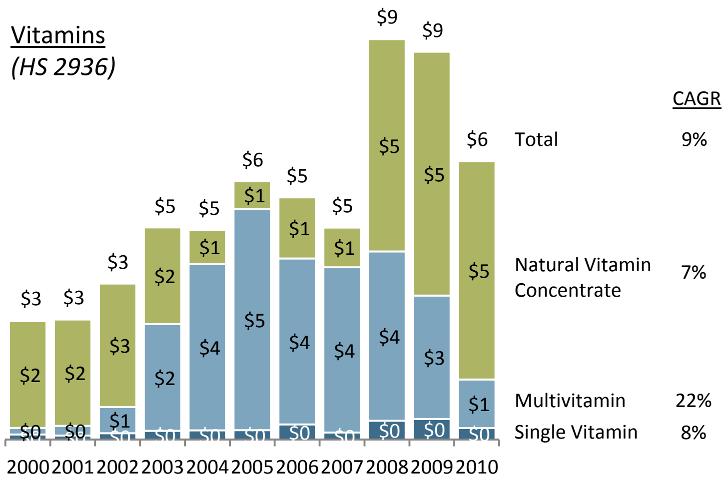
Nutraceutical exports by type
*(US$m; 2000-2010)*

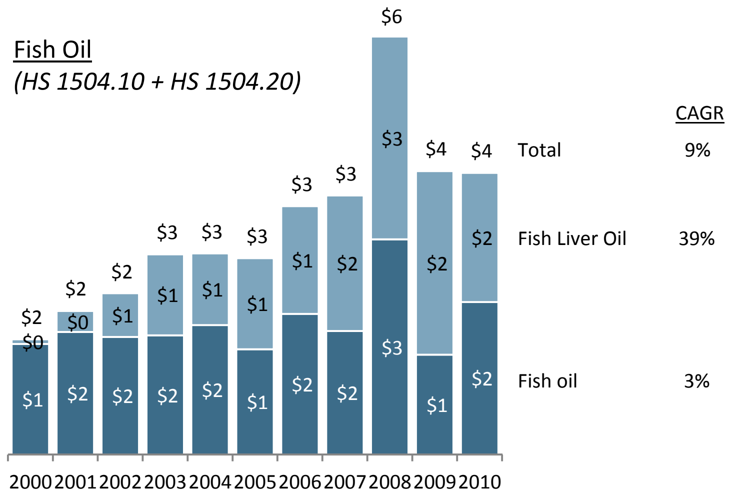
Total = US$369 (2010)





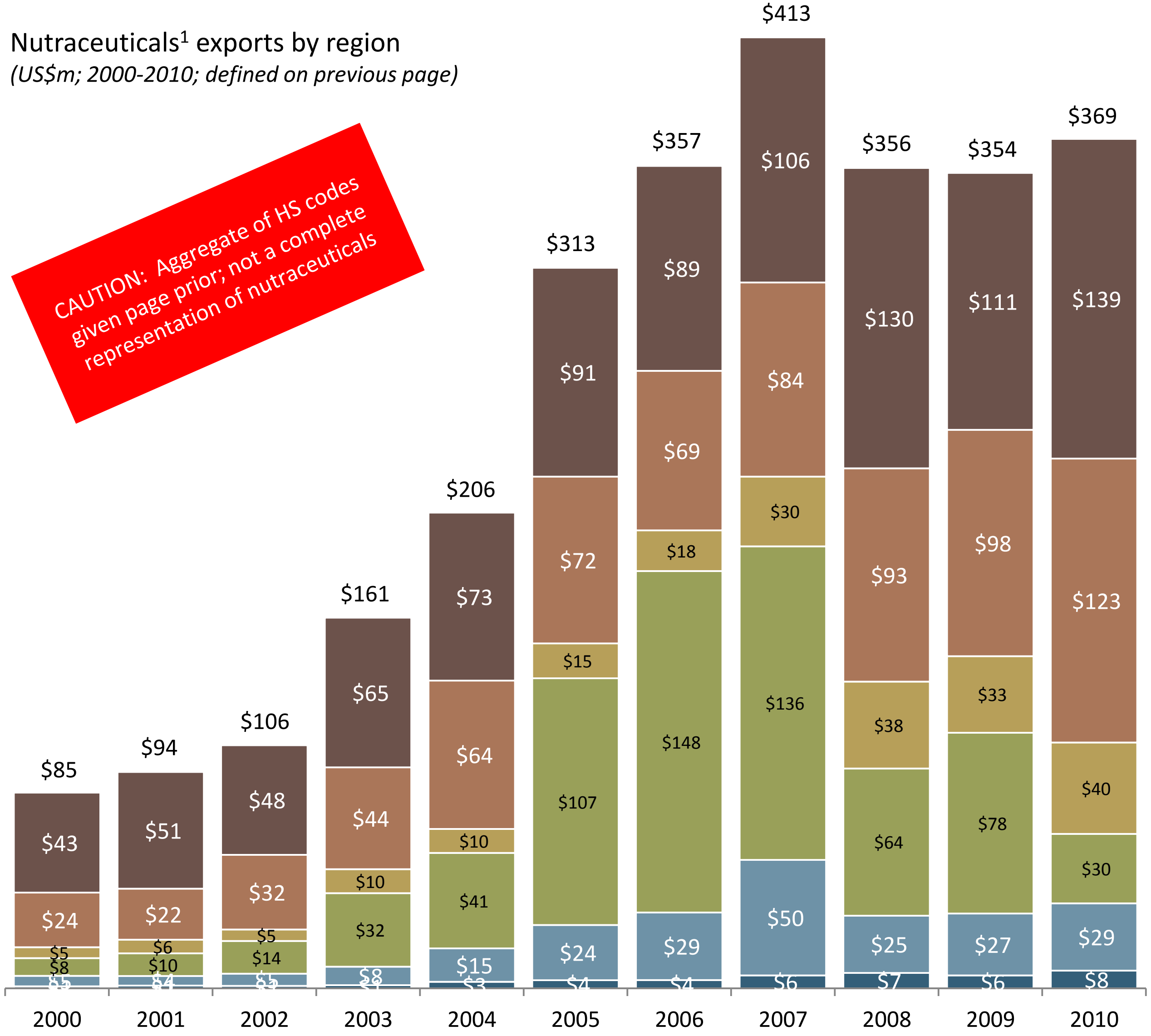

1. From our research we understand this is primarily nutraceuticals however also contains food ingredients and other significant non-nutraceuticals. Source: UN Comtrade database; Coriolis analysis

# NUTRACEUTICALS ETC. - EXPORTS BY REGION

## It is difficult to untangle most nutraceuticals from the trade data; however available data shows all regions are showing good growth except for recently in North America

Nutraceuticals[1] exports by region

*(US$m; 2000-2010; defined on previous page)*




| | 10 Year CAGR | 10 Year Absolute | Last Year CAGR | Last Year Absolute |
|---|---|---|---|---|
| TOTAL | 16% | +$284m | 4% | +$15m |
| E Asia | 12% | +$95m | 24% | +$27m |
| Australia/ Pacific Islands | 18% | +$100m | 25% | +$25m |
| Europe | 24% | +$35m | 19% | +$6m |
| N America | 15% | +$22m | -62% | -$48m |
| SE Asia | 20% | +$25m | 9% | +$2m |
| Other | 24% | +$7m | 37% | +$2m |



1. See chart previous page; Includes: food preparations nec in 22106.90 (substantial non nutraceutical component); Source: UN Comtrade database; Coriolis analysis

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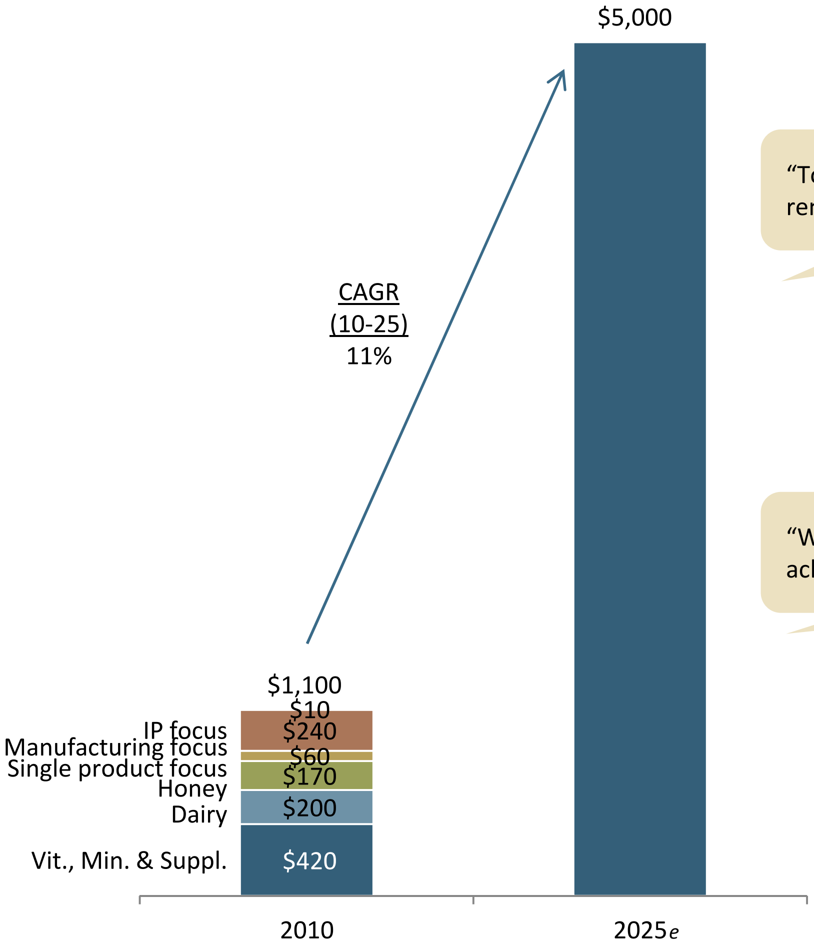
# WHAT IS THE FUTURE OF NUTRACEUTICALS

## Industry body NZ Natural Products has articulated a growth target of $5 billion by 2025; this will require 11% growth year on year

Nutraceuticals industry size
*(NZ$m; 2010 vs. 2025estimate)*




"To achieve this growth… we just need to remove a lot of barriers."

"We really need to focus our efforts to achieve this growth."

Comments/Notes

- Where will growth come from? Ingredients or branded products?
- As discussed elsewhere, there is no reliable publicly available source of industry size data
- Our analysis is preliminary and should be treated as directional
- Industry goal also includes cosmetics (See Appendix)



Source: Coriolis analysis

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## THREE KEY OBSERVATIONS

Interviews with industry participants identified three key themes for driving the growth and development of the New Zealand nutraceuticals sector

| | 1 The Industry must be legitimate and credible | 2 Industry collaboration and consolidation is required | 3 Industry and science must align |
|---|---|---|---|
| Present | - Outdated legislation<br>- Fragmented product level standards<br>- Complex export country requirements | - Highly fragmented<br>- Small under-resourced companies<br>- Unsophisticated businesses | - Limited collaboration<br>- Limited commercialisation success stories<br>- Lack of knowledge of each others business |
| Future | - Clear and directional legislation (e.g. proposed Natural Products Reform Bill)<br>- Individual products aligning standards (e.g. honey industry)<br>- Information provided to assist in interpreting and understanding in-market rules<br>- NZ seen as a legitimate, trusted and safe industry | - Large sophisticated companies<br>- Joint venture marketing and scientific research<br>- Align around unique NZ themes and natural strengths | - Fully Integrated science and industry relationships<br>- Positive relationship fostering new products<br>- Focused on market-driven products<br>- Balanced approach to blue skies and applied research |



Source: Coriolis analysis

# OBSERVATIONS

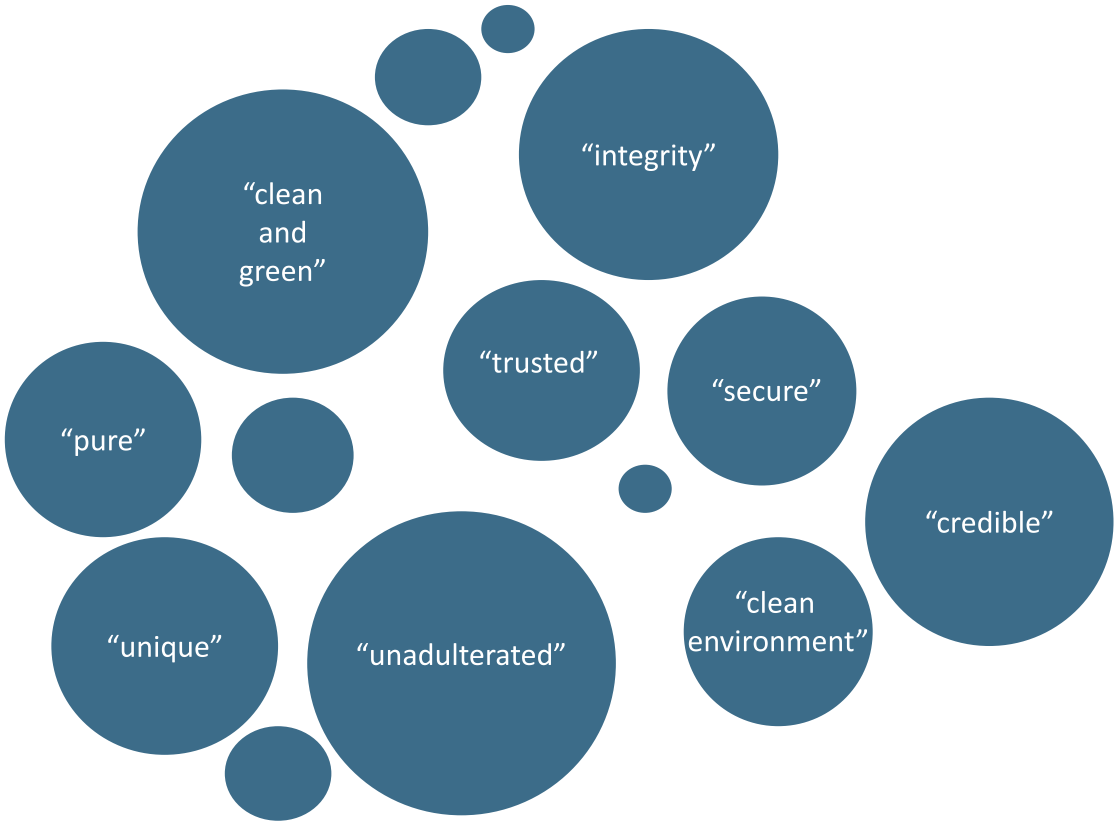
## Observation 1: the industry must become legitimate and credible

| | Observation |
|---|---|
| 1 | Legitimate & credible |
| 2 | Collaborate and consolidate |
| 3 | Industry & science alignment |

## 1 WHAT ARE NATURAL NEW ZEALAND PRODUCTS?

All industry participants spoken with want customers to see them as a legitimate industry with a credible and unique product

Common phrases used by industry participants in interviews
*(2011)*






Source: Interviews

# 1 LEGITIMATE & CREDIBLE

## The NZ industry must exist within a legitimate regulatory environment

- “It is important that we are legitimate. The industry has to be sustainable, traceable, transparent, be conscious of animal welfare etc. We got into trouble with our possum skins being sprayed red in stores, “even eco fur is fur”. With deer velvet, there needs to be animal welfare considerations. With the shark cartilage, it needs to be sustainably harvested.” *Industry representative, NZ, 2011*

- “Australia has the best regulatory environment in the world. New Zealand is about to upgrade its Bill. It’s the wild west in New Zealand, there are softer regulations than in China. You can make tablets in your backyard and get away with it. We need to be replicating Australia's TGA [Therapeutic Goods Administration]. Our manufacturing standards need to be higher. We need credibility and to maintain a reputation internationally as exporters. You get that by having a good regulatory environment.” *CEO, medium manufacturing/marketing company, 2011*

- “You have to step up to the mark or get left behind.” *Industry representative, NZ, 2011*

- “Some people open a company in New Zealand; they put the company address on the label, so its looks like it is made in New Zealand. This is misleading the public. There needs to be government regulation on labeling. You should have to have a manufacturing number and have country of origin on the label. It all hurts New Zealand.” *CEO, Medium-sized, manufacturing company, 2011*

- “There is a lot of snake oil under the dietary supplement regulations.” *Manager, large manufacturing company, 2011*

## 1 LEGITIMATE & CREDIBLE

### Companies feel "Brand New Zealand" is at risk from "dodgy" operators and counterfeiting

- "There is the dodgy colostrum. Companies buy NZ skim and whole milk and use imported colostrum and sell it as "Product of NZ." Who knows where the colostrum is from and what the dairy cows have been eating while they are in the barns? Consumers know NZ dairy products are all free range, pasture fed. That is happening with bee propolis as well." *Managing Director, NZ Company, 2011*

- "How do we sell NZ Inc. if the product is not grown in NZ? Labels shouldn't be saying grown in NZ if its not. That is a risk to NZ Inc." *Industry representative, NZ, 2011*

- "Companies are cutting costs by starting to manufacture in New Zealand, but the factory isn't even stainless steel. What sort of dodgy plant is that?" *Marketing Manager., medium-sized manufacturing company, 2011*

- "Honey companies are bringing in their Royal Jelly from China; colostrum from the US is cheaper than NZ Colostrum, so its brought into NZ. Not sure how that is "made in NZ?" *GM, Medium sized, NZ Company, 2011*

- "Some companies are not sourcing NZ made product. We need to get rid of all the shit players. We have a really big problem of misrepresentation of New Zealand globally and it could really damage us in the next 5-10 years. We might not have an industry*." Marketing Manager., medium-sized manufacturing company, 2011*

- "There is a lot of counterfeiting of New Zealand products, especially in China. This happens with beef, milk, wine, infant formula, a lot of foods. We need to join together to stop counterfeiting. If says it is "made in NZ," it must be. There are only a few factories in New Zealand. We all know what our products look like." *CEO, Medium-sized, manufacturing company, 2011*

- "There are a lot of dubious shelf companies in New Zealand, trading off New Zealand's good name. Its pretty unethical what is going on. Contract packers don't care what they are selling and where it is going. There are a lot of false claims. It will only take one good scare." *CEO, large manufacturing/marketing company, 2011*

## 1 LEGITIMATE & CREDIBLE

The "Natural Health Products Bill" would appear to address many of the concerns of industry

| | Ministry of Health development of the New Zealand Natural Health Products Bill |
|---|---|
| Purpose and Principle | The purpose of the bill is "to provide assurance to consumers that natural health products are safe, true to claim and true to label." |
| Key elements of the proposed scheme are: | - product approval, based on notification of products on a database<br>- recognition of the decisions of trusted overseas regulators, where appropriate<br>- a list of prohibited ingredients<br>- a list of permitted ingredients and a process for adding new ingredients<br>- a list of permitted low-level natural health products claims<br>- labeling requirements<br>- advertising rules<br>- export certification, where it would assist companies to access overseas markets<br>- a tailor-made manufacturing code of practice |
| Next Steps | - Passed its first reading in September 2011 |

USA Activity

Natural Products Foundation, USA, announced an independent initiative that involves random product testing and weeding out misleading advertisements. "We want to make sure everyone plays by the rules." Executive Director, NPD, Aug 2007

US Federal Trade Commission focused in the last few years on the "deceptive" claims of POM Wonderful, Daniel Chapter One, Acai berries, Nestlé's Boost Kid Essentials

EU – 2010 (European Food Safety Authority) manufacturers claims required to be supported by scientific data

## 1 LEGITIMATE & CREDIBLE

### Exporters find international regulations and standards are very difficult to keep up with

- "Its very difficult, there are country to country regulations, they are difficult everywhere.  In places like China the regulations change all the time. Its not clear what the regulations mean, they are not transparent. There could be government assistance to help with this. If they helped out it would benefit many." *CEO, Medium-sized manufacturing company, 2011*

- "Some countries are such a pain to get into. It can take a couple of months to get one product into China, but do it right and you are OK. The corruption is disgraceful." *Marketing Manager., medium-sized manufacturing company, 2011*

- "There are massive regulatory barriers in the sector." *Manager, large manufacturing company, June 2011*

- "No claims get through on the labeling.  An immunity medical claim makes a product pharmaceutical, but immunity can be a therapeutic good… It is easy for a product to overstep the mark with their claims. Sometimes they don't live up to their evidence." *Manager, large manufacturing company, 2011*

- "R&D is a double edged sword. You spend $100,000 to prove something like the efficacy of product but you can't publicise any claims, or you aren't a supplement you are a medicine and you need to register.  In Hong Kong for example they changed their regulations and we had a re-register as a health product not pharmacy.  Its hard to keep up with all the rules." *GM, Medium-sized, NZ Company, 2011*

## The honey industry have been in court over ratings, standards and payments for a number of years

- "Over the past year, the association has spent significant sums of money to employ professional investigators and take action to remove license holders' rights to use the mark if their product was found not to be true to label," *John Rawcliffe, AMAH GM, Dec 2008*
- ”The industry had been stunned by the ending of a 15-year relationship between Professor Peter Molan and the Active Manuka Honey Association which runs the UMF test system he created.” *Kerry Paul, CEO Manuka Health NZ, article, Dec 2008*
- “The industry leaders must think of the collective good. The present situation is not good for anyone and it puts New Zealand's reputation at risk.“ *National MP Paul Hutchison, article, May 2009*
- “[The industry] has got all the potential of being a very large and sustainable industry for New Zealand, reforesting New Zealand and bringing employment to poorer communities. If we could just align our interests and stop the squabbling, everyone could benefit.” *Brett Hewlett, Comvita article, May 2009*
- “The feuding is a financial drain on the association and the companies involved, the biggest risk to the manuka honey industry comes from the amount of dubious manuka honey on the shelves, and a warring industry cannot deal with that.” *article, May 2009*
- “Professor Molan said [by having an independent system] he was acting in the best interests of the industry: "If people are having doubts about the credibility and reliability of what they are being told, they will start to wonder if they can believe anything they have been told about manuka honey. That threat is particularly pointed as the highest value use for manuka honey is in wound dressings, so any taint of scandal could be hugely damaging.” *article, May 2009*
- “The behaviour of the honey industry companies is appauling, it’s a disaster. They need a common standard, they have UMF factor, and MGO rating system who knows what else. They are sending mixed messages. They need to work together and coordinate. Comvita did such a dam good job but fell out with Waikato University. They took them to court and lost. The industry is suffering. Its not until you get out of NZ that you realise how tiny we are and realise that we need to work together. Everyone is really competitive in NZ but our competition should be the world not each other, we are too small.” *CEO, NZ Company, June 2011*
- Comvita and WaikatoLink in the high court over representations of research results involved with isolating and classifying the active compound behind UMF™ Manuka honey (resolved in June 2010) .
- “Honey put such negative media onto themselves, all the infighting and the public spats. They really need to work together. They are not doing themselves any good.” *Industry Representative, June 2011*

# 1 LEGITIMATE & CREDIBLE

## There is call for the existing honey classifications and standards to be aligned; it is currently confusing consumers

> "The honey sector needs to work together, it is a disgrace."
> *CEO, Nutraceutical Company, June 2011*

| Company | Trademark | Example standards | Measures | Notes |
|---|---|---|---|---|
| | MGO™ | Product / Methylglyoxal, mg/kg / Strength<br>MGO™100 Manuka / 100 mg/kg / MINIMUM<br>MGO™250 Manuka / 250 mg/kg<br>MGO™400 Manuka / 400 mg/kg<br>MGO™550 Manuka / 550 mg/kg | methylglyoxal content | Developed in University of Dresden 2007 |
| | UMF® (Active Manuka Honey Association) | 1. COMVITA ACTIVE 5+ MANUKA HONEY 250g (code 110), 500g (code 111), 1kg (code 112)<br>2. COMVITA UMF® 10+ MANUKA HONEY 500g (code 373)<br>3. COMVITA UMF® 15+ MANUKA HONEY 250g (code 555)<br>4. COMVITA UMF® 20+ MANUKA HONEY 250g (code 388) | "Active Unique Manuka Factor" – identify non-peroxide antibacterial activity | 28 NZ licensed users |
| | Molan Gold Standard ™ | Original manuka activity<br>Defensive Antioxidant Capacity (D-AXC™)<br>Pre-emptive Antioxidant Activity (P-AXC™) | antibacterial activity, defensive antioxidant capacity (D-AXC™) and pre-emptive antioxidant capacity (P-AXC™) | Professor Molan – University of Waikato Use Active 10+, 15+ 20+ and 25+ |



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## 1 LEGITIMATE & CREDIBLE

Many players feel that science will legitimise products and aid sales

- "It is important that we have a bias towards clinical based evidence. We can't be competing from the bottom end, we need to be up with the sciences. Pseudo science gets discredited, if something has dodgy efficacy, and will be found out. Clinical trials and real science has validity. We have to differentiate our products with science. Once you have science it is like a barrier to entry for others." *Industry representative, NZ, June 2011*

- "Our main basis is finding scientific foundations. We adopt a scientific approach. Our key development is to come from a natural products perspective using strong technology like combining manuka honey for wound care. There is a big opportunity with professional organisations; hospitals, the retirement sector, burns facilities etc. We use the science capability in NZ and offshore. There are huge opportunities in Medical Foods, cosmeceuticals, ingredients. There is low market awareness of manuka honey, the opportunity is huge. " *MD, Honey Company, June 2011*

- "To win you need science. Five years ago it didn't matter, but now you need science to back you up. You can source your ingredients from a big company that has done the science and use that." *CEO, large manufacturing/marketing company, 2011*

- "Well-researched supplements such as vitamin D, fish oil and omega-3s will continue to post robust sales in the future—a testament to the fact that good science helps drive business." *Council for Responsible Nutrition, USA*

- "Natural medicines have to be evidence based. This is the only way." *CEO, medium manufacturing company, 2011*

## Honey companies are moving into wound care and honey impregnated dressings and bandages

| Company | Brand | Example | Notes |
|---|---|---|---|
| COMVITA | MEDIHONEY |   | 100% Medihoney™ Antibacterial Medical Honey.<br>Medihoney wound dressing registered in USA, FDA in 2007 |
| WATSON & SON | MANUKAMED |   | JV with Links Medical<br>MANUKApli is the sterile wound gel dressing made with Molan Gold Standard of 16. bacteriostatic1, anti-inflammatory1, and antioxidant2,3 healing properties |

"We have the lozenges, and cream which are USDA FDA approved. We have a 50:50 partnership. We own the IP, manufacture and develop and J&J distribute and we collect the royalties. We are also looking at the anti-viral applications of the honey." *Owner, honey company, 2010*

Funding for Manuka Honey R&D "to determine the economics and environmental influence of honey production… how local ecosystems effect yields and activity levels." *Comvita, May 2011*

"You get the big companies to develop the story, the science and trials, they can afford it. Then you champion the hospitals and doctors and build momentum from there." *Business Manager, medium-sized manufacturer, NZ, June 2011*



Source: Company and Association websites

# OBSERVATIONS

## Observation 2: industry collaboration and consolidation are required

| | Observation |
|---|---|
| 1 | Legitimate & credible |
| 2 | Collaborate and consolidate |
| 3 | Industry & science alignment |

## 2 CONSOLIDATION

### Many companies identified scale as one of the biggest issues in the sector

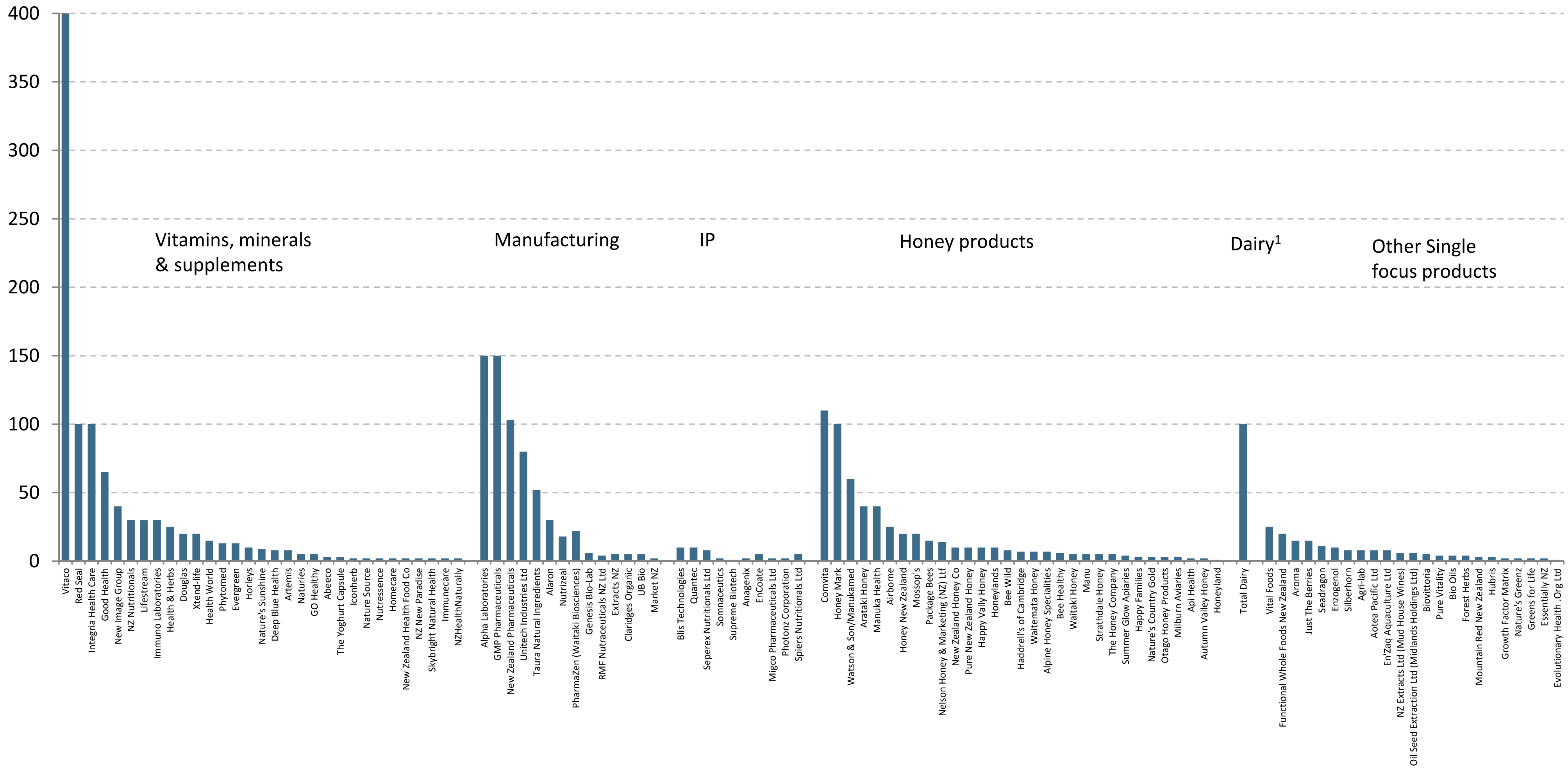
- “Scale is a huge issue in NZ. I would love to see more vertical integration right through from the raw material to the brands.” *Industry representative, NZ*
- “It is very difficult for small NZ nutraceuticals companies to export by themselves, there is so much to know and learn.” *CEO, Medium-sized, manufacturing company*
- “We are not pioneers in R&D anymore. We don’t have big enough companies.  They are all piddly ass players.” *Marketing Manager., medium-sized manufacturing company*
- “You have to have scale and volume to be cost effective in your plant. It is more cost effective to be in NZ than Australia with plants.” *CEO, Medium-sized, manufacturing/marketing company*
- “For little guys they may have a product they think is great, but they cant afford the science, or know how to commercialise it. That’s why it doesn’t get past niche.” *CEO, medium manufacturing/marketing company, June 2011*
- “The life cycle of the product changes, when you are young and a new ingredient you need some claims and you move into the health food stores and health chains, and independents, you need a big sales team and that is hard and expensive. In these channels the consumer needs more advice. As a product becomes more mainstream it can go into a pharmacy or supermarket.  The margins are much better at the health store level but there isn’t enough scale. Look at Australia their natural health market (supplements and vitamins) is $1.4b in NZ its $250m” *CEO, medium manufacturing/marketing company, June 2011*
- “The smaller companies are a pain, they are entrepreneurs who play the market and develop a story with their nutraceutical product and try to get the message out. But the science is really difficult. If there was real science the big companies would be in there.” *Business Manager, medium-sized manufacturer, NZ, June 2011*
- “In our business, we need 40-50 products through different stages of their life cycle. We need to have that critical mass to make money.” *Business Manager, medium-sized manufacturer, NZ, June 2011*
- “With nutraceuticals there is no clear marketing line you can use. People are more used to the pharmaceutical way which is visit doctors, get prescribed an IP protected medicine you can use and get results.  Natural products are more subtle, a bit hippy, you’re not sure it is working, there is no IP therefore there are lots of little companies involved.” *Business Manager, medium-sized manufacturer, NZ, June 2011*

# 2 CONSOLIDATION

## The majority of the identified New Zealand companies are small, there are few companies with any scale

Employee number of identified industry players

*(actual #; most recent year available)*






1. Estimate of total employed in nutraceuticals in the dairy industry

CORIOLIS

## 2 COLLABORATE

### Interviewees identified the need for more collaboration among New Zealand firms

- "It's a real shame that some of the bigger companies like Fonterra, Talleys, Sealord, Sanford, a lot of big players don't nurture smaller companies and assist this off-side industry. They should be building capabilities and knowledge now, understanding the market, develop relationships, potential customers etc. There is low to no support; the industry is barely tolerated. They are 50 years behind the world leaders. It is sad, frustrating and irresponsible." *CEO, medium-sized manufacturing company, 2011*

- "…In NZ we tend to think that the company down the road is competition, they don't want to share anything, but if they understood each others business and started with low risk arrangements like supply chain then move into more high risk ventures it could work. They slag each other but if smart enough they would work together. In the US a company will take 5% in NZ they want 50% ownership." *Industry representative, NZ*

- "The economic argument for the sector is not always clear. It is difficult to get shelf space, there is a lot of competition, there are some big names in the area. We have some smart companies like Vitaco and Comvita, they raise the sector. Can others leverage off their brands? Maybe we need to stop creating new brands and start leveraging the ones we already have. Why not work together more." *Industry representative, NZ*

- "There is a mentality in NZ, it is a protective attitude. They want to do it all, or not at all. The seafood sector won't work together. They should work together and share profits, it would make such a big difference. Seafood research is different from their core business. They are commodity players, to pull out tonnes of fish and put a few aside for us is too hard, why bother." *Scientist, NZ*

- "We can work as a team with in-market sales. We can get really good people in market who are product specialists supporting a few companies. It's expensive but effective." *Scientist, NZ*

- "We give companies the potential to export into China. They use our system to distribute and access China from NZ. It is a challenge for a small company to get into China, there are lot of bottle necks. We have opened stores in China to sell NZ and Australia products." *CEO, medium-sized manufacturing Company*

- "We could work with others, we could do the smaller runs and Fonterra could do the large runs. They don't want to bother with small jobs. I think there is a real opportunity there." *Business Manager, medium-sized manufacturer, NZ, June 2011*

## 2 CONSOLIDATION

### There are a wide range of points in the supply chain that would benefit from increased economies of scale, either through collaboration or consolidation

Key areas of supply chain for driving economies of scale in nutraceuticals sector
*(model)*

| Research & Development | Production | Sales | Marketing |
|---|---|---|---|
| - Proprietary clinical research<br>- Captive research centres | - Utilisation of plant capacity<br>- Technology for standardised dosages<br>- Truckload/ pallet /container shipping volume | - Sales coverage over multiple channels<br>- Sophisticated category management programs (retail) | - Large brand umbrellas<br>- Brand building programs<br>- Understanding and exploiting consumer segments and conditions |

GMP is providing a portal and common platform to sell NZ and Australian products into China. “New Zealand small and medium businesses can not handle themselves in China. There is a huge bottle neck. There is a huge opportunity in China. ”

# 2 NUTRACEUTICALS – TRANSACTIONS

## There have been a handful of identified transactions in the nutraceuticals sector in New Zealand

Recent major nutraceutical industry transactions
*(2006-2011)*

| Date | Acquirer | Target | Price | Details |
|---|---|---|---|---|
| 2011 | Comvita | Kiwi Extracts (Extracts NZ) | N/A | - Acquired remaining 67% share of business to secure propolis supply chain |
| Apr 2011 | Tate & Lyle | BioVittoria | | - Agreement for global distribution and sales ; market under T&L "Purefruit" brand. 12% stake |
| Feb 2011 | "A major British listed firm" | omega-3 fish oil intellectual property and processing technology from Speirs Nutritionals Partners | N/A | - Selling omega-3 fish oil intellectual property and processing technology<br>- Speirs Nutritionals has rights to commercialise technology developed by the Riddet Institute, based at Massey University, that allows omega-3 oils to be included in normal food items with no impact on taste or smell |
| Dec 2010 | New Image | Somnaceutics Ltd | N/A | - Includes Somnaceutics' patents and intellectual property on Sleeptime, a natural sleep-enhancing milk product developed in New Zealand by scientist Professor Bob Elliott |
| Oct 2010 | New Image | 50.01% of Living Nature | N/A | - Living Nature is based in Kerikeri and is the manufacturer of natural skin care products for over two decades<br>- The firm uses a range of ingredients it calls Living Nature that simply refers to rare New Zealand bio-active ingredients that are attractive to international clients. |
| Jan 2010 | Westland Milk Products | Remaining EasiYo shares to 100% | N/A | - Westland Milk Products acquires the remaining shares of EasiYo, taking ownership to 100% |
| Dec 2008 | Danisco | 17% of GraceLinc from Plant & Food Research | N/A | - Danish bio-based company acquires 17% share in Plant & Food spinoff GraceLinc, set up to commercialise Glucagel a soluble dietary fibre that "has potential health benefits, particularly for cardiovascular health, digestive health and glucose and weight management"<br>- No longer in business |
| June 2008 | Douglas Pharmaceuticals | Clinicians | N/A | - NZ's largest pharmaceutical firm acquired second tier supplements marketer/manufacturer with Clinicians brand |
| Apr 2008 | Todd Capital / Todd Corporation | Thompsons from Sanderson family | N/A | - Acquired Thompson Group vitamins and supplements business;<br>- Changed name to Integra Healthcare |
| Sep 2006 | Etika International | Naturalac Nutrition (Horley's) from Fonterra | NZ$7.8m | - Branded sports nutrition and weight management products that trades under the Horleys brand name<br>- Acquirer is Malaysian/Singapore listed dairy/F&B firm with origin in Malaysian condensed milk business |
| Dec 2006 | Next Capital | NZ Nutra-Life | N/A | - Roll-up of two smaller firms into larger firm; renamed Vitaco<br>- Consists of Nutra-Life Health & Fitness, Nutra-Life NZ Ltd and Health international<br>- Manufactures supplements and health foods with strong brands such as Nutra-Life, Kordels, Balance, Wagner and Trilogy<br>- Nutra-Life shareholder Mike Thompson becomes 20% shareholder in new combined entity |
| Oct 2006 | Next Capital | Healtheries from Gary Lane | A$21m | - Established in New Zealand in 1904 - Now part of Vitaco<br>- Originally a speciality flour miller the company has grown into a market leader in supplements, functional beverages and healthy foods; Exports its products to more than 20 countries including AU, UK and Singapore |

# OBSERVATIONS

## Observation 3: the science agenda needs to be better aligned with the needs of industry

| | Observation |
|---|---|
| 1 | Legitimate & credible |
| 2 | Collaborate and consolidate |
| 3 | Industry & science alignment |

## 3 ALIGN

### Science is important but expensive

- "In the USA and getting to stage 3 clinical trials takes 4 years and costs under $5m this is a lot less than the 12 years and $1.2b it takes for a pharmaceutical product. If you have the evidence you can sell your product with medical claims. Obviously this takes investment." *CEO, medium sized manufacturing company, 2011*

- "Research is expensive and we need lots more money for research. I have been well supported but we need more people working in the area in general. In the EU they have lots of people working in the seafood nutraceuticals research space with a lot of funding." *Scientist, NZ, June 2011*

- "Research is expensive, that's why it is limited in New Zealand, a lack of funds. But we need so much more funding for research." *GM, Nutraceuticals company, June 2011*

- "We don't do any science, we cant afford it. We leave it up to the customer to do that; the Nestles of this world. They know the science so much better. Companies like Nestle and Kraft are out there with research budgets bigger than all our countries. " *Business Manager, medium-sized manufacturer, NZ, June 2011*

- "The industry is hard. You can't just keep feeding the machine." *Industry Executive, June 2011*

- "There was an extract that was shown to remove headaches, but when they realised they would need $10m for R&D it just wasn't going to happen." *CEO, medium sized manufacturing company, 2011*

3

## ALIGN

### To develop, the industry needs assistance, but this needs to be directed effectively

- "Every time there is a grant, people are scrambling to get the money. Scrambling to get more money flushed down the toilet." *Manager, large manufacturing company, June 2011*

- "The sector is very difficult with limited potential. Its gone on for too long. The CRI's think it's the holy grail, but it's incredibly difficult. Its gone on for 10 years, "we are going to do this," "we are going to do that" but success is really hard. There are massive regulatory barriers. You need to be a pharmaceutical company to succeed in this sector, but we can't invest like them. They have billions of dollars, very strong IP, a huge marketing arm. It's a much easier option to make a pseudo-claim and make snake oil at the end of the day." *Manager, large manufacturing company, June 2011*

- "There are lots of really big companies that have billions to invest in science. If you go too far down the science line you need to do more than just prove efficacy and that gets really expensive. You start being a pharmaceutical company and you need big dollars for that" *Manager, large manufacturing/marketing company*

- "They have the new voucher system now, its very unfocussed. Sitting down with government is very frustrating, the departments change the staff change, they have high ideals but have no idea how to get there, or how long it takes." *CEO, small manufacturing company, 2011*

## 3 ALIGN

### Industry is interested in products with real commercial potential

- "New Zealand science has to seriously look at the route to market. If there is already a product, it is OK. There is no opportunity to develop a brand from discovery. It's a needle in a haystack. Even if you do have an ingredient, by the time it gets to the end product at retail, it is a miniscule part of the final value. Therefore the product has to get into the mainstream to make enough money. Will that happen?" *Manager, large manufacturing company, June 2011*

- "Yes, we want science, but we aren't going to pay for it. We aren't speculative. The VC funds can do that. If it is proven already, the companies can come to us and we will sell it." *CEO, medium manufacturing/marketing company, June 2011*

- "Lots of things are being done in Universities, but how saleable and commercial is it? I'm not sure. Its hard work to get things out of there. They hold on for patents too long. They don't manage staff well. They say things in public they shouldn't. They don't have a person who can see value and opportunities. They aren't exposed to enough business or processes. They either overvalue or undervalue. If they over value it, they over invest and kill it." *Industry Executive, 2011*

## There was a widespread perception that industry and science do not currently understand each others businesses well

- "We sometimes partner with the CRI's, but it never comes to anything. There has never been a product that has come out of it." *Manager, Large, manufacturing/marketing Company*

- "We work with AgResearch a bit, but it's difficult to get a product that turns into something commercial. Its hard to get all the ducks in a row: science, processing, IP, sales. You need basic science and people who are keeping up to date with what is happening in the industry. But we don't expect to get anything out of it. They have to have a business contact. They were researching lactoferrin and purifying it, but so purified it was too expensive and it wasn't linked to commercial reality. They are really just intrigued by the science and documenting it. They now have to generate revenue and they don't like that. I think a lot of scientists think that commerce is dirty. We need middle ground." *Business Manager, medium-sized manufacturer, NZ, June 2011*

- "There is a huge mismatch between commercial reality and science. It is science for science sake. They don't think about the regulatory barriers, about what you can and can't say, and the cost of taking the product to market (if it gets that far). The science must be directed from a commercial basis, from what will work and what is being demanded. Whole foods and functional foods are much more likely to succeed." *Manager, large manufacturing company, June 2011*

- "The challenge with science in New Zealand if they look for efficacy, then talk to someone about commercialising the product. It needs to be targeted. It has to be a product that is in demand." *CEO, medium manufacturing/marketing company, June 2011*

- "We have some great scientists in New Zealand but they have to focus on the right products. They must be solution focused not product focused. Otherwise it's a complete waste of time." *CEO, medium manufacturing company, 2011*

- "We have science, but it works in isolation. They don't know how to commercialise and its not targeted to consumer demand." *CEO, large manufacturing/marketing company*

## 3 ALIGN

### Many industry players feel that science in the industry can work together more collectively

- "We need collective wisdom. The industry needs to get together and agree on a direction, a science focused direction. Get investment funds and funds like TechNZ, then bring in groups like IRL, Plant and Food, Trinity, the Universities to do the research. Groups like NZFSA also need to be on board so the regulatory environment is in tune with the sector. They can help the companies get certified and credible. Like with the honey get great evidence to show manuka's virtues. We need to identify the genuinely powerful products. Then collaborate in product development and marketing. Government should encourage collaboration... *Industry representative, NZ*

- "We are not in the market, there is no link between us, the other scientists, and what is happening in the real world. If you were in an EU business park you would trot down the road and meet the manufacturers dealing with the products. In NZ we are too isolated. The missing bit is marketing and strong market information and signals. What they want, who wants it. The chain falls apart. There needs to be a strong link between raw materials, processing, science, product and the market end-user. Nutraceuticals companies don't have time or can afford to look for things I have made. There needs to be a coordinating body like the Dairy Board used to be; they co-ordinate marketing, business development, link people etc. It could be funded by an industry levy. This would help everyone make good decisions. NZ is so small the world is so big, we need to work as a team." *Scientist, NZ*

- "We can have a great product, with great science, but there is no vehicle to commercialise and it turns into a disaster. Science sometimes doesn't listen. Need to come to an agreement based on the consumer need, if there is no need the product will get passed over."

- "Set up a Food Innovation institute at Massey, amongst the University, CRI's Fonterra etc. R&D Centres always lose money unless they are tied to a University. They tend to be the major user. It takes $5-$10m to get running. Business will then support it, if its getting value. There should be only one, not a lot of them spread all around the place. We need to focus." *Industry Executive, 2011*

## 3 ALIGN

### The sector must align under what the market is demanding

The ailment must drive decision making

- “All decisions must be market led, or it’s a complete waste. In New Zealand we are too focused on products and our raw materials and not enough on the ailments. We should be looking at Calcium deficiency and then finding the product that suits.” *CEO, medium-sized manufacturing company, 2011*

- “We have to be providing the products that the consumers want.” *CEO, large manufacturing company, 2011*

- “It is vital that all products that are researched are being demanded by consumers. We need to focus on the areas of greatest demand.” *CEO, large marketing company, 2011*

# Realising the commercial potential from research is paramount

FRST Select project examples "Diet, Health and Nutrition" related
*(NZ$m; 2005/06-2010/11)*

| Industry | Funding (NZ$m) | Example projects |
|---|---|---|
| Crop & Food | $17.1 | - Lifestyle Foods for Energy Balance : The Carbohydrate Story |
| Plant and Food | $17.1 | - Lifestyle Foods for Appetite Control |
| HortResearch | $11.1 | - Wellness Foods |
| AgResearch | $10.5 | - Innate defense molecules in cows' milk |
| ViaLactia BioSciences | $8.9 | - Developing new foods and ingredients for the health and wellness market |
| AgResearch | $8.2 | - Premium export and higher margin dairy-based food solutions for improved intestinal barrier function in infants and the aged |
| HortResearch | $6.6 | - New Healthy and Flavoursome Berries and Products |
| HortResearch | $5.6 | - Fresh and Processed Berryfruit Products to Enhance Gut Health |
| Crop & Food | $5.2 | - New health market opportunities from understanding and exploiting food-microbe-host interactions underpinning the healthy human bowel |
| Massey University | $4.0 | - Future foods - a new capability for New Zealand's leading industry |
| NIWA | $3.4 | - Te Whatukura a Takaroa: Nutraceuticals from Seafood |
| AgResearch | $3.3 | - Premium export milk-based foods for prevention of allergy in infants and young children |
| Fonterra | $3.3 | - Probiotics for novel dairy bioactives |
| Plant and Food | $2.9 | - Fruit-derived compounds and technologies to alleviate inappropriate inflammation |



Note: MSI prior to 2011 funded via Foundation for Research, Science and Technology (FRST), Includes Public good funding in food sector; Excludes funding via TechNZ Source: MSI; Coriolis analysis

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CORIOLIS

# EXAMPLES – FOODS WITH HEALTH CLAIMS

## When developing an association in consumers minds with health claims, it helps to have a large well financed organisation behind you

Examples of firms investing in the development of foods with health benefits
*(various)*

| Product | Situation/Issues | Solution |
|---|---|---|
| Heinz Ketchup | - In 1981 Regan administration proposes classifying ketchup as a vegetable to save money in school lunch programs<br>- Salsa outsells ketchup in US market (80's) | - HJ Heinz, Hunt Wesson (US #2 ketchup) and Campbell's Soup (tomato soup) form the Tomato Research Council (TRC) to educate industry and consumers on the health benefits of tomatoes<br>- TRC does not directly fund lycopene research but companies involved do<br>- TRC appoints Scientific Advisory Panel to contribute to credibility of program<br>- 1997 the TRC and the American Health Foundation sponsor international symposium on the role of lycopene and tomato products in disease prevention<br>- Heinz runs ads "Lycopene may help reduce the risk of prostate cancer and cervical cancer"<br>- Ketchup and tomatoes become associated with health benefits of lycopene |
| Ocean Spray Cranberry juice | - Product is quasi-monopoly producer by highly profitable grower coop (formed 1930)<br>- 1959 cranberry health scare causes price crash<br>- Cranberry juice sales flatten<br>- Cranberry juice primarily sugar not juice | - Ocean Spray funds research into health properties of cranberry juice<br>- Ocean Spray funded research shows cranberries "interfered with the presence of bacteria in the urinary tract" and other health benefits<br>- Cranberries become associated with proanthocyanidins health properties, particularly in relation to urinary tract infections |
| Sunkist Oranges | - Citrus seen as a luxury<br>- Depression causes orange prices to fall under cost of production | - 1907 Firm conducts first ever consumer advertising for a perishable fruit<br>- 1917 Scurvy outbreaks during WWI lead to further research and preliminary identification of vitamin c<br>- 1922 Sunkist – a grower owned coop representing 80% of Western US growers - runs first campaign associating oranges with newly discovered vitamin c (headline: "140,000 doctors would agree")<br>- 1932 Relationship between vitamin C and anti-scorbutic factor is discovered; other research linking vitamin C with health benefits follows<br>- Sunkist (and others) heavily promoting oranges as high in vitamin C<br>- Oranges become associated with vitamin C; consumption grows |



Source: Coriolis from various published sources

## FINANCING IMPORTANT

### It is recognised that investment required for product development and marketing is enormous

- "With Danone's brands Actimel and Activa it took 10-15 years to really take off. There was so much investment and marketing. It wasn't the science that took the time, it was the marketing. It takes 5-6 years to break even in a new country… The brand is so much more than the science. You need to understand the market and the consumers." *Industry Executive, 2011*

- "When selling dairy products into Asia it is all functional. We need so much investment for sales and marketing. We need to sell the health benefit." *Manager, Dairy company, large, 2011*

- "The amount of investment required to really research something new is massive. Weight satiety has potential. Building a brand and finding a product that will appeal to consumers will be huge." *Manager, Dairy company, large, 2011*

# WHAT ARE "FUNCTIONAL" FOODS

## Functional foods exist in a spectrum of health-related foods; as discussed earlier, we define functional foods as food to which health-related nutraceuticals have been added[1]

EXAMPLES: Selection of health-related foods for sale in Sainsbury in the United Kingdom
*(2011)*

Nutritious foods → Foods with strong health-related links → Free-from foods → Functional foods




1. As discussed elsewhere, this eliminated "energy drinks" and other caffeine delivery products; Source: Sainsburys online (UK) [fair use]; Coriolis

# EXAMPLES – FUNCTIONAL FOODS

## The are number of milestone “functional” foods in the history of the concept

Examples of major historical milestones in the development of the functional foods and beverages sector
*(1886-2010)*

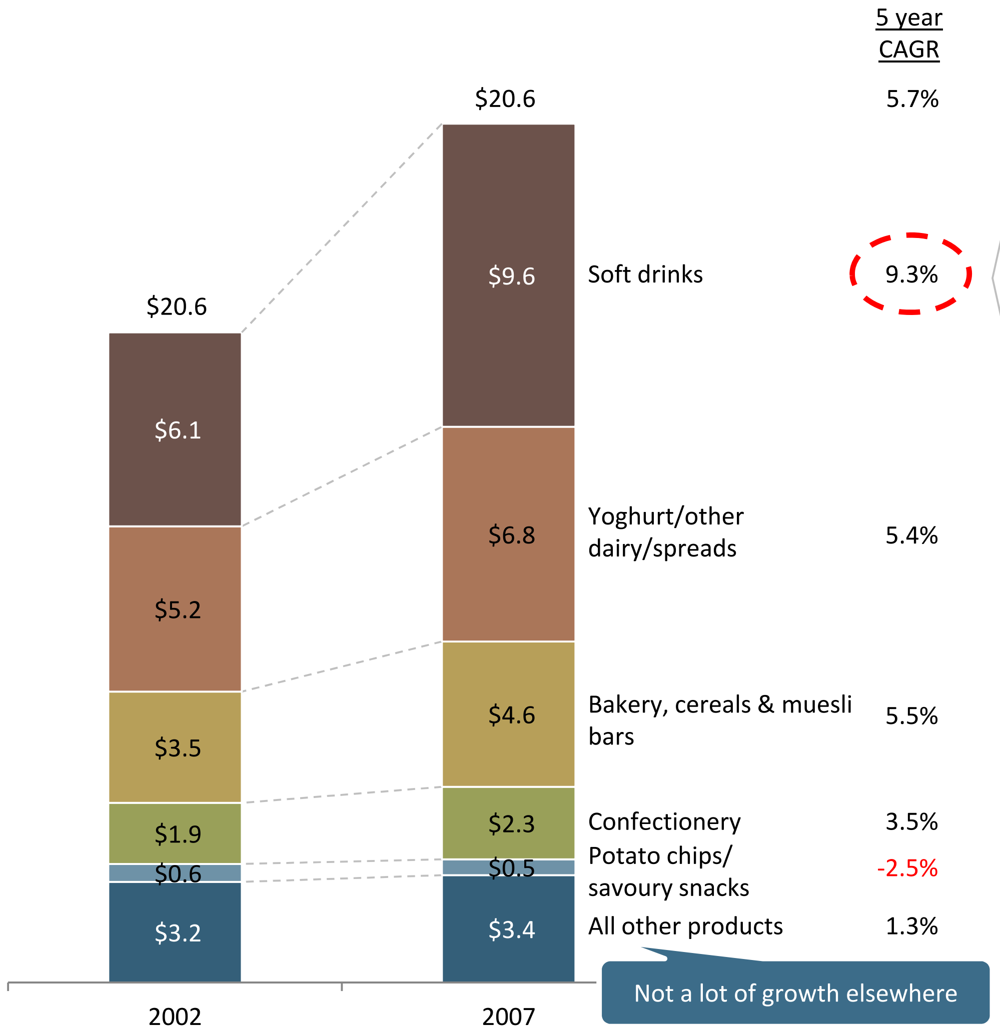
| Year | Country | Company | Product | What? | What was added? | Comments/notes |
|---|---|---|---|---|---|---|
| 1886 | United States | Eagle Drug and Chemical Company | Coca-Cola | Soft Drink | Coca leaf (cocaine)<br>Kola nuts (caffeine)<br>Cochineal dye[1] | - In response to alcohol prohibition in region<br>- Also vanilla, cinnamon, lime extract, nutmeg, etc. |
| 1924 | United States | Morton Salt Co. | Morton’s Salt | Salt | Iodine | - To prevent goiter |
| 1935 | Japan | Yakult Honsha | Yakult | Drinking yoghurt | Lactobacillus casei | - To promote gut health<br>- Firm now a US$3.2b dairy company |
| 1943 | United States | U.S. Government | All bread | Bread | Nicotinic acid (niacin) | - Vitamin B3 into all bread on government orders during wartime; rebranded due to tobacco link |
| 1987 | Austria | Red Bull GmbH | Red Bull | Soft drink | Taurine<br>Glucuronolactone<br>Caffeine<br>B vitamins | - Westernised version of Thai energy drink, which was itself derived from Japanese Lipovitan (1962) |
| 1988 | Japan | Otsuka Pharmaceuticals | Fibe Mini | Soft drink | Dietary fibre | - World’s “first” functional food |
| 1994 | France | Danone | Actimel | Drinking yoghurt | Lactobacillus casei | - Launched in response to arrival of Yakult in Europe<br>- €1.4b in sales (06) |
| 1995 | Finland | Raiso | Benecol | Margarine | Plant sterol esters | - Reduce cholesterol<br>- Following study published in NEJOM[2] |
| 1998 | U.K. | Dean Farms | Columbus Healthier Eggs | Eggs | Omega-3 fatty acids | - Birds feed itself modified to be rich in Omega-3 |
| 2010 | United States | ResVes Inc. | WineTime | Chocolate bar | Resveratrol | - As much resveratrol in one bar as you would find in 50 glasses of red wine |

1. From Cochineal insect; 2. New England Journal of Medicine; Source: Coriolis from various published sources

## INDUSTRY GROWTH IN US MARKET

Taking the US market as an example, we find functional foods are large and growing; however growth is concentrated in a handful of categories; many of which are regarded as "junk food"

Inflation-adjusted retail sales of functional foods to consumers in the US by category
*(US$b; 2002 vs. 2007)*




We hypothesise that functional claims act as a guilt remover for the consumer

- This is primarily "energy drinks" such as Red Bull
- We do not classify these as "functional foods" in our research as they are neither healthy nor any more or less functional than Coca-Cola

- This is primarily probiotic yoghurts and drinking yoghurt shots

- This is primarily muesli bars and cereal with added functional ingredients

- Note that the "functional" concept is not making any traction in aggregate across all other products sold in a supermarket



Source: PWC "Leveraging Growth in the emerging functional foods industry"; US Bureau of Labour Statistics (CPI F&B inflation); Coriolis analysis

## WHO WINS?

### Again looking at the US market suggests that, as a general rule, the winners in functional foods are the existing category leaders who can add "functional" as a flavour

This implies that New Zealand will act as an ingredient supplier rather than use any nutraceutical breakthrough to build a strong (functional) food position

EXAMPLE: Key players in functional foods in the US market across key categories
*(2011)*

| | Existing players add "functional" flavour to range | Enthusiastic new market entrant leveraging functional properties to gain significant share |
|---|---|---|
| Soft drinks | Coca-Cola, Pepsi | Red Bull |
| Yoghurt/other dairy | General Mills, kraft foods, Danone, Unilever | Yakult |
| Bakery, cereals & muesli bars | General Mills, Pepsi, Kellogg's | No major successes |
| Confectionery | General Mills, kraft foods, Nestlé, Mars incorporated | No major successes |
| Potato chips/savoury snacks | Pepsi, kraft foods | No major successes |

Red Bull: Convenient and keeps you awake.

Yakult: Tastes good, convenient, and focuses on one benefit; gut health



Note: PepsiCo owns Frito-Lay (global #1 potato chip company; owner of Bluebird) and Quaker (cereal and snacks); Kraft owns Balance Bar and a range of other businesses; General Mills owns 50% of Yoplait France and licenses the brand in the US; Source: Coriolis

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# FUNCTIONAL FOODS IN NZ – EXAMPLES

## The successful functional foods categories globally are the successful categories in New Zealand; generally existing category leaders are winning (as is the case globally)

EXAMPLES: Select functional foods available in New Zealand supermarkets
*(2011)*

| Category | Key Firms/brand | Example | Functional Ingredients | Claims |
|---|---|---|---|---|
| Probiotic Yogurt | Goodman Fielder/Meadow Fresh (NZ)<br>National Foods (AU)/Yoplait<br>Fonterra/Anchor (NZ) | Pre-Bio<br>Elivae<br>Symbio | Prebiotics and probiotics<br>Probiotic bacteria | Digestive health |
| Single serve dairy drink | Goodman Fielder/Activate (NZ)<br>Yakult/Yakult | Activate Body Boost Shots<br>Yakult | Probiotic bacteria (Bifido-Defensis™)<br>Vitamins & Minerals | Digestive health, immune support |
| Milk | Goodman Fielder/Meadow Fresh (NZ)<br>Fonterra | Meadow Fresh Pre-Bio<br>Anlene<br><br>Anmum | Inulin<br>Calcium, vitamin D, magnesium, zinc and protein<br>Foclate, Vit B's Gangliosides (GA), SA, DHA*, EFA and Iron. | Digestive health<br>Bone maintenance<br><br>Nutrition for pregnant and breastfeeding Mums |
| Powdered Yoghurt | Westland/EasiYo (NZ) | EasiYo Bio | Probiotic bacteria | Digestive Health |
| Spreads | Unilever/Flora<br>Goodman Fielder/Logicol<br>Goodman Fielder/Gold'n Canola (NZ?) | Flora Pro-activ<br>Logicol<br>Gold'n Canola | Plant sterols<br>Plant sterols<br>Omega-3 | Heart health |
| Bakery, cereals & muesli bars | Griffins/Nice & Natural (NZ?) | Nice & Natural "Superfruits"<br>*(questionable as functional)* | Superfruits | Antioxidant |
| Soy Milk | Sanitarium | So Good Essentials | Added iron, calcium, antioxidants, omega-3 | General health |
| Honey | Airbourne (NZ)<br>Hollands (NZ) | Airbourne Manuka UMF | Manuka honey | Antibacterial |



Source: Coriolis from various published sources

# FUNCTIONAL FOODS IN NZ – EXAMPLES

## Other examples of functional foods in New Zealand include pet food (likely the largest functional food category in NZ) and Tea (though tea is debatable under a tight definition of functional foods)

EXAMPLES: Select functional foods available in New Zealand supermarkets
*(2011)*

| Category | Key Firms/brand | Example | Functional Ingredients | Claims |
|---|---|---|---|---|
| Pet Food | Champ<br><br>Golden Boy (NZ)<br><br>Pedigree<br><br>Optimum Nutrition | Champ Adult Heart Formula<br><br>Golden Boy Performance<br><br>Various Pedigree Dog Foods<br><br>Optimum Nutrition for Life | Omega-3, Glucosamine & Multi-vitamins<br>Omega-3, Antioxidants and Glucosamine<br>Omega-3, Beet, Antioxidants, Prebiotics, Glucosamine<br>FLUTD, Antioxidants, Optimum Dental Defense | Omega-3: Heart<br>Multi-vitamins & antioxidants: General health<br>Glucosamine: Joint health<br>Beet pulp & prebiotics: Digestive health<br>FLUTD: Urinary tract health<br>Optimum Dental Defense: Dental health |
| Tea | Twinings<br>Healtheries (NZ) | Twinings Echinacea & Raspberry<br>Healtheries St John's Wort & Berries<br>Healtheries Ginseng Tea & Blackcurrant & Vanilla<br>Healtheries Chamomile & Peppermint with Senna & Milk Thistle | Various | Immune support<br>Mood improvement<br>General Health |
| Beverages | GHO | Apple Cider drinking vinegar | Vinegar | Vitamins, minerals |


Source: Coriolis from various published sources

## MAJOR MILK COMPANIES

### The largest NZ dairy companies are heavily involved in milk-based nutraceuticals - but primarily as an ingredient to sell to other companies – few branded consumer successes to date

EXAMPLES: Select nutraceutical/functional food activities of leading New Zealand dairy cooperatives
*(2011)*

| | Ingredients | Consumer functional food products |
|---|---|---|
| Fonterra | - Calcium, vitamin D, magnesium, zinc and protein<br>- Vitamin B1, B2, B3, B12, Folate, Calcium, Iron, GA, SA, & EFA<br>- Specialty probiotic ingredient supplier<br>- Lactoferrin<br>- Colostrum<br>- Large range of ingredients in the testing phase or soon on offer | - Anlene (bone health)<br>- Anmum for baby/childs brain development<br>- Anchor Symbio Yoghurt (probiotic yoghurt)<br>- Stolle Milk Powder (antibody rich milk)<br>- reCharge Ice Cream (to reduce effects of chemotherapy, testing stages)<br>- Col+ colostrum single serve drink (JV with New Image Group) |
| TATUA | - Lactoferrin<br>- Glycomacropeptide<br>- Lactoperoxidase<br>- Casein peptones | - None |
| Westland NEW ZEALAND | - Lactoferrin | - Immuprime nutritional powder<br>- Nutriprime nutritional powder<br>- Purchased EasiYo (some flavours contain probiotics, BioLife range) |



Source: various published articles; various company websites; Coriolis analysis

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CORIOLIS

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# NUTRACEUTICALS – FIRMS – MARKETING FOCUS

## There are a group of larger “marketing focused” nutraceutical firms in New Zealand

New Zealand nutraceuticals firms – marketing focus – large
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Marketing focus | | | | | | |
| Healtheries vitaco | $168m (2010) | | 400 (K) | Private equity; AU (Next Capital) | 1904 | www.vitaco.co.nz www.healtheries.co.nz<br>Firm has origin in stone ground flour mill<br>Supplements, nutritional, sports, contract mnfg., other |
| New Image Group | $82m (2010) | 90% + (ws) | 40 (K) | New Zealand; Listed (NZX: NEW) | 1984 | www.newimageasia.com<br>www.newimagegroup.co.nz<br>Multi-level marketer of colostrum/other supplements<br>Contract packs; building infant formula plant |
| integria healthcare | $30m (2010) | | 100 (K) | New Zealand; private (Todd Corporation) | 1951 | www.integria.com<br>Formerly Thompson Group<br>143 brands |
| Red Seal | $28m (Ke)<br>$11m (02) | 15% (C) | 100 (K) | New Zealand; private (Hilke family) | 1923 | www.redseal.co.nz |
| goodhealth | $18.5m (Ke) | | 65 (K) | New Zealand; private (Blanchard family) | 1987 | www.goodhealth.co.nz<br>Complete range of supplements |
| NZnutritionals | $9m (Ke) | | 30 (K) | NZ/AU; Private (Warren Stewart) | 1980 | www.nznutritionals.co.nz<br>Also Vita-Fit, Pro-life, Morlife; plant in CHC; contract packs for others |
| lifestream | $9m (Ke) | | 30 (K) | New Zealand; private (Purchase and Ross families) | 1994 | www.lifestream.co.nz<br>Wide range of supplements |
| HORLEYS | $23.3m (2010) | | 10 (K) | Singapore; listed (SING: 5FR) | 1980 | www.horleys.com; www.etika-intl.com<br>Was Fonterra ; now Eitka (Singapore) |
| Health Herbs | $7m (Ke) | | 25 (K) | New Zealand; private (Edmonds family) | 1989 | http://www.healthandherbs.co.nz/<br>Multiple brands: Radiance, Natures Way, etc. |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – MARKETING FOCUS

## There is also a group of mid-size and smaller firms with a "marketing focus"

New Zealand nutraceuticals firms – marketing focus – medium
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Marketing focus | | | | | | |
| | $5m<br>(Ke) | | 9<br>(K) | New Zealand; private<br>(Fahy, Torok) | 1979 | www.naturessunshine.co.nz<br>http://natsun.co.nz; www.nspwholesale.co.nz<br>Multi-level marketer of supplements |
| | $141m<br>(2009) | | 450<br>(K) | New Zealand; private<br>(Douglas family) | 1967<br>1997 | www.clinicians.co.nz<br>Acquired June 2008 (was Natural Health Laboratories)<br>While Douglas is large, it is a mid-size player in supplements |
| | $3m<br>(Ke) | | 20 | New Zealand; private<br>(Matthews family) | 2000 | www.xtend-life.com<br>www.naturalproductsnz.co.nz<br>Supplements; manufacturer; contract packs |
| | $2m<br>(Ke) | | 13<br>(K) | New Zealand; private<br>(Rasmussen family) | 1998 | www.phytomed.co.nz |
| | $2m<br>(Ce) | | N/A | New Zealand; private<br>(Chu; Looi; others) | 1996 | www.creativeenergy.co.nz; www.naturopharm.co.nz<br>Parent is Health Distributors<br>Supplements and homeopathic remedies |
| | $2m<br>(Ke) | | 13<br>(K) | New Zealand; private<br>(Lee family) | 1993 | www.evergreennz.com<br>Deer blood/velvet, marine product; export to Asia |
| | N/A | | N/A | New Zealand; private<br>(Lawton family; others) | 2004 | www.deepbluehealth.co.nz<br>Marketer of bee, deer, etc.; product packed by GMP |
| | $0.4m<br>(Ce) | | N/A | New Zealand; private<br>(Huanf & Lu families) | 2010 | www.naturies.co.nz<br>Doxcon Pharmaceuticals<br>Mostly export to China; packed by others (?) |
| | $1.25m<br>(Ce) | | 14<br>(K) | New Zealand; private<br>(De Bryn, Johnson, Vallant, Grant; others) | 1989 | www.invita.co.nz<br>imports, markets and distributes food and life science ingredients |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – MARKETING FOCUS

## We also identified a range of smaller marketing focused firms

New Zealand nutraceuticals firms – marketing focus – small

*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Marketing focus | | | | | | |
| IMMUNO LABORATORIES NEW ZEALAND | ~$5m (ws) | | 11-50 | Struck off | N/A | www.immuno.co.nz<br>Colostrum, cosmetics, etc. |
| MIERS LABORATORIES | N/A | | N/A | NZ; private<br>(Criglington; Coleman) | 1983 | www.mierslabs.co.nz; www.nojetlag.com<br>Homeopathic remedies |
| ARTEMIS powerful natural remedies | N/A | | N/A | NZ; private<br>(Clair, Dunkel, McMahon; others) | 1990 | www.artemis.co.nz |
| iconherb Ultimate Natural Health | N/A | | 2 | NZ; private<br>(Elliott and Donovan) | 2008 | Ultimate Natural Health Ltd<br>www.iconherb.com www.detox-on-tv.com<br>Online and phone sales only |
| nature source | N/A | | N/A | NZ; private<br>(Middleton, Bartlett, Low; others) | 2002 | www.naturesourcedirect.com<br>Barley grass, colostrum, manuka oil marketers |
| nütressence | N/A | | N/A | NZ; private<br>(Davis family) | 2005 | www.nutressence.co.nz<br>Nutritional supplement for horses, now people |
| GO healthy new zealand | $0.45m<br>(Ce) | | N/A | NZ; private<br>(Renner; Driscoll; King; others) | | www.gohealthynz.co.nz |
| homecare | N/A | | N/A | NZ; private<br>(Huang family) | 2008 | www.homecarenz.com<br>Range of products (supplements, colostrum, baby food) |
| new zealand healthfoodco | $2.5m<br>(Ce) | | N/A | NZ; private<br>(North & Haines families) | 1988 | www.nzhealthfood.com<br>Retail shop with contract packed brands |
| NZ new paradise | $0.5m<br>(Ce) | | N/A | NZ; private<br>(Banno; Missen) | 2010 | www.nznewparadise.co.nz |
| Skybright natural health | $1.5m<br>(Ce) | | N/A | Struck off | 1996 | www.skybright.co.nz<br>Colloidal silver; other products |

Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – MARKETING FOCUS

## We also identified a range of smaller marketing focused firms

New Zealand nutraceuticals firms – marketing focus – small
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Marketing focus** | | | | | | |
| Jiaogulan / Jagulana | N/A | | N/A | New Zealand; private (Hartstone family) | 1996 | www.jagulana.co.nz [website down]<br>“amazing adaptogenic herb”<br>Firm has historically had other names (GMH, etc.)<br>US firm has received warning letter from US FDA on product |
| Malcolm K. Harker M.H.D. | N/A | | N/A | In liquidation | 1981 | http://malcolmharker.co.nz/<br>Naturopathic and herbal remedies |
| Miada Sport | N/A | | N/A | New Zealand; private (Shepherd; others) | 1999 | www.miadasport.com<br>Weightlifting sports nutrition |
| NZ Botanicals | N/A | | N/A | New Zealand; private (Brewer) | | www.nzbotanicals.com<br>Herbal products for people and animals |
| NutraNZ | $0.15m (Ce) | | N/A | New Zealand; private (Chandler family) | 2003 | www.nutranz.co.nz<br>Omega 3 and Glucosamine |
| nzhealthnaturally | $0.5m (Ce) | | N/A | New Zealand; private (McConnachie; others) | 2001 | www.nzhealthnaturally.com<br>Range of supplements and UMF honey |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – MANUFACTURING FOCUS

## There are a number of large nutraceutical firms focused primarily on manufacturing, either raw ingredients or a contract packed final products

New Zealand nutraceuticals firms – manufacturing focus – large
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Manufacturing focus | | | | | | |
| ALPHA LABORATORIES | $85m (Ke)<br>$50-100m (ws) | | 150+ (ws)<br>150 (K) | New Zealand; private<br>(Shim family) | n/a | www.alphalabs.co.nz<br>contract manufacturer of dietary supplements |
| GMP Pharmaceuticals | $40m<br>(C; 10) | | 150<br>(Ci) | New Zealand; private<br>(Ye family) | 2002 | www.gmp.com.au<br>Factory in NZ and AU; pharmacy and milk powder; offices in HK and Beijing; retail stores in China<br>Mnfg. range of products; "One-stop OEM service" |
| NZP LTD New Zealand Pharmaceuticals | $30m<br>(K; 03) | | 103<br>(K) | New Zealand; Private equity<br>(Pohutukawa; Direct; Biopacific; others) | 1971 | www.nzp.co.nz<br>Pharma ingredients and dietary supplements<br>Originally owned by meat industry consortium |
| UNITECH Industries Limited | $23m<br>(Ke) | | 80<br>(K) | New Zealand; private<br>(Hanham family) | 1970 | www.unitech.co.nz; www.proactive.net.nz<br>Contract manufacturer; also markets under ProActive brand |
| TAURA Natural Ingredients | $27m<br>(10) | | 52<br>(K) | Australia; private equity<br>(CHAMP) | 1978 | www.taurarc.com<br>Factories in NZ & UK |
| nutrizeal | $10-15<br>(Ci) | | 45<br>(Ci) | New Zealand; private<br>(Miller; others) | 1995 | www.nutrizeal.com<br>contract freeze drying and hard gel encapsulation<br>Parent is Nutriventures |
| Alaron | $9m<br>(Ke) | | 30<br>(WS) | New Zealand; private<br>(Smith; Geiger; others) | 1993 | www.alaron.co.nz<br>GMP certified/TGA licensed contract and private label manufacturer of dietary supplements, complementary medicines, nutraceuticals, vitamins and minerals in hard shell capsule, tablet, power blend and sachet formats. |
| PharmaZen / Waitaki Biosciences | $5.2m<br>(2009) | | 22<br>(K) | NZ; listed<br>(Unlisted) | 1970/<br>1984 | www.waitakibio.com<br>www.pharmazen.co.nz<br>Nutritional supplements ingredients<br>Waitaki Meat spin-off to add value to co-products 1970 |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – MANUFACTURING FOCUS

## We identified a range of smaller manufacturing focused firms

New Zealand nutraceuticals firms – manufacturing focus – mid-size/small

*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Manufacturing focus** | | | | | | |
| BioProducts SEADRAGON | $2m<br>(Ke) | | 11<br>(K) | New Zealand; private<br>(Keeley family; others) | 1996 | www.seadragon.co.nz; http://www.bioproducts.co.nz<br>www.seadragon.co.nz/Default.asp?Page=38<br>Parent is Merinova; fish oil bulk extraction; deer velvet<br>June 2004 management buy-out of AgResearch subsidiary responsible for deer velvet extracts |
| Genesis Bio-Lab | $1m<br>(Ke) | | 6<br>(K) | New Zealand; private<br>(Parsons family) | 1995 | www.genesisbiolab.co.nz<br>Extraction and freeze drying fruit and other extracts |
| RMF nutraceuticals New Zealand Limited | $2m<br>(Ce) | | N/A | New Zealand; private<br>(Hardie family) | 1996 | www.rmfnutraceuticals.co.nz<br>www.nutraceuticals.co.nz<br>Sourcing ingredients firm (not manufacturer)<br>2 warehouses (Christchurch & Sydney) |
| EXTRACTSNZ | $0.5m<br>(Ce) | | N/A | New Zealand<br>Comvita 100% | 1990 | www.extractsnz.co.nz<br>Renamed Kiwi Extracts Ltd<br>Cold extraction; ethanol extraction; freeze drying; Propolis |
| claridges | N/A | | N/A | New Zealand; private<br>(Heath family; others) | Over 20 years ago | www.claridges.co.nz<br>Wholesale NZ ingredients and manufacture some<br>Have opened marketing office in China |
| ubbio | N/A | | N/A | New Zealand; private<br>(Lee family) | 1988 | http://ubbio.com<br>Manufacturer and exporter; branch in South Korea<br>Formerly "National Deer Horn" |
| MNZ | N/A | | N/A | New Zealand; private<br>(Green family) | 1992 | www.marketnz.co.nz; www.herbenz.com<br>Patented Echinacea Juice Extract; also deer velvet, etc.<br>Online shopfront; some products contract packed by others |
| o2b | N/A | | N/A | New Zealand; private<br>(Symns, Johnson, Buckett) | 2003 | www.o2bhealthy.co.nz<br>CMS Ltd - Contract manufacturing of Supplements Ltd<br>Own brand o2b, manufacture 200 products in Nelson<br>Developing owner operated retail stores in NZ |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – IP FOCUS

## There are a handful of firms in nutraceuticals with a strong IP focus…

New Zealand nutraceuticals firms – IP focus

*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| IP focus | | | | | | |
| BLIS Technologies | $1.9m | | 10 | New Zealand; listed (NZX: BLT) | 2000 | www.blis.co.nz |
| SEPEREX NUTRITIONALS LTD | $8-12m (Ce) | | 8+ | New Zealand; private (Skeggs; Alloo; Wilson; others) | 2004 | www.seperex.co.nz<br>Based in Dunedin; offices and lab in Hong Kong<br>Bioactive marine extracts – BioLex® BioLexLPlus® |
| Quantec Value From Every Drop | $0.5m (Ce) | | N/A | New Zealand; mixed (Claycomb; Bragger; NZVIF; others) | N/A | www.quantec.co.nz<br>Technology based on immune enhancing properties of a novel milk fraction |
| Somnaceutics | $0.3m (Ce) | | N/A | New Zealand; mixed (Davey, Elliot; NZVIF; others) | 2007 | www.somnaceutics.com<br>patented natural sleep enhancing milk product<br>Asian distribution deal with New Image |
| supreme biotech | $0.1m (2009) | | N/A | United Kingdom; N/A | 2007 | www.supremebiotech.com<br>Astaxanthin products from our unique strain of algae (Haematococcus pluvialis) |
| Anagenix | $0.35m (Ce) | | N/A | New Zealand; private (Johnson and Washington-Smith) | 2008 | www.anagenix.com<br>Origin in Otago University research<br>Researching JV with Trinity Bioactives research group |
| EnCoate | N/A | | N/A | New Zealand; private equity (Biopacific; others) | | www.encoate.com<br>Proprietary, cost effective, food-grade biopolymer technologies |
| migco Pharmaceuticals Ltd | N/A | | N/A | New Zealand; mixed (Cavom, ENZO; NVIF; others) | 2005 (?) | www.migco.com<br>Pine bark extract |
| Photonz Corporation | N/A | | N/A | New Zealand; mixed (S. Tindall; Geiringer; NVIF; others) | 2002 | www.photonzcorp.com<br>Omega-3 fatty acid eicosapentaenoic acid (EPA) from marine microalgae; recent $2.9m from FRST |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – IP FOCUS

## … continued

New Zealand nutraceuticals firms – IP focus

*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| IP focus | | | | | | |
| Speirs NUTRITIONALS LTD | N/A | | N/A | NZ; mixed<br>(~60% Speirs Group) | 2006 | www.speirsnutritionals.co.nz<br>Recently sold micro-encapsulation of omega-3 fish oils to UK Co. (initial payment of NZ$2.1m)<br>JV between Speirs Group Ltd, Massey University, The Riddet Institute and The Bio Commerce Centre<br>Speirs Group reported $1.7m related start-up costs in 2010 |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

## NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

### In New Zealand dairy co-ops supply lactoferrin and colostrum, as do two smaller firms

Key firms in the New Zealand sector

*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Dairy | | | | | | |
| Fonterra | $16,726m (2010) | 90% (C) | 20,000 (K) | NZ; co-operative | 2001 | www.fonterra.com<br>Lactoferrins and colostrum; probiotics |
| Westland New Zealand / EasiYo | $421.6m (2010) | 80% (C) | 350 (K)<br><br>EY: 40 | NZ; co-operative | 1937 | www.westland.co.nz<br>Lactoferrins and colostrum<br>www.easiyo.com |
| TATUA | $166.4m (2010)<br>$25m (specialty) | 95%+ | 180 (K) | NZ; co-operative | 1914 | www.tatua.com<br>Lactoferrins<br>Protein hydrolysates |
| synlait making more from milk | N/A | 90%+ | | China/Japan/NZ (51% Bright Dairy; Mitsui 7%; others) | 2000 | www.synlaitmilk.com<br>Have colostrum and Lipidex (beta serum powder) |
| a2 | $0.2m (2010) | | | NZ; listed (NZAX: ATM | 2000 | www.a2corporation.com<br>Milk using selected strain of cow that produces milk protein variant |
| zestlife | N/A | | N/A | New Zealand; private (Nixon; Parry) | 2005 | www.zestlife.com<br>Liquid colostrum |
| Functional Nutraceuticals Limited | $1m (Ke) | | 4 (K) | New Zealand; private (Lock family) | 2001 | www.purenzcolostrum.com<br>Colostrum powder |
| immunecare natural products for the immune system | N/A | | N/A | New Zealand; private (Wootten family) | 2001 | www.immunecare.co.nz<br>Parent is Winning Team Limited |
| The Yoghurt Capsule | $0.8m (Ke) | | 3 (K) | New Zealand; private | 1988 | www.theyoghurtcapsule.co.nz<br>Encapsulated yoghurt; primarily direct sales (?) |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

## There a wide range of firms with a single product focus…

Key firms in the New Zealand sector
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Meat byproducts** | | | | | | |
| Silberhorn | $1m (K) | | 8 (K) | New Zealand; private (Carline family; others) | N/A | www.silberhorn.co.nz Deer velvet |
| | $1m (Ke) | | 4 (K) | | 1993 | www.deer.co.nz; www.cervidor.co.nz Deer velvet; deer products; deer enriched manuka honey |
| Growth Factor Matrix | $2m (K; 02) | | 2 (K) | New Zealand; private (Bellaney family) | 1988 | www.gfmpro.co.nz Deer velvet; parent is Bioceuticals Ltd. |
| Mountain Red New Zealand | $1.75m (Ce) | | N/A | New Zealand; private (Morley family; others) | 2002 | www.mountainred.co.nz Deer velvet; GL mussel extract |
| Pure Vitality | $0.5m (Ce) | | N/A | New Zealand; private (Gloriavale Christian community) | 2005/ 2011 | www.purevitalitynz.com Parent (PetfoodNZ in receivership; new owners) |
| GEVIR Premium | N/A | | N/A | New Zealand; private (Thomsen family) | 1992 | www.gevir.co.nz |
| CANES DEER VELVET | N/A | | N/A | New Zealand; private (Cane family) | 1998 | www.canesdeervelvet.com |
| New Zealand Supreme Natural Foods | N/A | | N/A | New Zealand; private (Ho family) | 1996 | www.nzsupremedeer.com Process and export a wide range of deer products |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

## There a wide range of firms with a single product focus…

Key firms in the New Zealand sector
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Meat byproducts** | | | | | | |
| Agri-lab | $1.4m (Ke) | | 6-10 (K) | New Zealand; private (Payne family) | 1998 | www.agri-lab.com Animal organs, glands, etc. primarily Chinese medicine |
| Meat Biologics Research | N/A | | N/A | New Zealand; government (20% Massey Uni; 20% IRL; 20% AgResearch; 20% B+LNZ; 20% Meat Ind. Assn.) | 2002 | Established in 2002. It is the one of the first five consortia set up under a Foundation of Research, Science & Technology (FRST) initiative. Its mission is to develop novel nutraceuticals, functional foods and health supplements from red meat or red meat co-products (collectively termed "meat bioactives"). These bioactives are targeted for use by humans for general health & well-being purposes. |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

… continued…

Key firms in the New Zealand sector

*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Seafood** | | | | | | |
| AROMA NEW ZEALAND LTD | \$5-10m<br>(K; 02) | | 15<br>(K) | New Zealand; private<br>(Winters family; others) | 1961 | www.aromanz.com<br>GL mussel and shark extracts<br>Manufacture of freeze dried marine nutraceuticals |
| MacLab | \$10-\$15<br>(Ci) | | N/A | New Zealand; private<br>(Broadbent family) | 1973 | www.maclab.net; www.lyprinol.com/index.php/history<br>Freeze-drying mussels; purpose built factory |
| AOTEA Pacific Ltd | \$1m<br>(Ke) | | 6-10 | New Zealand; private<br>(Takahasi family; others) | 1996 | www.aoteapacific.co.nz<br>Shark extracts |
| HUBRIS | \$0.8m<br>(Ke) | | 3<br>(K) | New Zealand; private<br>(Robinson family) | 1999 | www.hubrisintl.com<br>Mussel extract and glucosamine |
| NATURAHEALTH NEW ZEALAND 2002 LTD | N/A | | N/A | New Zealand; private<br>(Worthington; Bishop) | 2003 | www.naturalhealthnz.net.nz; www.mobicosa.com;<br>www.kalsio.com; www.technyflex.com; www.kalsytech.com<br>GL mussel extract; fish bone calcium supplements |
| En'Zaq Aquaculture Ltd. | N/A | | N/A | New Zealand; private<br>(Dorst; Clement) | 1985 | www.enzaq.com<br>Green lip mussel extract |
| Eco-Logic Concepts | N/A | | N/A | New Zealand; private<br>(Erickson; Reid) | 2003 | rimu.orconhosting.net.nz/herbmark/eco_logic.html<br>Manufacture seaweed extract; also grow herbs |
| Maxamena Nutriceuticals | N/A | | N/A | New Zealand; private<br>(Ryan) | | No website (?)<br>Related firm Biomarine Laboratories into liquidation 2008 |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

... continued...

Key firms in the New Zealand sector
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Honey/Bee products | | | | | | |
| | $85m (2010) | | 143[1] | New Zealand; Listed (NZX: CVT) | 1974 | www.comvita.com<br>Manuka honey; wide range of other products |
| | $1-5m (K; 06) | 59% (K) | 10 (K) | New Zealand; private (Watson family; Daniell family) | 2003 | www.watsonandson.co.nz<br>www.manukamed.com<br>15,000 beehives |
| | $15m | 90% | 40 | New Zealand; private (numerous) | 2006 | www.manukahealth.co.nz<br>Honey products in medifoods, cosmecueticals, 70 products in 40 markets |
| | $5-10m (K) | | 40 | NZ; private (Berry family; others) | 1944 | www.aratakihoneyhb.co.nz |
| | $10.8m (2010) | | N/A | NZ; cooperative (80-100 beekeepers) | 1950's /1981 | www.nzhoney.co.nz<br>New Zealand Honey Producers Co-operative took over the assets of the Honey Marketing Authority<br>Hollands; 3 Bees; SweetMeadow; Hororata |
| | $5m (npa; 09) | 90% | N/A | New Zealand; private (Ward family) | 2005 | www.newzealandhoneyco.co.nz<br>Honey products; parent is Alpine Honey |
| | $3m (Ke) | | 25 | New Zealand; private (Bray family) | 1910 | www.airborne.co.nz<br>Regular, manuka, active manuka, and honey lozenges |
| | $3m (Ke) | | 20 (K) | New Zealand; private (Pringle family) | 2003 | www.honeynz.co.nz<br>www.beesonline.co.nz<br>Honey |
| | $3m (Ke) | | 20 (K) | New Zealand; private (Mossop family) | 1952 | www.mossopshoney.co.nz<br>Wide range of honey products |

1. Includes international employees; Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

## … continued…

Key firms in the New Zealand sector
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Honey/Bee products** | | | | | | |
| apiflora; Kintail Honey; New Zealand Package Bees | $3m (Ke) | | 15 (K) | | 1947 | www.packagebees.co.nz |
| Nelson Honey & Marketing (NZ) Ltd | $2.4m (Ke) | | 14 (K) | New Zealand; private (Cropp family) | 1972 | www.nectarease.co.nz<br>Honey; bee products |
| 100% Pure New Zealand Honey | $2m (Ke) | | 10 (K) | | 1995 | www.purenewzealandhoney.com<br>Manuka honey, active manuka; other honeys |
| Happy Valley Honey | $1m (Ke) | | 10 (K) | New Zealand; private (Lipscombe family) | 1976 | www.happyvalley.co.nz; www.happyvalleyhoney.com.hk<br>Honey and bee products |
| Honeylands Naturally | $2m (Ke) | | 10 (K) | | 1995 | www.honeylands.co.nz |
| Bee Wild Davidson's Apiaries | $1m (Ke) | | 8 (K) | New Zealand; private (Davidson family) | 1945 | www.beewild.co.nz |
| Haddrell's of Cambridge | $1m (Ke) | | 7 (K) | | 1993 | www.haddrells.co.nz; Cambridge Bee Products<br>Bee products; UMF honey (Golden Hills brand) |
| Waitemata Honey Co Ltd | $1m (Ke) | | 7 (K) | | 1960 | www.waitematahoney.co.nz<br>Honey, UMF Honey |
| Bee Healthy | $3m (Ke) | | 6 (K) | | 1991 | www.beehealthy.co.nz; www.ecroyd.com/<br>Honey; manuka honey; bee products |
| Waitaki Honey | $2m (Ke) | | 5 (K)<br>3,500 hives | | 1940 | www.waitakihoney.co.nz |
| SummerGlow Apiaries | $1m (Ke) | | 4 (K) | | 1976 | www.manukahoney.co.nz/<br>Manuka honey; UMF honey |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

## … continued…

Key firms in the New Zealand sector

*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Honey/Bee products** | | | | | | |
| api health | N/A | | N/A | New Zealand; private (Nikolaeva family) | 1998 | www.apihealth.com Bee venom; bee products |
| The Honey Company Limited | $1.5m (Ce) | | N/A | New Zealand; private (Darren Clifford) | 2006 | www.thehoneycompany.co.nz |
| manu | N/A | | N/A | New Zealand; private (William Gluyas) | 1990 | www.manu.co.nz Manuka products; honey |
| Happy Families | N/A | | 3 (K) | New Zealand; private (Bickerstaff and Wheeler) | 1997 | www.honeybalm.com Bee product based supplements |
| Nature's Country Gold | $1m (Ke) | | 1-5 (K) | New Zealand; private (Pohio family) | 2000 | www.naturescountrygold.co.nz Honey; Manuka Boosta honey-based energy-bars |
| Autumn Valley Honey | $0.7m | | 2 (K) | New Zealand; private (Clarke family) | 2003 | www.autumnvalleyhoney.co.nz |
| Honeyland | $0.3m (Ke) | | 1 (K) | New Zealand; private (Walker family) | 1986 | www.honeyland.co.nz |
| Strathdale | | | 1,200 hives | New Zealand; private (Dale family) | 1959 | www.strathdalehoney.com Clover honey; bio-gro organic certified; C. Otago |
| Naturebee | N/A | | N/A | New Zealand; private (Cook family; Goodman family) | 1997/ 2000 | www.naturebee.com Potentiated pollen; bee venom; AMF manuka honey |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

## … continued…

Key firms in the New Zealand sector
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Honey/Bee products | | | | | | |
| Otago Honey Products | $1m (Ke) | | 3 (K) | New Zealand; private (Sales, Farhi, Walker, McCaw) | 1991 | No website located |
| Milburn Apiaries | $1m (Ke) | | 3 (K) | New Zealand; private (Walker, McCaw families) | 1970 | No website located<br>Part owns, Otago Honey Products |
| Alpine Honey Specialties | $1m (Ke) | | 7 (K) | New Zealand; private (Ward family) | 1981 | No website located |
| Cell Limited (Formerly Cellular Improvements) | N/A | | N/A | New Zealand; private (Donnelly family) | 1999 | http://yhst-56964562438721.stores.yahoo.net/<br>Potentiated pollen |
| Zeal Extracts | N/A | | N?A | New Zealand; private (Butler) | 1998 | Websites down; Active Zealax UMF honey |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

## … continued…

Key firms in the New Zealand sector

*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Produce /plant based** | | | | | | |
| vital foods<br>Innovation in Nutrition | $7m<br>(Ke) | | 25 (K) | Bahamas/NZ<br>(BioPacific; Seeka Kiwifruit; others) | 1991 | www.vitalfoods.co.nz<br>Founded by former Ag Scientist; developed kiwifruit powder<br>Clinical trials; launched Phloe Healthy Bowel<br>Attracted venture capital investment<br>Nestle Health Science strategic investor |
| biovittoria | $3m<br>(K; 09) | | n/a | New Zealand/other<br>(Various incl. Tate & Lyle UK) | NA | www.biovittoria.com<br>Monk fruit natural sweetener based Waikato Innovation<br>Tate and Lyle investment for global distribution and sales |
| Mud House Wines<br>new zealand extracts ltd | $1m<br>(Ci) | | 4 | New Zealand; listed<br>(subsidiary of Mud House Wine Group) | 2004 | www.nzextracts.co.nz<br>Wine grape (and other fruit) extracts - Oxi-fend®Vinanza®<br>Parent is Mud House Wine |
| NZP New Zealand Pharmaceuticals Ltd<br>Just the Berries | N/A | | N/A | New Zealand; private equity<br>(NZP 69%; others) | 2003 | www.justtheberries.com<br>Blackcurrant extract powder |
| Midlands Holdings Limited<br>ose oil seed extractions | N/A | | N/A | New Zealand; private<br>(Green family; others) | 1997 | www.midlands.co.nz<br>www.osel.co.nz<br>Primarily seeds/other; oil seed extraction business |
| functional whole foods new zealand | $1-5m<br>(K) | | 20<br>(K) | New Zealand; private<br>(Musgrave family; others) | 1992 | www.fwf.co.nz; www.waihibush.co.nz<br>Flax seed oil |
| bio oils | $1m<br>(Ke) | | 4<br>(K) | New Zealand; private<br>(Prebble family; others) | 1989 | www.bio-oils.co.nz<br>Flax seed oil |
| ginkgogreen | N/A | | N/A | New Zealand; charity<br>(Disability training services) | 2003 | www.ginkgo.co.nz<br>Nature Green NZ Ltd<br>Growing ginkgo in New Zealand |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

## … continued…

Key firms in the New Zealand sector
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Barley Grass** | | | | | | |
| Evolutionary Health .Org Ltd | N/A | | N/A | | 2002 | www.gogreen.net.nz<br>http://evolutionaryhealth.org<br>Wheat grass, spirulina and barley grass manufacturers |
| Nature's Greenz ™ SuperGreen Cell Food For Life © | N/A | | N/A | | 2002 | www.naturesgreenz.com<br>Manufacture and online market barley/wheat grass and fish oil sourced from NZ |
| GREENS FOR LIFE GFL | N/A | | N/A | | 2001 | www.greensforlife.co.nz<br>Barley grass powder |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# NUTRACEUTICALS – FIRMS – SINGLE PRODUCT FOCUS

## … continued

Key firms in the New Zealand sector

*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Forestry | | | | | | |
| ENZOGENOL® | $2m<br>(Ke) | | 10<br>(K) | New Zealand; private<br>(Giles family) | 1998 | www.enzo.co.nz<br>Pine bark extract<br>Firm is Enzo Nutraceuticals; parent Protein Ventures<br>Shareholder in Migco [listed elsewhere] |
| NZ-unique flora | | | | | | |
| MENDE BIOTECH LTD. MANUFACTURERS OF TOTAROL™ | $0.8m<br>(Ke) | | 3<br>(K) | New Zealand; private<br>(Hueber family; Mende family) | 1999 | www.totarol.com<br>Totara tree extract |
| ENZ© | N/A | | N/A | New Zealand; private<br>(Hueber family) | 2001 | www.essentiallynz.com<br>Totarol marketer; part owned by Mende |
| FOREST HERBS | N/A | | N/A | New Zealand; private<br>(Butler family) | | www.forestherbs.co.nz<br>Horopito |
| Tairawhiti Pharmaceuticals | N/A | | N/A | New Zealand; private<br>(Kerr; Te Ata Ra Tapumahi Trust; others) | | http://www.manuka-oil.com<br>Manuka tree oil |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

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## APPENDIX 2 – PRODUCT PROFILES

This appendix analyses seven key products in the nutraceuticals category that play on New Zealand's strengths

| | Key function | Overall | Level of scientific credibility or support | Amount of research conducted | Industry "health" | Defensible to NZ |
|---|---|---|---|---|---|---|
| Manuka Honey | Anti-bacterial | ● | ◕ | ◑ | ● | ● |
| Green lipped mussel extract | Anti-inflammatory | ◕ | ◑ | ◔ | ◑ | ● |
| Lactoferrin | Anti-bacterial Immunomodulation | ◕ | ◕ | ◕ | ● | ◑ |
| Colostrum | Immune health | ◑ | ◔ | ◑ | ◕ | ◑ |
| Kiwifruit extract | Digestive health | ◑ | ◑ | ◔ | ◔ | ◕ |
| Deer velvet | Sexual health | ◔ | ○ | ◔ | ○ | ◑ |

*See Appendix 2*



Note: Excludes fish oil

# PRODUCT PROFILE – MANUKA HONEY

## Manuka honey is validated in wound healing and is approved for hospital use

| Publications (Manuka Honey) | |
|---|---|
| **First Publication on Health Effects:** | 1988 in NZ |
| **Total Papers on Activity and Health Function:** | 37 |
| **Diseases/ Activities Studied:** | Antibacterial: 25<br>Wound dressing: 23<br>Tooth decay: 2<br>Gut inflammation: 2<br>Asthma: 2<br>Immunity: 1<br>Angiogenesis: 1<br>Antifungal: 1 |
| **Country of Primary Author:** | UK: 16<br>NZ: 14<br>Ireland: 6<br>Canada: 4<br>USA: 3<br>India: 3<br>France: 1<br>Poland: 1<br>Slovakia: 1<br>Portugal: 1<br>Italy: 1<br>Germany: 1<br>Australia: 1 |

**Delivery Mechanism**

- Raw honey as a food
- Honey supplements with royal jelly/propolis/ pollen added
- Added to wound dressings
- Combined into a gel for wound treatment

**Active Ingredients**

Methylgloxal
Low pH
Other unknown factors

**History**

Honey has been used to treat wounds for millennia. In 1988, Dr Peter Molan's lab at the University of Waikato discovered manuka honey had antibacterial properties. Manuka honey was later shown to have a distinct bactericidal activity from other honey and was effective in wound treatment. It is now collected widely in NZ and certified for use in hospital wound care.

**Patents/IP/NZ-specific advantages**

Proprietary blend of manuka honeys tested (for instance Comvita)
Patents on extraction/isolation active ingredient and wound gel technology (bought from WaikatoLink)
Manuka honey primarily NZ, also Australia

**Competing Products**

Natural:

Totarol, oregano oil
Other honeys
Probiotics
Tea tree oil, eucalyptus

Conventional Medicine:

Antibiotics
Topical creams
Revamil® Honey

**Research State**

Antibacterial/Wound Dressing:
Very well researched, convincing evidence, "proven"
Soon to be used as part of hospital wound care in several countries
FDA approved product

Other:
Other uses are spin-off from anti-bacterial care (i.e. tooth care) or are only at the initial phase of research
Difficult to judge promise of research into these areas

**NZ Research Centres**

Waikato Honey Research Unit (University of Waikato)
University of Waikato
Plant and Food Reserach



Based on search using PubMed, excludes chemical/processing/food journals

# PRODUCT PROFILE – GREEN-LIPPED MUSSEL EXTRACT

## Green-lipped mussel extract is used for treatment of inflammation

| Publications (Green-Lipped Mussel) | |
|---|---|
| **First Publication on Health Effects:** | 1980 in Australia?? |
| **Total Papers on Activity and Health Function:** | 38 |
| **Diseases/ Activities Studied:** | Arthritis/anti-inflammatory: 35<br>Inflammatory bowel disease: 1<br>Cancer: 1 |
| **Country of Primary Author (after 1990):** | Australia: 9<br>USA: 7<br>UK: 6<br>NZ: 3<br>China: 1<br>Finland: 1<br>Canada: 1<br>South Korea: 1<br>Russia: 1<br>Japan: 1 |

**Delivery Mechanism**

- Taken as an oral supplement

**Active Ingredients**

Liprinol® is an extract containing multiple compounds
Omega-3 Oils
Mucopolysaccharides
Chondroitin Sulphate
Betain

**History**

Research in the 1970s on animal extracts showed green-lipped mussels have high levels of omega-3 oil and mucopolysaccharides. During the 1980s extraction methods were developed to retain bioactivity. Several studies have been conducted on health benefits of green-lipped mussel extract, primarily in Australia. Cold extraction of BioLane® preserves active compounds

**Patents/IP/NZ-specific advantages**

Extraction process is patented (Liprinol)
Green-lipped mussel primarily grown in NZ ?, could be grown in aquaculture elsewhere

**Competing Products**

Natural:

Curcumin
Fish oil, flaxseed oil
Glucosamine, chondroitin, MSM
Shark cartilage
*Boswellia* (plant) extract, rosehip oil

Conventional Medicine:

NSAIDs
TNFα inhibitors

**Research State**

Of 5 animal studies on green-lipped mussel extract on arthritis, 2 showed moderate benefit
Few side effects
Not officially approved for treatment of disease

**NZ Research Centres**

None



Based on search using PubMed, excludes chemical/processing/food journals

# PRODUCT PROFILE – COLOSTRUM

## Colostrum has a long history in neo-natal health but has only recently emerged as a health supplement for adults

| Publications (Bovine Colostrum Supplement) | |
|---|---|
| **First Publication on Health Effects:** | 1970-1980s |
| **Total Papers on Activity and Health Function:** | 28 (hundreds of paper on colostrum in agriculture) |
| **Diseases/ Activities Studied:** | Sports Performance: 17<br>Immune: 5<br>General Health: 3<br>Infant Health: 3 |
| **Country of Primary Author:** | Australia: 11<br>NZ: 4 (8 more on analytics/processing of colostrum for human use)<br>USA: 3<br>Finland: 3<br>Netherlands: 2<br>UK: 1<br>Germany: 1<br>Iran: 1<br>Iraq: 1 |

**Delivery Mechanism**

- Capsule of dried colostrum
- Colostrum-fortified nutrition drinks

**Active Ingredients**

Antibodies

**History**

Colostrum has been known to be important in infant health and animal production since ancient times. Research into bovine colostrum for human health began in the late 1990s.

**Patents/IP/NZ-specific advantages**

NZ is largest exporter of dairy in-the-world

**Competing Products**

Natural:

Sports Performance: Amino acids, kombucha tea, devil's claw, ginger, brown rice syrup, palm nectar, alfalfa juice, creatine
Immune: Prebiotics, probiotics

Conventional Medicine:

??

**Research State**

Antibodies are readily digested and inactivated in the stomach which means the mechanism of action of colostrum is debatable
Moderate evidence colostrum is active as an antibiotic to treat food poisoning etc.
Many publications on colostrum in sports performance, weak to moderate improvements shown using a variety of metrics

**NZ Research Centres**

Fonterra
Bioactivity Investigation Group (Wellington)
Institute of Food Nutrition and Human Health (Waikato University)



Based on search using PubMed, excludes chemical/processing/food journals

# PRODUCT PROFILE – KIWIFRUIT EXTRACT

## Kiwifruit extracts have recently been researched and is primarily marketed for treating digestive complaints

| Publications (Green-Lipped Mussel) | |
|---|---|
| **First Publication on Health Effects:** | 2001 in the UK |
| **Total Papers on Activity and Health Function:** | 23 |
| **Diseases/ Activities Studied:** | Digestion: 5<br>Cancer: 4<br>Asthma: 2<br>Liver Fibrosis: 2<br>Diabetes: 2<br>Anti-inflammatory: 2<br>Bone Marrow Production: 1<br>Cardiovascular: 1<br>Dermatitis: 1<br>Antioxidant: |
| **Country of Primary Author:** | Korea: 8<br>China: 6<br>Japan: 4<br>NZ: 4<br>UK: 1<br>Taiwan: 1 |

**Delivery Mechanism**

- Taken as an oral supplement
- Freeze-dried powder for drink

**Active Ingredients**

Actinidin, an enzyme with similar activity to human digestive enzymes
Other digestive enzymes
Antioxidants

**History**

Limited uses of kiwifruit relatives in traditional Chinese medicine. Korean and Chinese research has looked at effects of kiwifruit extract on variety of diseases including cancer and heart disease.

**Patents/IP/NZ-specific advantages**

Kiwifruit are grown in several countries, NZ is a major player
IP??

**Competing Products**

Natural:

Fibre-enriched supplements
Papaya extract (Papain)
Peppermint, pancreatin
Pre-/Probiotics

Conventional Medicine:

??

**Research State**

Effects on digestion are relatively easy to test
Actinidin enhances breakdown of protein
Moderate to good effects on protein digestion
Link between protein digestion and gastrointestinal disease is more difficult to establish
Other uses for extract are clearly unproven and solely initial trials

**NZ Research Centres**

Riddet Institute (Massey University)



Based on search using PubMed, excludes chemical/processing/food journals

# PRODUCT PROFILE – DEER VELVET

## Deer velvet has an ancient history in tradition Chinese medicine for treating disease especially erectile dysfunction

| Publications (Green-Lipped Mussel) | |
|---|---|
| **First Publication on Health Effects:** | First known scientific study was in 1999 in South Korea |
| **Total Papers on Activity and Health Function:** | 15 |
| **Diseases/ Activities Studied:** | Arthritis: 3<br>Sports Performance: 3<br>Morphine Withdrawal: 2<br>Erectile Disfunction: 1<br>Cancer: 1<br>Osteoporosis: 1<br>Behaviour Modification: 1 |
| **Country of Primary Author:** | Canada: 7<br>China: 3<br>NZ: 2<br>South Korea: 2<br>Russia: 1 |

**Delivery Mechanism**

- Taken as an oral supplement
- Blended into other traditional Chinese medicines

**Active Ingredients**

Range of claimed compounds with activity including glucosamine, chondroitin, collagen, amino acids

**History**

Used in traditional Chinese medicine for thousands of years as treatment for erectile dysfunction. In the past decade, research has gone into expanding health uses of velvet.

**Patents/IP/NZ-specific advantages**

Not patented or IP protected
Farmed deer industry in NZ is world's largest ?

**Competing Products**

Natural:

Virility: Horny goat weed, yohimbe, maca root, eurycoma shrub, ginko bilboa, ginseng
Sports Performance: Amino acids, kombucha tea, devil's claw, ginger, brown rice syrup, palm nectar, alfalfa juice, creatine

Conventional Medicine:

Viagra®

**Research State**

Almost entire knowledge base is from traditional uses
Few studies and limited animal/human trials
Push now to expand uses beyond tradition treatment of erectile function (due to Viagra)
Effectiveness is not convincing

**NZ Research Centres**

AgResearch



Based on search using PubMed, excludes chemical/processing/food journals

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# APPENDIX 3 – NUTRACEUTICALS FROM MILK

## Preliminary conclusions

| Conclusion | Details |
|---|---|
| **Probiotics** | |
| "The" success story of nutraceuticals | - Global success of probiotics in yoghurt drinks<br>- Driven by major global yoghurt players (e.g. Danone)<br>- Now effectively mainstream |
| Limited defensibility of probiotics | - Easy to derive and patent new strains<br>- Crowded category with large number of patented strains (too many to list) |
| Low/no success outside dairy | - Consumer proposition: "bacteria in your food" resonates in yoghurt; more difficult elsewhere<br>- Numerous non-dairy attempts have shown limited/no success (e.g. probiotic museli bar) |
| Probiotics seeking new uses | - Probiotics initially 100% gut health; now new areas of claim (e.g. respiratory infections)<br>- Recent patents show explosion of putative novel uses |
| **Bioactive milk components** | |
| Not a new concept | - Japan (and Korea) have historically led research and development of milk bioactives<br>- Now being researched around the world<br>- New Zealand strong in area but NZ strength should not be overplayed |
| Creating a lot of excitement | - Globally: lots of papers, lots of research; lots of patents<br>- Moving from vague general health claims to specific treatments using defined compounds |
| Limited existing market(s) | - Primary market is infant formula; minor use in sports nutrition, etc.<br>- Industry growth has slowed (China only bright spot) |
| Push to commercialise/ create new/novel products | - Fonterra creates Lactopharma (w/U of Auckland) and ViaLactia (Fonterra bioactives company) partly to create new products and product uses<br>- Chr. Hansen development of numerous new probiotic uses |

# PROBIOTICS – COMMERCIAL STRAINS

## Most major food companies have a patented strain of probiotic for yoghurt or supplement use

Preliminary examples
Not intended to be complete list

Selection of probiotic strains currently used in functional foods and nutraceuticals
*(2010)*

| Strain | Researched effect | Patent | Brand Name | Company |
|---|---|---|---|---|
| *Bacillus coagulans* GBI-30, 6086 | Reduces irritable bowel syndrome (IBS), improved immune function | ? | GanedenBC30, enLiven yoghurt | Ganeden Biotech |
| *Bifidobacterium LAFTI B94* | IBS, pathogen, cancer treatment | ? | LAFTI B94 | Institut Rosell-Lallemand |
| *Bifidobacterium animalis* subspecies *lactis* BB-12 | Digestive and immune health | ? | Probio-Tec Bifidobacterium BB-12 | Chr. Hansen |
| *Bifidobacterium breve* Yakult | | | Bifiene | Yakult |
| *Bifidobacterium infantis* 35624 | Digestive health | | Align (supplement) | Procter & Gamble |
| *Bifidobacterium animalis* subsp. *Lactis* HN019 (DR10) | | | Howaru Bifido | Danisco |
| *Bifidobacterium animalis DN 173 010* (called *Bifidus regularis*) | Digestive health, regularity | | Activia yoghurt | Danone (aka Dannon) |
| | | | | |


Source: Coriolis

# PROBIOTICS – COMMERCIAL STRAINS

## Most major food companies have a patented strain of probiotic for yoghurt or supplement use

Preliminary examples
Not intended to be complete list

Selection of probiotic strains currently used in functional foods and nutraceuticals
*(2010)*

| Strain | Researched effect | Patent | Brand Name | Company |
|---|---|---|---|---|
| *Lactococcus lactis* L1A | Anti-inflammatory, digestive health | | | Norrmejerier |
| *Lactobacillus plantarum* 299v | Improve IBS symptoms | | GoodBelly /ProViva/ TuZen/Bion Transit /ProbiMage | Probi |
| *Lactobacillus reuteri* ATTC 55730 | Gingivitis prevention, diarrhea treatment, general health | | | BioGaia Biologics |
| Mixture of *Lactobacillus rhamnosus* GR-1 & *Lactobacillus reuteri* RC-14 | Treatment and prevention of vaginitis | | Bion Flore IntimeJarrow Fem-Dophilus | Chr. Hansen |
| *Lactobacillus plantarum* HEAL 9 &*Lactobacillus paracasei* 8700:2 | Lowering risk of catching a cold | | Bravo Friscus/ ProbiFrisk | Probi |
| *Lactobacillus acidophilus* NCFM | | | | Danisco |
| *Lactobacillus johnsonii* La1 | Bowel inflammation | | | Nestle |



Source: Coriolis

# PROBIOTICS – NEW PATENTS

## A flurry of patents have been filed recently on new bacterial strains with novel or improved health benefits

Preliminary examples
Not intended to be complete list

New US patent applications in probiotics
*(2011)*

| Category | Subcategories | Researched effect | Patent | Country/Date discovered | Commercial Product |
|---|---|---|---|---|---|
| Lactobacillus | Lactobacillus paracasei KW3110 | Digestive health | Originally patented in Japan, US patent application 20110038837 in 2011 | Japan? | ? |
| Bifidobacterium | Bifidobacterium strain AH1205 | Anti-inflammatory for irritable bowel syndrome | 2011, US patent application 20110020400 | | ? |
| Bacillus | Bacillus coagulans | Control of pathogens in the digestive system | 2011, 20110020306 | | ? |
| Sporolactobacillus | Sporolactobacillus vineae SL153 strain | Treatment of pathogens of the digestive system | 2011, US patent application 20110014166 | | ? |
| Mixture | Cranberry, D-mannose and several bacterial strains | Urinary tract infections | 2011, US patent application 20110064706 | | ? |
| Mixture | Bifidobacterium lactis Bi-07 and Lactobacillus acidophilus NCFM® | Irritable bowel syndrome, bloating, diarrhoea | 2011, US patent application 20110033423 | | ? |
| Mixture | 5 Lactobacilus strains and a prebiotic | Respiratory infections and intestinal upset, taken orally | 2011, US patent application 20110027243 | Italy | ? |
| Mixture | Lactobacillus rhamnosus, inulin and soy polysaccharides | Treatment of diarrhoea | 2011, US patent application 20110014167 | | ? |


Source: Coriolis

# NUTRACEUTICAL MILK PROTEINS

## Many proteins in milk have nutraceutical uses

Preliminary examples
Not intended to be complete list

Milk proteins and derivatives used in nutraceuticals
*(2010)*

| Category | What | Subcategories | Researched effect | Patent | Date discovered | Commercial Product |
|---|---|---|---|---|---|---|
| Lactoferrin | Whole lactoferrin | | Antimicrobial | None | ? | |
| | | | Lipid metabolism | Formulation patented, 2005 (in Japan) | | Various, patented and produced by NRL Pharma (Japan) |
| | | | Analgesic and anti-anxiety | 2006 (in Japan) | | Various, patented and produced by NRL Pharma (Japan) |
| | | | Bone growth (Osteoporosis prevention) | Fonterra and University of Auckland, 2002 (NZ), 2010 (US) | | ? |
| | Peptides cleaved from lactoferrin | aa16-40 | Antimicrobial activity | ?? | 2000 | N/A |
| | | aa17-41 | Anticancer | ?? | 2005 | N/A |
| | | Lactoferricin | Anticancer | 2000s from Korea | | Products by NuGEN |
| | | Enterically coated lactoferrin | Improved bioavailabilty, to be marketed as antioxidant | Coating components and methods patented, 2007 (in Japan) | | Various, patented and produced by NRL Pharma (Japan), seeking FDA approval |
| | | Lactoferrin and lactic acid mix | Urinary tract infection treatment | Patent application 2008 (US patent application 20080161234) | | ? |
| | | Lactoferrin with attached polymer (PEG) | Improved bioavailability, reduced allergenicity | Attachment patented, 2009 (in Japan); 2011 US application | | Patented and produced by NRL Pharma (Japan) |



Source: Coriolis

# NUTRACEUTICAL MILK PROTEINS

## Many proteins in milk have nutraceutical uses

Preliminary examples
Not intended to be complete list

Milk proteins and derivatives used in nutraceuticals
*(2010)*

| Category | Subcategories | Researched effect | Patent | Country/Date discovered | Commercial Product |
|---|---|---|---|---|---|
| Peptides cleaved from casein | aa84-86 and aa74-76 | Antihypertensive | ?? | 2003 | Fermented milk (Calpis, Evolus) |
| | Glycomacropeptide | Antimicrobial | ?? | 2006 | BioPURE-GMP |
| | aa106-116 | Anticancer | ?? | 2006 | Oral care products |
| | Casomorphins | | | | |
| | Casoxins | | | | |
| | Caseinophosphopeptides | Mineral absorption, tooth decay | | | |
| | Glycylated peptides (β-casomorphin-7) | Sleep aid | Patent application 2010 (US Patent application 20100130406) by Somnaceutics Ltd (NZ) | New Zealand | Sleep Time™ and others made by Somnaceutics (now owned by New Image Group) |
| | Casein hydrolysate | Sleep aid | Patent approved 1993 (Europe), 1998 (US) | France | Lactium™ made by Ingredia (France), used in a variety of products |
| Casein isoform | A2-casein containing milk | Heart disease | | New Zealand | A2-Milk |



Source: Coriolis

# NUTRACEUTICAL MILK PROTEINS

## Many proteins in milk have nutraceutical uses

Preliminary examples
Not intended to be complete list

Milk proteins and derivatives used in nutraceuticals
*(2010)*

| Category | Subcategories | Researched effect | Patent | Country/Date discovered | Commercial Product |
|---|---|---|---|---|---|
| B-lactoglobulin | aa78-80 | Antihypertensive | ?? | Japan, 1998 | Biozate |
| Whey | Whole whey | Anticancer | | 2000 | |
| | Peptides cleaved from whey | | | | |
| | Lactorphins | | | | |
| | Whey hydrolysate fraction | Satiety | Patent on isolation and use, 2007 by Unilever (US patent 7618648) | | |
| α-lactalbumin | | Calcium absorption | | | |
| Milk Fractions | | Anti-inflammatory (also heart disease and sports performance) | Patent on purification and use, 1997 (US patent 5650175 | | Microlactin™ (Stolle Milk Biologics) |
| | Phosphatidylserine enriched fraction | | Patent application on isolation, 2009 (US Patent application 20090123630) | | ? |
| | Protein extract from buttermilk | Reduction of allergies in children | Patent application in Australia by Biolink/TGR (Adelaide) | | TGR-313 produced by TGR, not in production yet |
| | Protein extract | Mouth ulcers | Patent application in Australia by Biolink/TGR (Adelaide) | | Lactermin™ |


Source: Coriolis

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# SOURCE – CANTERBURY/NELSON NUTRACEUTICALS ORGANISATION

NUTRACEUTICALS CANTERBURY • NELSON NEW ZEALAND

## We reviewed the companies of the Canterbury/Nelson Nutraceuticals cluster organisation website

| Firm | Classification | Outcome |
|---|---|---|
| Andeer | | |
| Aroma NZ Ltd. | SP – Seafood | Profiled |
| Bio Oils Ashburton Ltd | SP - Plant | Profiled |
| Botanica | Medicine | Out of scope |
| Bronson and Jacobs Ltd (Orica Chemnet) | AU-based supplier | Out of scope |
| Canterbury Development Corporation | Government agency | Out of scope |
| Carol Priest Natural Cosmetics NZ Ltd | Cosmetics | Out of scope |
| Catalyst R and D Ltd | Service provider | Out of scope |
| Claridges Herbal Products | Manufacturer | Profiled |
| CMS Ltd (o2b healthy) | Manufacturer | Profiled |
| CreateIP | Service provider | Out of scope |
| Extracts NZ Ltd | Manufacturer | Profiled |
| Formula Foods Corporation Ltd | Ingredients/service | Not nutraceutical-focused |
| Genesis Bio-Lab Ltd | Manufacturer | Profiled |
| Gramart Foods Ltd | Jam/food | Not nutraceutical-focused |
| Hi Tech Foods Ltd | Food ingredients | Not nutraceutical-focused |
| James and Wells | Service provider | Out of scope |
| Lanocorp Pacific Ltd | Cosmetics | Out of scope |
| Lincoln University | Government agency | Out of scope |
| Manu Nutraceuticals Ltd | SP - Honey | Profiled |
| Market New Zealand Ltd | Manufacturer | Profiled |
| Merinova Ltd | SP – Seafood | Profiled |
| Midlands Seed Ltd | SP - Plant | Out of scope |
| Migco Pharmaceuticals Ltd | IP focused | Profiled |

| Firm | Classification | Outcome |
|---|---|---|
| NIWA | Government agency | Out of scope |
| Natures Remedies | Retailer | Out of scope |
| Nelson Honey and Marketing | SP - Honey | Profiled |
| New Zealand Health Food Company Ltd | Retailer | Out of scope |
| New Zealand Nutritionals Ltd | Marketing | Profiled |
| NZ Agriseeds - Botanicals Division | Seeds | Out of scope |
| Oasis Beauty NZ Ltd | Cosmetics | Out of scope |
| Oil Seed Extractions Ltd | SP – Plant Profiled | Profiled |
| Professional Herb Services Ltd | Retailer/services | Out of scope |
| Pukunui Herbs NZ Ltd | Farm (?) | Follow up |
| RMF Nutraceuticals | Manufacturer/sourcer | Profiled |
| Scott Apiaries | SP - Honey | Profiled |
| Skybright Natural Health Ltd | Manufacturer | Profiled |
| Triggertec Ltd | Website down/dead | Unclear status |
| UB Bio Ltd | Manufacturer | Profiled |
| Westland Milk Products | Dairy | Profiled |
| Xtend -Life Nutraceuticals Ltd | Marketer | Profiled |



Source: Membership list at http://www.nutraceuticals.org.nz/; Coriolis analysis

# SOURCE – NATURAL PRODUCTS NZ ORGANISATION

## We reviewed the membership list of NPNZ organisation…

| Firm | Classification | Outcome |
|---|---|---|
| Absolute Essential Ltd | Cosmetics | Out of scope |
| Alaron Products Ltd | Manufacturer | Profiled |
| Anagenix Ltd | IP Focused | Profiled |
| ApiHealth NZ Ltd | SP - Honey | Profiled |
| Aroha Drinks | Soft drink | Out of scope |
| Azurlis NZ Skin | Cosmetics | Out of scope |
| Baldwins Intellectual Property | Service provider | Out of scope |
| Bio Oils Ashburton Ltd | SP – Plant based | Profiled |
| Blackmores Ltd | Australian mnfr. | Out of scope |
| Cawthron Institute | Government agency | Out of scope |
| Clinical and Regulatory Services Ltd (CARSL) | Service provider | Out of scope |
| Cognis Australia PTY Ltd (NZ Office) | Wholesaler | Out of scope |
| Complementary Healthcare Council of Aus. | Lobby group | Out of scope |
| Comvita | Marketing focus | Profiled |
| DavisAsia Ltd | Marketing focus | Profiled |
| Doxcon Pharmaceuticals Ltd | Marketing focus | Profiled |
| Easiyo Products | Dairy | Dairy |
| ENZO Nutraceuticals Ltd | SP - Forestry | Profiled |
| Equine Essentials | Animal health | Out of scope |
| Essentially New Zealand Ltd | SP – NZ unique | Profiled |
| Fonterra | Dairy | N/A |
| Forest Herbs Research Ltd | SP – NZ unique | Profiled |
| GMP Pharmaceuticals Ltd | Manufacturing focus | Profiled |
| GO Healthy New Zealand | Marketing focus | Profiled |
| Good Health Organisation | Manufacturing focus | Profiled |
| Good Health Products Ltd | Marketing focus | Profiled |
| Goodbye Sandfly | HBC/Medicine | Out of scope |
| Health 2000 Group | Retailer | Out of scope |
| Homecare Health Management Ltd | Marketing focus | Profiled |
| Hubris International Ltd | SP - Seafood | Profiled |
| Industrial Research Ltd | Government agency | Out of scope |
| Integria Healthcare (New Zealand) Ltd | Marketing focus | Profiled |
| Invita NZ Ltd | Marketing focus | Profiled |
| James & Wells Intellectual Property | Service provider | Out of scope |
| Just the Berries | SP – Plant based | Profiled |
| Keene Manufacturing Solutions Ltd | Service provider | Out of scope |
| Kerasi Limited | Service provider | Out of scope |
| Label and Litho Ltd | Service provider | Out of scope |
| Lifestream International Ltd | Marketing focus | Profiled |
| Manuka Health New Zealand Ltd | SP - Honey | Profiled |
| Mende Biotech Ltd | SP – NZ unique | Profiled |
| Mix Ltd | Cosmetics | Out of scope |
| MJ Health Ltd | Cosmetics | Out of scope |
| Mountain Red Ltd | SP - Deer | Profiled |
| Natural Health Laboratories Ltd | Marketing focus | Profiled |
| Natural Health Review | Media | Out of scope |
| Nelson Apiaries | SP - Honey | Profiled |
| Network Nutrition Pty Ltd | Wholesaler | Out of scope |
| New Image Group | Marketing focus | Profiled |
| New Zealand Extracts Ltd | SP – Plant based | Profiled |



Source: Membership list at http://www.nutraceuticals.org.nz/; Coriolis analysis

# SOURCE – NATURAL PRODUCTS NZ ORGANISATION

## … continued

| Firm | Classification | Outcome |
|---|---|---|
| New Zealand Health Food Company Ltd | Marketing focus | Profiled |
| New Zealand Natural (North America) | Dairy | Dairy |
| New Zealand Trade and Enterprise | Government agency | Out of scope |
| NutraNZ | Marketing focus | Profiled |
| Nutrizeal Ltd | Manufacturing focus | Profiled |
| NZ New Paradise Ltd | Marketing focus | Profiled |
| Pacific Perfumes Ltd | Cosmetics | Out of scope |
| Pacifica Skin Care Ltd | Cosmetics | Out of scope |
| Phytomed Medicinal Herbs Ltd | Manufacturing focus | Profiled |
| Pilot Brands | Meat | Meat |
| Plant & Food Research | Government agency | Out of scope |
| Pure Vitality Health Products | SP - Deer | Profiled |
| Quantec Ltd | IP Focused | Profiled |
| Radius Pharmacy Ltd | Retailer | Out of scope |
| Red Seal Natural Health Ltd | Marketing focus | Profiled |
| Remarkable Foods Ltd | Food | Food |
| RMF Marketing Services Ltd | Manufacturing focus | Profiled |
| Robert Forbes and Associates Pty Ltd | Service provider | Out of scope |
| Sanofi-aventis New Zealand | Australian mnfr./whls. | Out of scope |
| SeaDragon Marine Oils Ltd | SP - Seafood | Profiled |
| Seperex Nutritionals Ltd | IP Focused | Profiled |
| Simunovich Olive Estate | Cosmetics | Out of scope |
| Somnaceutics Ltd | IP Focused | Profiled |
| Supreme Biotechnologies (NZ) Ltd | IP Focused | Profiled |
| The New Zealand King Salmon Co Ltd | Seafood | Seafood |

| Firm | Classification | Outcome |
|---|---|---|
| Trinity Bioactives Ltd | IP Focused | Profiled |
| UBM Medica New Zealand Ltd | Media | Out of scope |
| Victoria University of Wellington | Government agency | Out of scope |
| Vitaco Health NZ Ltd | Marketing focus | Profiled |
| Wilson's Lavenders Ltd | Farmer | No website<br>Nothing on Google<br>Not in companies office |



Source: Membership list at http://www.nutraceuticals.org.nz/; Coriolis analysis

# SOURCE – NZBIO ORGANISATION

## We reviewed the membership list of the NZBIO organisation…

| Firm | Classification | Outcome |
|---|---|---|
| A J Park | Service provider | Out of scope |
| AbacusBio Limited | Service provider | Out of scope |
| AFT Pharmaceuticals Ltd | Pharmaceuticals | Out of scope |
| AgResearch | Government agency | Out of scope |
| Argenta Manufacturing Limited | Animal health | Out of scope |
| Auckland Council | Government agency | Out of scope |
| Auckland UniServices Ltd | Government agency | Out of scope |
| Baldwins Intellectual Property | Service provider | Out of scope |
| BioCatalyst Ltd | Service provider | Out of scope |
| Bioengineering Institute, U. of Auckland | Government agency | Out of scope |
| Biomatters Limited | Service/Software | Out of scope |
| BioPacificVentures | Venture capital | Out of scope |
| BLIS Technologies Ltd | IP focused nutraceutical | Profiled |
| Business NZ | Lobby group | Out of scope |
| Cawthron Institute | Government agency | Out of scope |
| CoDa Therapeutics, Inc. | Pharmaceuticals | Out of scope |
| Cure Kids | Charity | Out of scope |
| Ernst & Young | Service provider | Out of scope |
| Environmental Services Research (ESR) | Government agency | Out of scope |
| Estendart | Service provider | Out of scope |
| Fonterra Co-operative Group Ltd | Dairy company | Profiled |
| FRST | Government agency | Out of scope |
| Industrial Research Limited | Government agency | Out of scope |
| Innate Therapeutics Limited | Pharmaceutical | Out of scope |
| Institute for Innovation in Biotechnology | Equipment supplier | Out of scope |

| Firm | Classification | Outcome |
|---|---|---|
| Invitrogen New Zealand Limited | Equipment supplier | Out of scope |
| Izon Science | Spectroscope | Out of scope |
| James & Wells Intellectual Property | Service provider | Out of scope |
| Kerridge & Partners | Recruitment agency | Out of scope |
| KODE Biotech | Biotech | Out of scope |
| LanzaTech NZ Ltd | Bio-Energy | Out of scope |
| Living Cell Technologies Limited | Pharmaceuticals | Out of scope |
| Manuka Health New Zealand Ltd | SP - Honey | Profiled |
| Massey University | Government agency | Out of scope |
| Maurice Wilkins Centre | Government agency | Out of scope |
| Medicines New Zealand | Lobby group | Out of scope |
| Merck Millipore | Equipment supplier | Out of scope |
| Ministry of Science & Innovation | Government agency | Out of scope |
| MP Biomedicals New Zealand Limited | Equipment/supplies | Out of scope |
| New Zealand Trade & Enterprise | Government agency | Out of scope |
| NZ Genomics Ltd | Government agency | Out of scope |
| Otago Innovation Limited | Government agency | Out of scope |
| Pacific Edge Biotechnology Ltd | Biotech | Out of scope |
| Pastoral Genomics Limited | Research consortium | Out of scope |
| PGG Wrightson Seeds | Seeds/farm supplies | Out of scope |
| Photonz Corporation Limited | IP focused nutraceutical | Profiled |
| Plant and Food Research | Government agency | Out of scope |
| PolyBatics Ltd. | Biotech | Out of scope |
| PricewaterhouseCoopers | Service provider | Out of scope |
| RJ Hill Laboratories | Service provider | Out of scope |



Source: Membership list at http://www.nzbio.org.nz; Coriolis analysis

# SOURCE – NZBIO ORGANISATION

## … continued

| Firm | Classification | Outcome |
|---|---|---|
| Rubicon Ltd | Biotech/other | Out of scope |
| SCION | Government agency | Out of scope |
| Seperex Limited | IP focused nutraceutical | Profiled |
| Sigma-Aldrich New Zealand Ltd | Equipment/supplies | Out of scope |
| Simpson Grierson | Service provider | Out of scope |
| Southern Lights Biomaterials | Animal tissue | Out of scope |
| Symansis Ltd | Biotech/other | Out of scope |
| TechSol | No available data | Unclear |
| Thompson & Clark Investigations Limited | Service provider | Out of scope |
| Thomson Reuters Healthcare & Science | Service provider | Out of scope |
| Tompkins Wake | Service provider | Out of scope |
| University of Otago, Research & Enterprise | Government agency | Out of scope |
| ViaLactia Biosciences (NZ) Limited | Biotech/other | Out of scope |
| WaikatoLink Limited | Government agency | Out of scope |
| Wintec | Government agency | Out of scope |
| World Courier (NZ) Limited | Service provider | Out of scope |

Less than 1/3 (21 out of 66) actually bio/pharma related firms



Source: Membership list at http://www.nzbio.org.nz; Coriolis analysis

## SOURCE – NZTE

### We reviewed the list of nutraceutical firms provided by NZTE from their database…

| Firm | Classification | Outcome |
|---|---|---|
| A2 Corporation | Dairy | Dairy |
| Abacus Biotech Ltd | Service provider | Out of scope |
| Absolute Essential | Cosmetics | Out of scope |
| Agresearch Ltd | Government agency | Out of scope |
| Agri-lab Co-Products Ltd | SP – Meat byproducts | Profiled |
| AgriQuality NZ Ltd | Government agency | Out of scope |
| Alaron Products Ltd | Manufacturing focus | Profiled |
| Alpha Laboratories NZ Ltd | Manufacturing focus | Profiled |
| Aotea Pacific Ltd | SP – Seafood | Profiled |
| ApiHealth NZ Ltd | SP - Honey | Profiled |
| Aroma (NZ) Ltd | SP – Seafood | Profiled |
| Auckland UniServices Limited | Government agency | Out of scope |
| Bioactives Research | Service provider | Out of scope |
| Trinity Bioactives | IP Focused | Profiled |
| Biovittoria | SP - Plant based | Profiled |
| Blackmores | Aust. Mnfr. | Out of scope |
| BLIS Technologies | IP Focused | Profiled |
| Bronson and Jacobs | AU based supplier | Out of scope |
| Canes Deer Products Ltd | SP – Deer velvet | Profiled |
| Cawthron Institute | Government agency | Out of scope |
| Cellular Improvements Ltd | SP – Honey/bee product | Profiled |
| CMS | WHO? | |
| Comvita | SP - Honey | Profiled |
| Creative Energy Natural Health NZ | Marketing focus | Profiled |
| Distribution International | Wholesaler/Retailer | Out of scope |

| Firm | Classification | Outcome |
|---|---|---|
| Earthwise Direct Aka Betta Crop Organics | HBC/Cleaning | Out of scope |
| Eat Right Foods | Food | Food |
| Enzo Nutraceuticals Ltd | SP – Forestry | Profiled |
| Essentially New Zealand | SP – NZ unique | Profiled |
| Evergreen Life Limited | Marketing focus | Profiled |
| Extracts NZ Ltd | Manufacturing focus | Profiled |
| First Ocean Wide | Unclear | Website down |
| Fonterra/NZMP | Dairy | Dairy |
| Forest Herbs Research Ltd | SP – NZ unique | Profiled |
| Fragrance Holdings Ltd (Les Floralies) | Cosmetics | Out of scope |
| Functional Whole Foods | SP - Plant based | Profiled |
| Genesis Biolaboratory Ltd | Manufacturing focus | Profiled |
| Gevir Products NZ Ltd | SP – Deer velvet | Profiled |
| GHO | Food (vinegar/drinks) | Out of scope |
| Ginko Green NZ Ltd | SP - Plant based | Profiled |
| GMP Pharmaceuticals | Manufacturing focus | Profiled |
| Good Health Products Ltd | Marketing focus | Profiled |
| Gracelinc | IP Focused | Profiled |
| Gramart Foods | Food | Food |
| DavisAsia Ltd | Marketing focus | Profiled |
| Happy Families Ltd | Retailer | Out of scope |
| Health and Herbs International Ltd | Marketing focus | Profiled |
| Vitaco Health | Marketing focus | Profiled |
| Herb Mark Ltd / Eco Logic Concepts | SP – Seafood (seaweed) | Profiled |
| Honey New Zealand Intl Ltd | SP - Honey | Profiled |



Source: Membership list at http://www.nutraceuticals.org.nz/; Coriolis analysis

# SOURCE – NZTE

## … continued

| Firm | Classification | Outcome |
|---|---|---|
| Honeycreme International Ltd | Cosmetics | Out of scope |
| Plant & Food Research | Government agency | Out of scope |
| Hubris International | SP – Seafood | Profiled |
| Ideal Health | Retailer | Out of scope |
| Immuno Laboratories NZ Ltd | Marketing focus | Profiled |
| Industrial Research Limited (RP) | Government agency | Out of scope |
| Jagulana Health Products Ltd | Marketing focus | Profiled |
| Just the Berries Ltd | SP - Produce | Profiled |
| Lifestream International Ltd | Marketing focus | Profiled |
| Living Nature | Cosmetics | Out of scope |
| MacLab | SP – Seafood | Profiled |
| Malcolm Harker Ltd | Marketing focus | Profiled (in liquidation) |
| Manuka Health NZ | SP - Honey | Profiled |
| Market New Zealand Ltd | Manufacturing focus | Profiled |
| Maxamena | SP – Seafood | Profiled |
| Mende-Biotech Ltd | SP – NZ unique | Profiled |
| SeaDragon Marine Oils | SP – Seafood | Profiled |
| Miada Sports Nutrition | Marketing focus | Profiled |
| National Deer Horn Ltd | SP -Deer | Profiled |
| Natural Health Laboratories | Marketing focus | Profiled |
| Natural Health New Zealand (2002) Ltd | SP – Seafood | Profiled |
| Natural Health Review | Publication | Out of scope |
| Natural Health Zone | Retail | Out of scope |
| Nature Bee | SP - Honey | Profiled |
| Natureplus | Marketing focus | Profiled |

| Firm | Classification | Outcome |
|---|---|---|
| Nature's Nurse | Topical medicine | Out of scope |
| Natures Sunshine Products (NZ) | Marketing focus | Profiled |
| Naturo Pharm Ltd | Parent profiled | |
| Nelson Apiaries Ltd | SP - Honey | Profiled |
| Network Nutrition | No longer operating | |
| New Zealand Botanicals Ltd | Marketing focus | Profiled |
| New Zealand Pharmaceuticals | Manufacturing focus | Profiled |
| New Zealand Supreme Natural Foods Limited | SP - Deer | Profiled |
| NIWA | Government agency | Out of scope |
| NutraNZ | Marketing focus | Profiled |
| Nutravision Consultancy Services | Equipment/consultant | Out of scope |
| NutriPharm NZ Ltd (Nutritional Brands) | Infant formula | Processed foods |
| Nutri-Zeal Ltd | Manufacturing focus | Profiled |
| NZ Blackcurrant Holdings Ltd | Food | Food |
| NZ Extracts Ltd | SP – Plant based | Profiled |
| NZ Health Food Company | Marketing focus | Profiled |
| NZ Health Naturally | Marketing focus | Profiled |
| NZ Health Shop | Retailer | Out of scope |
| NZ Laboratory Services | Service provider | Out of scope |
| Oil Seed Extracts | SP – Plant based | Profiled |
| Pacific Health Products | Wholesaler | Out of scope |
| Pharmazen Group | Manufacturing focus | Profiled |
| Phytomed Medicinal Herbs Ltd | Marketing focus | Profiled |
| ProActive Nutrition | Parent profiled | |
| Professional Herb Services | Wholesaler/retailer | Out of scope |



Source: Membership list at http://www.nutraceuticals.org.nz/; Coriolis analysis

# SOURCE – NZTE

## We reviewed the NZTE feedback

| Firm | Classification | Outcome |
|---|---|---|
| Quantec Ltd | IP Focused | Profiled |
| Red Seal Natural Health Ltd | Marketing focus | Profiled |
| RMF Marketing Services Ltd | Manufacturing focus | Profiled |
| Robert Forbes & Assoc | Service provider | Out of scope |
| Seperex Nutritionals Ltd | IP Focused | Profiled |
| Silberhorn | SP – Deer velvet | Profiled |
| Solgar NZ | Agent/wholesaler | Out of scope |
| New Image | Marketing focus | Profiled |
| Tairawhiti Pharmaceuticals Ltd | SP-NZ unique | Profiled |
| Tatua | Dairy | Dairy |
| Integria Health | Marketing focus | Profiled |
| Trilogy Natural Products | Cosmetics | Out of scope |
| Tui Bee Balme Co-op | Cosmetics | Out of scope |
| Vita-Fit Nutrition Ltd | Parent profiled | |
| Vital Food Processors Ltd | SP – plant based | Profiled |
| Weleda NZ Ltd | Cosmetics | Out of scope |
| Westland Milk Products | Dairy | Dairy |
| Xtend - Life Nutraceuticals (NZ) Ltd | Marketing focus | Profiled |
| Zeal Extracts Ltd | SP - Honey | Profiled |



Source: Membership list at http://www.nutraceuticals.org.nz/; Coriolis analysis

# SOURCE – MSI

## We reviewed the MSI additions as part of their feedback

| Firm | Classification | Outcome |
|---|---|---|
| Synlait | SP - Dairy | Profiled |
| A2 Corporation | SP - Dairy | Profiled |
| Anagenix | Shown with Trinity | Profiled |
| Carina Chemical Laboratories Ltd | Unclear business model | |
| Blackmores | AU/No NZ mnfr.<br>(Closed NZ mnfr 1996) | Out of scope |
| Gevir Premium | SP - Deer | Profiled |
| GraceLinc Limited | IP Focused | Profiled |
| Kiwifruit Extract Ventures Ltd | IP Focused | Profiled |
| Miers Laboratories | Marketing focused | Profiled |
| MJ Health Ltd | Cosmetics | Out of scope |
| Natural Magic Ltd | Medical ointment | Out of scope |
| Nature's Kiss NZ Ltd | Medical ointment | Out of scope |
| Tairawhiti Pharmaceuticals | NZ-unique | Profiled |
| Xtend-Life Natural Products (International) Limited | Manufacturing focus | Profiled |
| Alliance | | |
| ANZCO | | |
| AFFCo | | |
| SFF | | |
| Meat Biologics Research Ltd. | SP – meat based | Profiled |



Source: Membership list at http://www.nutraceuticals.org.nz/; Coriolis analysis

## TABLE OF CONTENTS

## SUPPLEMENTARY – IDENTIFIED THEN EXCLUDED

### We identified the following firms but then excluded them as outside scope

- As there is effectively no data on the size and structure of the nutraceuticals sector in New Zealand we built data from scratch:
  - Identifying as many as possible companies in New Zealand
  - Attempting to determine basic information about identified firms
- To do this, we used a wide range of sources, including interviews, industry directories and web searches
- As part of this, we identified a range of companies which we excluded from our definition of the industry
- We include a list of these firms here for reference

# COSMETICS

## We identified a range of natural products derived cosmetics firms which were out of scope

Identified natural products derived cosmetics firms in New Zealand
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Cosmetics | | | | | | |
| ABSOLUTE ESSENTIAL THERAPEUTIC PLANT OILS | | | | | | www.absoluteessential.com/<br>Aromatherapy; essential oils |
| LIVING NATURE New Zealand | | | | | | www.livingnature.com/<br>Cosmetics & skincare; partially owned by New Image |
| Dr. Wendy's 100% Botanical Skin Care Made in New Zealand | | | | | | www.doctorwendy.net/<br>Skincare |
| pacifica SKINCARE | | | | | | |
| CAROL PRIEST | | | | | | www.carolpriest.co.nz/ |
| Lanocreme | | | | | 1987 | www.lanocreme.com/<br>Lanolin cream; honey; kiwifruit extract; others |
| Oasis beauty | | | 4 (ws) | | | www.oasisbeauty.co.nz/<br>Skincare |
| GO NATIVE NEW ZEALAND | | | | | | www.gonative.co.nz<br>Natural cosmetics ingredients with NZ specific ingredients |
| Les Floralies New Zealand | | | | | | www.lesfloralies.co.nz/ |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# COSMETICS

## We identified a range of natural products derived cosmetics firms which were out of scope

Identified natural products derived cosmetics firms in New Zealand
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Cosmetics | | | | | | |
| WELEDA Medicine & Bodycare | | | | NZ/Swiss; private<br>(52% Melville; 48% Weleda AG) | | www.weleda.com.au; http://www.weleda.co.nz<br>www.weleda.com |
| Madeleine Ritchie | | | | | | www.honeycreme.co.nz |
| trilogy | | | | | | www.trilogyproducts.com/ |
| Tui Balms | | | | | | www.tuibalmes.co.nz |
| A New Zealand Natural Magic Ltd Herbal Remedy | | | | | | www.magickawa.com<br>Kawakawa ointment |
| KIRI | | | | | | www.kiriskincare.co.nz |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# WHOLESALERS

## We identified a range of firms that were wholesalers of imported product and firms that only served horses

Identified importer/wholesalers of nutraceutical ingredients in New Zealand
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| Importer/Wholesaler | | | | | | |
| CHEMIPLAS | $150m<br>(K; 05) | | 70<br>(K) | | 1987 | www.chemiplas.co.nz<br>Wholesaler not manufacturer; some food ingredients |
| Ingredient Techniques | $1m<br>(Ke) | | 5<br>(K) | | n/a | www.ingredients.co.nz<br>Wholesaler not manufacturer |
| Animal not human | | | | | | |
| Good Health<br>Organisation<br>Redwood Animal Health | | | | | | www.rah.co.nz/ |
| Equine Essentials | | | 3 | | 2005 | www.equineessentials.co.nz/<br>Horse cosmetic products |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# PRIMARILY RETAILER

## We identified a wide range of nutraceuticals retailers, primarily direct/internet sellers…

New Zealand nutraceuticals firms – primarily retailer
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Primarily Retailer** | | | | | | |
| healthy online | | | | | | www.healthy.co.nz |
| The Herbal Dispensary | | | | | | http://theherbaldispensaryraglan.co.nz<br>Retail store |
| Living Foods Lifestyle New Zealand | | | | | | http://livingfoodslifestyle.co.nz |
| ChildLife Essentials | | | | | | http://childlife.co.nz<br>Imports and distributes Child Life Essentials supplements |
| PROHERB | | | | | 1993 | www.proherb.co.nz<br>Import and distribution of global products |
| TASMAN HEALTH Natural Health Supplements | | | | | | www.tasmanhealth.co.nz/ |
| GreenHealth | | | | | | www.greenhealth.co.nz |
| HEALTHPOST | | | 10-20 | | | www.healthpost.co.nz<br>Retail other brands and have own brand |
| healthia | | | | | | www.healthia.co.nz |
| Shaman's Garden | | | | | 2003 | www.shaman.co.nz<br>Herbal remedies |
| Kombucha King | | | | | 2000s | www.hhacupuncture.co.nz<br>Solely sell kombucha tea |
| Natures Remedies | | | | | | www.natures-remedies.com/ |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# PRIMARILY RETAILER

## …continued…

New Zealand nutraceuticals firms – primarily retailer

*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Primarily Retailer** | | | | | | |
| T.J. Clark | $1m (Ke) | | 5 (K) | | 2001 | www.tjclark.co.nz/<br>Noni juice , colloidal minerals, other |
| abeeco pure new zealand bee pollen | $3m (K) | | 3 (K) | New Zealand; private (Sowden family) | 1992 | www.abeeco.co.nz/ Parent is "Performance Health"<br>Direct mail; originally bee pollen; now a range of supplements packed by others |
| Life Health | | | | | | www.nonihealth.co.nz<br>Primarily sell noni products: supplements, juice, soap |
| NONI | | | | | | www.nonienterprise.com/<br>Sell only noni juice and capsules (made in Niue) |
| pure pacifika | | | | | | www.purepacifika.com<br>Sell only noni juice and capsules (made in Niue) |
| Probiotics for your good health | | | | | | www.probiotics.co.nz<br>Importers and distributors |
| Lovely Health | | | | | 2000 | www.lovelyhealth.com<br>Southern Deep (marine), Southern Country (dairy), Southern Synergy (barley grass) range of supplements |
| healthy online | | | | | | http://www.healthy.co.nz/<br>Firm is Ideal Health |
| Natural Health Zone | | | | | | www.workboot.co.nz/profile/Natural_Health_Zone/2540.html |
| New Zealand Health Shop | | | | | | http://www.nzhealthshop.co.nz/ |
| HEALTH WORLD | $6m (2010) | | N/A | | 1985 | www.healthworldnz.co.nz<br>Brands Metagenics/Ethical Nutrients<br>Factory in Australia; wholesale AU produced product in NZ |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

# PRIMARILY RETAILER

## …continued

New Zealand nutraceuticals firms – primarily retailer
*(2010 or as available)*

| | Turnover | % Export | Employees | Ownership | Year founded | Notes |
|---|---|---|---|---|---|---|
| **Primarily Retailer** | | | | | | |
| taste nature | | | | | | www.tastenature.co.nz<br>Health shop |
| Jacquie dale's real nutrition | | | | | | www.realnutrients.co.nz<br>Have own brand, ~50% of products |
| BioTrace | | | | | | www.biotrace.co.nz<br>On sell product from US |
| Pacific Health | | | | | 1984 | www.pachealth.co.nz<br>Sales to natural health industry; effectively a wholesaler |
| Vitality Plus - for all your natural health needs | | | 2 | | 2009 | www.vitalityplus.co.nz |
| in2herbs Herbal Supplements | | | 2-4 | | | www.in2herbs.co.nz<br>Import and distribution |
| Vital Life | | | | | | www.vitallife.co.nz<br>Just online sales |
| Nature's Nutrition | | | | | | www.naturesnutrition.co.nz |
| Waimarino Health Celebrating Women | | | | | | www.waimarinonaturalhealth.co.nz |
| OneEarth | | | | | | www.oneearth.co.nz<br>Range of supplements and herbal products |



Source: various company annual reports; various company websites; Kompass; interviews; Coriolis analysis and estimates

Ministry of Economic Development
Manatū Ōhanga

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TE PŪNAHA HIRINGA WHAKAEA

NEW ZEALAND MINISTRY OF FOREIGN AFFAIRS & TRADE
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