IWC PARIS 2008

5th International Whey Conference

WHEYVOLUTION

The Future For The Whey Products Market From A Customer's Perspective

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iRIS

INTERNATIONAL RESEARCH, INSIGHT & STRATEGY

Agenda

- iRIS Consulting
- Role of Whey in Global NPD
- Future Developments
  - è Promising Applications/Resulting Ingredient Needs
- Some Sectors To Watch
- Demand – Supply Implications

iRIS Consulting

- Based EU & USA, 15 years specializing in international dairy industry projects

è **Strategic consulting**
è **Marketing**
è **Market research**

for

è Manufacturers, traders, marketers
è Ingredient buyers
è Industry organisations
è Investors

- Dairy ingredients, commodities, end products
- Current projects – EU, Latin America, USA, West Africa, China, Vietnam, Indonesia
- Currently re-branding to Orrani Consulting

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Market Situation

- Challenges for whey customers
  - Ever-greater competitive pressure
  - Price risk – limited management tools
  - Substitution – dairy/dairy, dairy/non-dairy
  - Health/Nutrition – has emerged as the key driver of the food/drink industry, not just a factor/trend
  - Uncertainty – nutrition claims vs health claims
- Danone –

  "Bringing health through food to as many people as possible"
- PepsiCo –

  "Our commitment is that 50% of our new products will be comprised of essentially healthy ingredients or offer improved health benefits"
- Nestlé –

  "We are committed to increasing the nutritional value of our products while improving the taste"

Market Situation

- **Whey highly regarded as protein – but customers emphasize proliferation of ingredients offering H/N benefits**

Lipids **Fibres** **Pro/Pre-biotics** **Polyols** **Vitamins** **Minerals** **Plant extracts** **Phytochemicals**

- **Many of the most promising H/N ingredients will be existing ingredients becoming better understood, with resulting extended/new applications –** ***whey is THE example of this***

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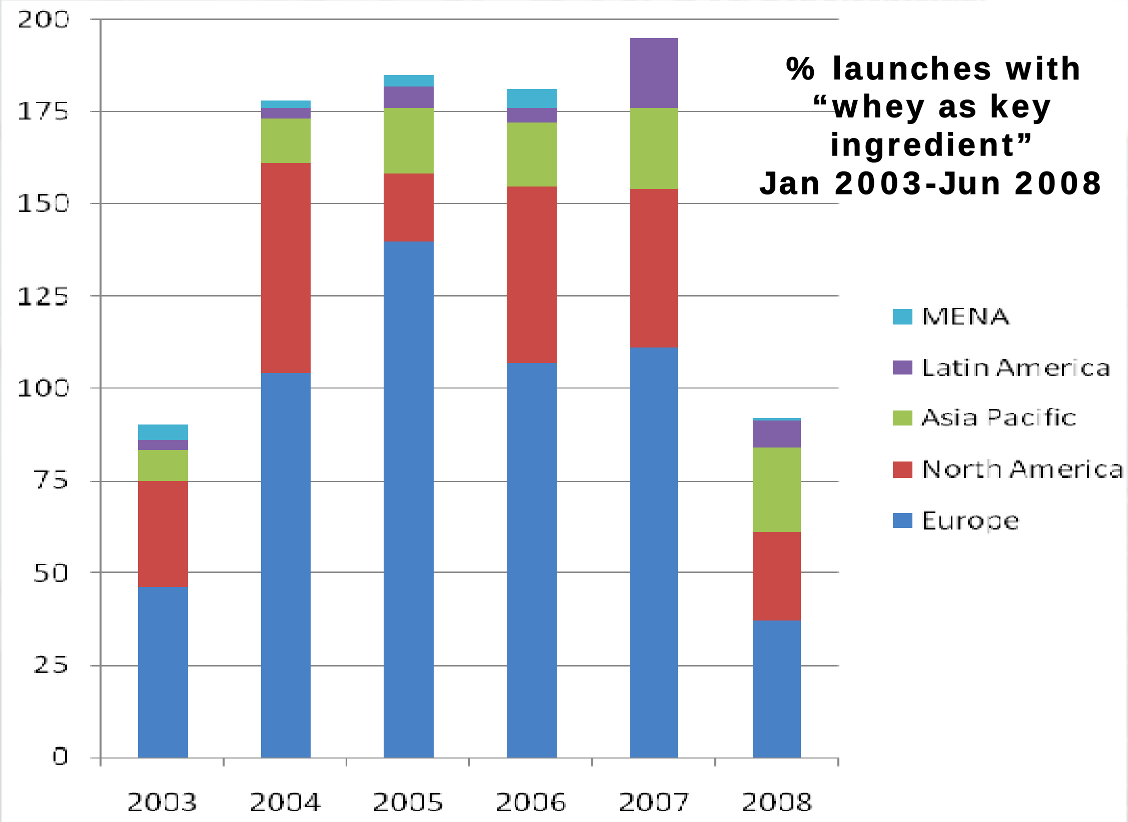
Whey in Global NPD

- **Europe/US – 83% of "whey as key ingredient" product launches (Jan 2003-Jun 2008); Asia Pacific, Latin America growing**
- **Step change in launch numbers from 2004**



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* Jan-Jun

Whey in Global NPD

- Dairy sector – no 1 user of whey as key ingredient, 45% of total new introductions
- Non-alcoholic beverages (NABs) no 2, Snacks no 3

% launches with "whey as key ingredient"
Jan 2003-Jun 2008

MINTEL gnpd

Promising Applications

- Major categories with high volume requirements and good growth prospects
  - Infant and enteral formulae
  - Bakery
  - Confectionery
  - Dairy
  - Convenience foods
- Niche categories set to grow
  - Protein powders, shakes, bars, snacks
  - Foods for the elderly?
- Major categories discovering whey products
  - Beverages – the biggest of all (est. $153 bn US/EU-15, 2008)

Infant Formulae

- Key formulation issues–
  - è How to mimic maternal milk?
  - è How to get as much nutrition as possible in?
- Caseinates ê milk proteins é
- Shift from 82:12 casein:whey (cow’s milk) to 40:60 (human milk ratio)
- Growth driven by Asia – specifically China:
  - è China's one-child policy aiding sales - “Little emperor syndrome“?
  - è GDP growth, lifestyle change
  - è Rising DWP90 requirement

China EU US Japan

Bakery Sector

- Bakery applications well-established for whey:
  - Increases dough volume, moistness; enhances crust browning, crumb structure, flavour, toasting qualities; retards staling, so extending shelf-life; nutrition: adds lysine (deficient amino-acid in wheat protein)
- Bakery industry low levels of NPD with protein
- Key drivers: higher fibre (even white bread), low salt, natural/traditional/artisanal
- Whey's strong health proposition likely to remain niche in this category

Bakery - Egg Replacers

- Egg ingredients: chilled liquid, frozen, dried – suffer some issues:
  - Difficulty of handling
  - Short-shelf-life (liquid egg)
  - Storage requirements
  - Cholesterol: right or wrong, cholesterol concerns persist
  - Rising costs: for example: US egg prices +18.2% May ‘08 vs ’07
  - Reflects factors such as:
    - Reduced supply in some key markets such as US
    - Strong demand
    - Increased input costs, assisted by ethanol boom

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Bakery - Egg Replacers

- Egg replacement hardly a new issue – but price rises provide an enhanced opportunity for WPCs to play a role in whole/partial replacers
- Whey will compete against other proteins (soy, wheat, gluten) and starch/gum-based replacers
- Opportunities for whey
  - Indirectly, in milk proteins marketed in this context
  - Directly eg WPC34, WPC80
  - Specific replacer formulations (Alleggra Foods - Unilever/Tate & Lyle)
  - Substitution of lactose eg whey permeate

Functional Beverages

- Global health/nutrition trend a key driver
- WPI playing increasingly strong role, stand-alone and in blends
- High protein content, functional attractions:
  - Very bland taste – easy to build into formulations, provides competitive advantage vs competing proteins eg soy
  - Highly dispersible variants available
  - BCAAs (leucine, isoleucine, valine - metabolized in the muscle - to build new proteins or be burned as fuel to produce energy)
  - Stable at low (≤pH 3.8) or neutral pH
  - Low GI; reduced fat, lactose vs WPCs

Functional Beverages

- Move from powder to RTD has been difficult for smaller specialist companies centred on WPI
- Imperative for beverage co's to diversify from mature, develop H/N propositions
  - 2006: Cadbury Schweppes (Motts) purchased Pacific Health Labs protein beverage brands Accelerade and Endurox (RTD versions)
  - 2007: Coca-Cola buys functional water pioneer and US phenomenon Glaceau for $4.1 billion
  - 2008: AG Barr (Irn Bru) acquires Vitsmart, Vitaminsmart labels
- Opportunity for whey protein in NPD here! Extended distribution will drive volumes

Whey in Beverage NPD

- 56 launches in '07 (whey key ingredient)
  - Beverage mixes 25% of total since 2003
  - Meal Replacements/Other Drinks: '06 – 1; '07 – 26; '08 - 7

% launches with "whey as key ingredient" Jan 2003-Jun 2008

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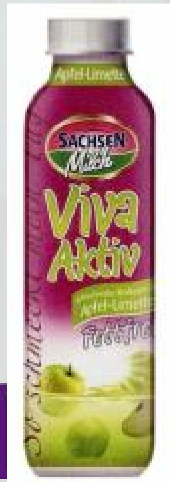
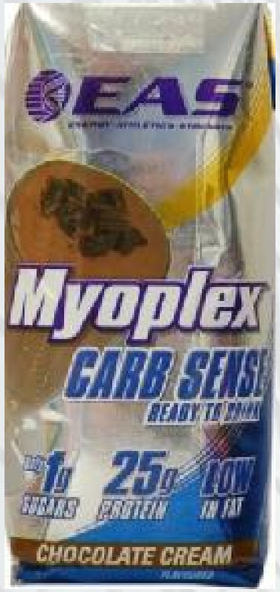
Whey Beverages

- A number of markets have seen development of strong whey drink market –
  - Germany
  - Austria
  - Brazil

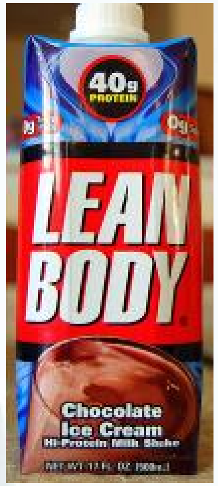


Sports / Protein Beverages

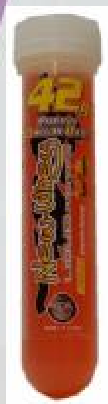
Reflex Nutrition 's Whey Refresh
– launch Jan '08
500 ml bottles
Pure filtered water
40 g protein each (WPI)



EAS Myoplex – launch '07
330ml carton
(MPI, calcium caseinate, WPI)



Labrada's Lean Body Chocolate Ice Cream Hi-Protein Milk Shake
– launch '07
17oz bottles
40 g protein
(MPI, WPC)



IDS
New Whey Liquid Protein
– launch June '08
2.9 oz bottles
25 g protein (hydrolysed whey & casein)
0 carbs, 0 fat

Be Unlimited's Be Performance
launch '07
11oz can caseinate, WPC, whey powder

Next Protein's Designer Whey Protein Blitz
– launch June '08
20 oz bottles
30 g protein
7800mg BCAAs

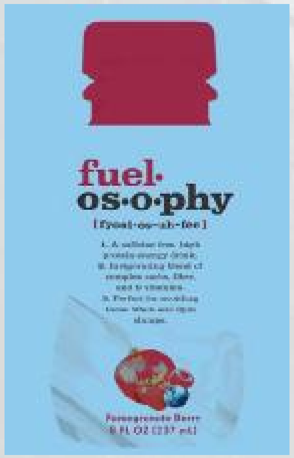
Functional Beverages

Bolthouse Farms Perfectly Protein Mocha Cappuccino & Hazelnut Latte
– launch '07
8-ounce bottles
10 g protein

Kellogg K²0
– launch '07
16-ounce bottles
5 g protein each

Not all whey of course...!

Pepsico's Fuelosophy
– launch late '06
80z bottles
10 g protein (MPI)



Pepsico's Raw
– launch UK February '08
300 ml bottles
Natural & declared ingredients

Starbucks - Vivanno Nourishing Blends protein/fibre smoothies
– launch July '08
10oz
banana/chocolate
21g protein
orange/mango/banana
16g protein

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Satiety Beverages?

- Obesity – major, growing global health issue; 3 bn overweight/obese by 2015 (WHO)
- EU/US sales of diet foods – est. $100 bn
- But consumers focusing less on traditional methods (calorie restriction), more on lifestyle issues/appetite management
  - “Consumers don’t want products that scream ‘diet’
  - Late ‘07, Kraft re-named South Beach Diet as “South Beach Living”
  - Growing NPD focus on satiety likely

Satiety Beverages?

- Combination of fibre (bulk) and whey proteins (staying power in stomach) aids:
  - Slow digestion
  - Prolong the release of CCK, the hormone that triggers the “I’m full” feeling in your brain
- Whey protein outperforms other proteins (casein, egg, vegetable)
- Whey components for managing satiety
  - GMP, a casein-derived whey peptide
  - GOS
  - Lactitol
  - Lactulose

Satiety Beverages?

Campina's
Optimel Control
- launch late '06
100 ml bottles
Fabuless (combination of oat and palm oils)

Fuze's Slenderize &
PepsiCo's
SoBe Lean
fruit infusions –
based on
hydroxycitric acid
(gambooge fruit
extract)

Pacific Health
Laboratories
Smoothies
– launch February '06
8.25 oz bottles
5g fibre
5g protein (WPI)

Dannon's
Light & Fit Crave Control
-Launch '06
Per 4oz serving:
7g protein
3g fibre

Quaker's Instant
Oatmeal Weight Control
– launch September '05
45g pckets
6g dietary fibre
7g protein (WPI)

LightFull Foods
Satiety Smoothies
– launch February '06
8.25 oz bottles
5g fibre
5g protein (WPI)

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Functional Bars & Snacks

- **Whilst Europe bars tend more to "natural" market positioning, protein bars continue to proliferate in US**

- **Kellogg's Special K Protein bars: major impact in meal bar category – May'08 sales +107% (most others and overall category down!)**

- **June '08: Fritolay launch of** True North snack range with 5g (whey) protein per 1oz serving

Functional Bars & Snacks

Nutrabolics' Isobar
– launch May '07
25g protein per 2oz bar
blend WPI/WPC/SPC

ISS
OhYeah! Chocolate cream filled wafer
– launch December '07
14g protein per twin-stick pack (blend WPI, SPI, egg white, calcium caseinate)

Norrmejerier's Gainomax Energy Bar
– launch July '07
1/3 fibre RDI; 7g protein per 50g
fibre blend (chicory root, acacia)
blend WPI/soy protein

SupaShape Health's
Pro-Tein Ice Bar
– launch June '08
Low fat, low carb meal replacement
26g protein per 65g countline
(protein blend cultured with probiotics)

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Supply-Demand-Availability

- As a raw material, whey supply is sufficient and seems set to remain so
- Issue lies in limited processing capacity
- Reflects growing demand in certain applications and regions
- As a result, imbalances exist between supply and demand which suggest opportunities

Broad Supply Situation

- Whey ingredients with positive demand but supply broadly adequate
  - Acid whey powder
  - WPI
  - DWP90
  - SWP
  - WPC34/35
  - WPC80
  - Permeate (feed use hit but further substitution potential; economic downturn may aid some applications)

Some areas generally perceived as tighter than others

- + possibly
  - WPH
  - Alpha-lactalbumin
  - Lactoferrin

Ingredient Opportunities?

- Areas requiring development/refinement
  - Whey fractions promise much
    - Developing more precise nutritional profiles for products
    - Laying basis for competitive differentiation
  - But fail to convince many leading mass market food companies
    - Marketing task - lack of consumer awareness (?lactoferrin)
    - Price proof conundrum
  - Hydrolysed whey proteins
    - Enhanced digestibility attractive, well aligned to sectors with good growth prospects
    - Taste issues continue to limit usage

Region: China

- Strong demand growth but wholly import-dependent (negligible cheese, casein output)
- Importation remains problematic (closer official scrutiny, definitional/registration issues)
- Problems have centred on bulk products (market largely permeate to date)
- Supply will get tighter due to growth in sectors demand for specialised whey products
  - Infant formulae
  - Sports nutritionals (Olympics boost)

Region: Russia

- Whey relatively new in local food formulations
- Whey processing limited to date
- Demand for wider range of whey products increased by growing presence of multinationals
- Import procedures remain complicated even with pan-EU certification system
- Limited presence of whey suppliers with market development capability

Region: South America

- Whey surplus exists, demand for whey products growing, but local processing limited to commodity products – SWP, DWP40/45, lactose, permeate, protein blends
- WPC's – mainly opportunistic; some WPC80
- WPC-70, WPI, DWP70, DWP90 need to be imported, little permeate processed, mainly exported
- Local countries not conducive to investment!

Concluding Remarks

- Customers show strong and growing demand for whey products, with some supply/demand imbalances apparent (applications, regions)
- Balancing key supplier relationships with risk mitigation a constant challenge
- Customer view – depends where you sit!
- Key opportunity – improved marketing
  - Becoming more market-led, less production driven; planning with market requirements in mind, not plant configurations
  - Building closer customer relationships

THANK-YOU

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