Asian IP Database
There are more people living inside this circle than outside of it.
Fast Tracking **INNOVATION** to be export ready

A collaboration between the State of Victoria & Mondelez International to deliver...

- **CAPABILITY**
  build best practice innovation capabilities.
- **COLLABORATION**
  foster for win:win
- **CREATION**
  access and the latest innovation thinking, tools and techniques to de-risk your new product development to grow Australian businesses in Asia Pacific

The Food Innovation Centre is a one-stop shop that has world class innovation capabilities, facilities and expertise that can support small and medium businesses in the food industry.
West is Not East!
Research Hubs: Building a Deep Knowledge Base for Innovation for Premium Product Export from Australia to Asia

Gifting Archetypes
Channel and Category
Selection/ Deselection

Platforms/ concepts’
semiotics/ Origin
Impact from a consumer perspective

ID and Develop Thermo
Responsive/ Holographic/ Anti
Counterfeiting Packaging

Ultrasonics and encapsulations

SWOT of Australian current
capability and delivery
options across the supply chain/ Decision Analysis Models

Emotion based App for
Biometrics/ Emotion
and ritual drivers
New to Aus Panels

Patent Database
Review, Indonesia,
Malaysia, Philippines, China
Japan, Australia

Intellectual Property
PATENTED

The University of Melbourne
Where do we all Fit on the Innovation Spectrum?

- Insight & Inspiration: Unearthing Consumer Insights
- Understanding: IP Database Mining
- Design & Development: Sensory Preferences
- Engineer & Manufacture: Technology Overlay
- Market & Distribute
Money to spend... translating to **food market growth**

### Retail Dairy Market Size Forecast US $Millions (Constant 2014 prices)

<table>
<thead>
<tr>
<th></th>
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<td>China</td>
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<td>France</td>
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<td>23,550.4</td>
<td>23,881.3</td>
<td>24,265.4</td>
<td>24,657.3</td>
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</tbody>
</table>

Source: Euromonitor

### Per Capita Australian Income $42,800 (US$)

**2013 Source: Trading Economics**
<table>
<thead>
<tr>
<th></th>
<th>Southeast Asian</th>
<th>East Asian</th>
<th>South Asian</th>
<th>Southern / Western Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indonesia, Korea, China, Japan</td>
<td>Thailand, Vietnam</td>
<td>Bangladesh, India, Pakistan</td>
<td></td>
</tr>
<tr>
<td>Cheese</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yogurt</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Butter</td>
<td></td>
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</tr>
<tr>
<td>Milk</td>
<td></td>
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</tbody>
</table>

Used in 10% or more of Recipe combinations from global cuisine database of 56,499 recipe combinations. Flavour Network and the principles of food pairing: Yong Yeol Ahn, Scientific Reports Dec 2011
Opportunity for Growth

Top 20 Largest Contributors to Future Global Sales of Drinking Milk Products 2014-2019

Source: Euromonitor, 2014
Triangulating the Market

- Understanding the Market Today: What are key barriers to adoption?
  - QMA/Insights

- Looking to the Future: Where do others invest in owning a knowledge space?
  - Asian IP Database
The Dairy Market in China Today

Dairy Beverages
- Chinese consumers show increasing concern about the quality of milk they consume.
- This has contributed to a shift towards premium products - brands can benefit from the perception that “the higher the price, the higher the quality”.
- Increasing awareness of the benefits of freshness, natural or organic products.

Yoghurt
- Functional yoghurts are growing in popularity, with the rising incidence of lifestyle-related health concerns.
- As consumers become more savvy, manufacturers claims are supported by certified scientific studies rather than being based purely on product positioning or advertising.

Cheese
- Cheese is a niche category in China; not traditional and seen to have a pungent smell and taste.
- However, cheese is gaining popularity among children, reflecting a rising consumer awareness of its nutritious value.
- Widespread urbanisation means exposure to Western-style fast food, which will function as a bridge between Chinese people and the culture of cheese consumption.

Health Claims are BIG

1. General well-being
2. Weight management
3. Digestive health

Functional Milk formulas claim omega-3, probiotics, prebiotics, vitamins & minerals

Dairy with digestive health properties including pre-biotics (inulin) but also manganese & magnesium

Driven by local manufacturers such as Wahaha, Yakult, Wang Zai and Yili

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<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong, China</td>
<td>China</td>
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<tr>
<td>China</td>
<td>Argentina</td>
</tr>
<tr>
<td>Argentina</td>
<td>Vietnam</td>
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<tr>
<td>Colombia</td>
<td>Chile</td>
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<td>Peru</td>
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<td>Brazil</td>
<td>Peru</td>
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<td>Romania</td>
<td>United Arab Emirates</td>
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<td>Thailand</td>
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<tr>
<td>Saudi Arabia</td>
<td>Colombia</td>
</tr>
<tr>
<td>Vietnam</td>
<td>India</td>
</tr>
</tbody>
</table>
Dairy QMA’s

Participants: Aged 25-35, Chinese - in Australia less than 2 years
All products were market-available product
Respondents evaluated the products in a holistic way – branded, evaluating based on the whole experience - packaging and product (tasting)
<table>
<thead>
<tr>
<th>Plain/Flavoured Milks</th>
<th>Yogurt</th>
<th>Cheese</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHT is dominate</td>
<td>Drinking Yogurt is more common than spoon able.</td>
<td>Cheese is such an unfamiliar category that potential key entry options could be focused around food service</td>
</tr>
<tr>
<td>Fresh and ESL are interchangeable.</td>
<td>Gut health is a key benefit</td>
<td>Consumers quickly focused on the aroma of cheese. Strong cheese aroma is unappealing and so a barrier for them</td>
</tr>
<tr>
<td>Providence, Green, Safe are important</td>
<td>Calcium, Vitamins and source of protein are newer benefits</td>
<td>Goat cheese makes sense to them, fits with more strongly flavoured meals (i.e. Western China flavourful, spicy meals)</td>
</tr>
<tr>
<td>Traditional Milks are very white, creamy and sweet</td>
<td>Everyday appears to be driven by green packaging, more processed, thinner textures.</td>
<td>Processed cheese or ‘nai lao’ (milk jelly) is “new world” cheese. Fresh, flavourful cheese is “old world” or European</td>
</tr>
<tr>
<td>Healthier Milks are more watery, more mouth clearing. Fresh and Lactose Free are big</td>
<td>Indulgent yogurts are flavoured and sweeter</td>
<td>Fat is a major issue, cheese does not have the health halo of milk</td>
</tr>
<tr>
<td>benefits.</td>
<td>Greek yogurts are just entering the market</td>
<td></td>
</tr>
<tr>
<td>Flavoured Milks are Sweetness and creaminess are expected in flavoured milks. Flavours are provided by small amount of juice.</td>
<td>Silky smooth textures, lower fat, sweeter and more fruit versions are key drivers of interest.</td>
<td></td>
</tr>
<tr>
<td>Being an Australian product carries strong ‘organic’ credentials (even if not so</td>
<td></td>
<td></td>
</tr>
<tr>
<td>according to AU standards)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Where do we all Fit on the Innovation Spectrum?
IP Database: **Multiple ways of Use**

- Simple Technology Search
- Competitor Activity
- Consumer Led Opportunity Analysis
  - A Novel Approach
- Different Levels of complexity for each
Benefits

- Indonesia, Malaysia, Philippines all require in market assistance to access Patent Data.

- Consumer Led approach to creating a Premium Experience

- Abstracts are available in Patent Database. China Japan, Korea are already available in other Patent Databases

- Novel Patent Search Approach allows for visibility of future capacities in a category/country
The Data:

<table>
<thead>
<tr>
<th>Country</th>
<th>Count appIn or grant date &gt; ‘1999-12-31’</th>
<th>Title Coverage (%)</th>
<th>Abstract Coverage (%)</th>
<th>IPC Coverage (%)</th>
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<tbody>
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<td>China</td>
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<td>Japan</td>
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<td>Malaysia</td>
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<td>South Korea</td>
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<td>Philippines</td>
<td>33,920</td>
<td>100</td>
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<td>100</td>
</tr>
</tbody>
</table>

Updated each year
Simple Technology Search

B41 PRINTING LINING MACHINES, TYPE WRITERS STAMPS EDIBLE, EDIBLE INKS

Patent application title: INK DELIVERY
Inventors: Bailey Smith (Bow, NH, US) Joshua Allen (Lebanon, NH, US) Roger Therrien (Hanover, MA, US)
Assignee: FUJIFILM Dimatix, Inc.
IPC5 Class: AB41J2175FI
USPC Class: 347 85
Class name: Ink jet fluid or fluid source handling means fluid supply system
Publication date: 2009-12-31
Patent application number: 20080322830

Fujifilm Dimatix Food Decoration: Using Printing Innovation To Differentiate
Written by anne

“Presentation is everything.” The mantra rings true to nearly everyone, from the finest culinary experts to the home consumer, and increasingly, retailers and companies looking to differentiate themselves by dressing up food to make it more unique or appealing, reports the company.

## Competitor Activity

**Example - Nestle patent activity in China**

<table>
<thead>
<tr>
<th>appln_nr</th>
<th>appln_title</th>
<th>applt_name</th>
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<tbody>
<tr>
<td>7303752</td>
<td>Use of micellar casein of butter milk</td>
<td>SOCIETE DES PRODUITS NESTLE S. A.</td>
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<tr>
<td>7346861</td>
<td>Method for preparing cooked grain foods</td>
<td>SOCIETE DES PRODUITS NESTLE S. A.</td>
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<tr>
<td>7364950</td>
<td>Rapidly rehydratable foodstuff and production thereof</td>
<td>SOCIETE DES PRODUITS NESTLE S.A.</td>
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<tr>
<td>7365016</td>
<td>Bacteriocins from streptococcus thermophilus</td>
<td>SOCIETE DES PRODUCTS NESTLE S.A.</td>
</tr>
<tr>
<td>7365030</td>
<td>Powder foodstuff and its producing method</td>
<td>SOCIETE DES PRODUCTS NESTLE S.A.</td>
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<tr>
<td>7404364</td>
<td>Composition and process useful for reducing fat caloric content of food</td>
<td>SOCIETE des Produits Nestle S.A.</td>
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<tr>
<td>7404397</td>
<td>Process for preparing food-stuffs having reduced content of fermentes</td>
<td>SOCIETE des Produits Nestle S.A.</td>
</tr>
<tr>
<td>7406578</td>
<td>Method for deacivating enzymes and microorganisms</td>
<td>SOCIETE DES PRODUCTS NESTLE SA</td>
</tr>
<tr>
<td>7411504</td>
<td>Antioxidant composition and process for the preparation thereof</td>
<td>SOCIETE DES PRODUITS NESTLE S. A.</td>
</tr>
<tr>
<td>7419488</td>
<td>Fluid mixing</td>
<td>SOCIETE DES PRODUITS NESTLE S. A.</td>
</tr>
<tr>
<td>7420522</td>
<td>Manufacture of cooked cereals</td>
<td>SOCIETE des Produits Nestle S.A.</td>
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<tr>
<td>7419200</td>
<td>Method for producing powdered food and its device</td>
<td>SOCIETE des Produits Nestle S.A.</td>
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<tr>
<td>7470819</td>
<td>Combined article containing paste like food and package</td>
<td>SOCIETE des Produits Nestle S.A.</td>
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<tr>
<td>7472169</td>
<td>Improved method for prepn. of food hydrolysates</td>
<td>SOCIETE des Produits Nestle S.A.</td>
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<tr>
<td>7468302</td>
<td>Fluridated micellar casein</td>
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<td>7472867</td>
<td>Encapsulation process</td>
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<td>7474853</td>
<td>Method for mixing food piece by controlling gelatinization</td>
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<td>7483124</td>
<td>Process for preapring thiols</td>
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</tbody>
</table>
Consumer Led Opportunity Analysis

We started with consumer needs

- We started with key words to describe the consumer experience.
- We looked for the technologies that could deliver that experience.
- Then we looked at what was happening in the category

Traditional IP dairy search based on dairy IPC A23C

- For China, over the last 10 years, delivers > 10,000 records. This amount of data is hard to manage and innovative trends are hard to spot amongst the productivity / process improvements etc..
- If you restrict it to focus on specific technology you may miss what is happening in the bigger picture

Using the combination of keywords and IPC codes

- This allows for capture of patent records that enable delivery of consumer needs.
- We are able to look at the bigger picture and see innovative trends of interest bubble to the surface.

Traditional IP starts with a technology and list of competitors
What are the desirable product attributes for premium foods?
Knowledge Space - Investment in Dairy China

Function
- Ice Cream
  - Novel Flavours
  - TCM Ingredient
- Milk
  - Fermented
  - Added Sweetener
  - Texture Change
  - Watermelon Juice and Milk
  - Juice and Milk
- Yogurt
  - Extract Flavour
- Cheese
  - Part of soy sauce
  - Shelf stable
  - China cheese
  - Part of soup mix
  - Soybean plus cheese

Taste
- Incremental
  
Health
- Added Ingredients for hypoglycaemia
- Vegetable powder and Milk
- 3 types of vegetable protein bases
- Milk + pseudo - ginseng + proanthocyanidins for tonifying yang & resisting fatigue

Wellbeing
- Added ingredients for diabetes
- Added ingredients for cardiovascular health
- Yoghurt + legumes for qi and balance

Beauty
- Bacteria species + ceramide / collagen
- Tablets for beauty
Benefit Investment in Dairy China

Skin Treatment
- Bacteria species + ceramide / collagen
- Fish collagen and acetamido glucose

TCM
- Enhance Spleen
- Yoghurt + legumes for qi and balance
- Dioscorea opposita and active peptide
- Fermentative lactobacillus beverage
- Milk + pseudo-ginseng + proanthocyanidins for tonifying yang & resisting fatigue

Prevent Fatty Liver
- Fiber and Chromium for hypoglycaemia

Diabetes
- Chromium
- Iactobacillus

Cardiovascular Health
- Enhanced EPA
- Whey Protein
- Enzyme treatment of caesin and replacement of whey

Enhanced Immunity
- Probiotics
- Calcium for osteoporosis

Digestive Health
- Enhanced Calcium absorption

Fortification
- 3 types of vegetable protein bases

Protein Sources
- Part of soup mix

Convenience
- High-potency sweetener

Sweetness
- Rice texture
- Multi Texture
- Puffed Milk

Texture
- Watermelon Juice and Milk
- Juice and Milk
- Part of soy sauce
- Soybean Carrot
- Fermented Flavour
- Sesame Flavour
- Black Tea Flavour
- Blackcurrant Flavour
## Incremental - Disruptive Knowledge Spaces

<table>
<thead>
<tr>
<th>Country</th>
<th>Incremental</th>
<th>Disruptive</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Flavoured Milk with Juice Health Claims on Yogurt</td>
<td>Health, Wellbeing, Beauty in Milk</td>
</tr>
<tr>
<td></td>
<td>Flavoured Ice Creams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Whey Proteins</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>Adding Milk proteins to Veggie Drinks</td>
<td>Yeast extracts in dairy milk and yogurt</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Shelf Stable Milk</td>
<td>Health, Wellbeing in Milk</td>
</tr>
<tr>
<td>Korea</td>
<td>Fortification of Milk</td>
<td></td>
</tr>
</tbody>
</table>
# What to Consider when Investing in Food Innovation

## Flavoured Milks
- **Western:** Flavourings added to milk
- **Asian:**
  - Small amounts of juice added to milk
  - Reduce body of milk, more translucent thin product
  - Carbonation

## Functional
- **Western:** Hero Ingredients added to Dairy
- **Asian:**
  - TCM ingredients or whole foods added to Dairy
  - Protein Enriched products
  - Milk with a Purpose (Health Benefits)

## Beauty
- **Western:** Format uses cream for topical applications
- **Asian:** Format uses bacteria, collagen and milk for oral applications
What to Consider to **Invest In**

**Incremental**

**Flavoured Milks**
- Milk + melon juice

**Functional**
- Milk + peanut protein

**Disruptive**

**Beauty**
- Milk is enriched with:
  - 2 exceptional beauty proteins
  - 5500mg hydrolysed marine collagen and L-Arginine
  - Polysaccharide of Silver Ear mushroom (Tremella fuciformis)
  - Essential vitamins, C, A, E, B complex and D3
Your Thoughts and Feedback

Expressions of Interest:
Hollis.Ashman@MDLZ.com