



## Going global: Valio's approach to Open innovations



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## Patented innovations



- ◆ Professor A.I. Virtanen won the Nobel prize in chemistry in 1945



- ◆ The first test with AIV-silage in 1928 to reduce the pH below 4
- ◆ Professor A.I. Virtanen was director of Valio's laboratory from 1921 until 1970, 49 years

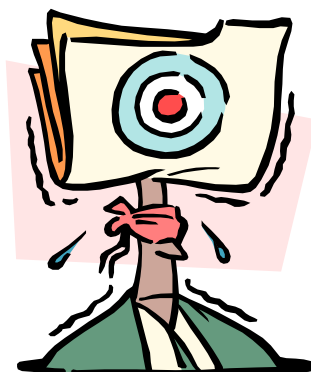
The reason for establishment of a Valio Laboratory was given by the Valio Board in 1916:

*'Only such a country whose entire economy is based on science, can attain and keep a first place in the economic war between nations'*



## Valio innovations from past:

- AIV butter salt, 1920's
- AIV silage, 1920's
- AIV cheese salt, 1930's
- SP-method for emmental, 1950's
- Valio method for emmental, 1960's
- Tutteli, 1970's
- HYLA, 1974 – 1980's
- Oltermanni, 1980
- Gefilus, 1987 – 1995
- Aura crumb, 1990's
- Lactose-free milk, 1985 – 2001
- Evolus, 1999 – 2006
- Profeel 2005-

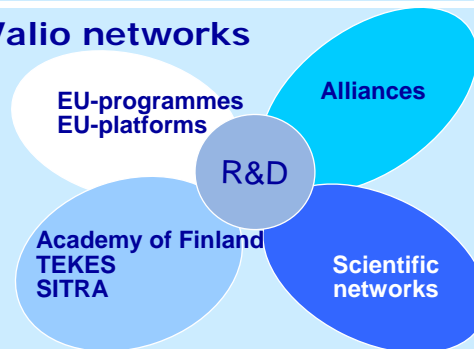


## Innovation Strategies



- Consumer-driven
- Competition-driven
- Vision-driven
- Technology-driven
- Curiosity-driven

### Valio networks



## Functional dairy products

- **General well-being and gastrointestinal health**
  - Probiotics, prebiotics
  - Low-lactose and lactose-free products
- **Cardiovascular health**
  - Hypertension: bioactive peptides (BAP)
  - Elevated cholesterol (stanol, sterol compounds)
  - Omega-3 fatty acid
- **Osteoporosis**
  - BAP
- **Immune functions**
  - Active immunisation
- **Obesitas**
- **Sleeping & stress**
  - Melatonin
  - BAP





**VALIO**

<p>1987</p>  <p>Valio purchases world-wide rights for LGG</p>	<p>1989</p>  <p>First seminars for health care professionals in Finland</p>	<p>1990</p>  <p>First Gefilus products launched</p>	<p>1992</p>  <p>Gefilus buttermilk, first product with significant volume launched</p>
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audience. | *bacillus* was recently isolated in Boston, | idea into the consumers' heads and keep  
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<p>1995</p>  <p>Gefilus yogurts launched</p>	<p>1996</p>  <p>Gefilus milk launched, Bacteria to the rescue campaign</p>	<p>1997</p>  <p>Gefilus non-dairy products launched, fruit drink and capsules</p>	<p>1999</p>  <p>Gefilus minibottle drink launched. First Gefilus products into Estonian Market</p>	<p>2000</p>  <p>Gefilus product range extended further. First Gefilac products to Sweden</p>
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## Lactobacillus GG - around the world



## Valio's scientific approach

- ◆ Strong scientific data, published internationally  
( LGG >300 publications)
- ◆ The clinical data are based on:
  - Placebo-controlled double-blind studies
  - Shown effects at least in two independent studies
  - Studies done using the final product
- ◆ Valio's functional dairy products:
  - *Gefilus*<sup>®</sup> -products (with lactobacillus GG)
  - *Evolus* (with bioactive peptides)
  - *Benecol* (with sitostanolester, Raisio Ltd license)



**Gefilus**  
 GEINHOELLISTÄ LAKTOOSITON

**VALIO**

## Next Generation of LGG for intestinal & oral health



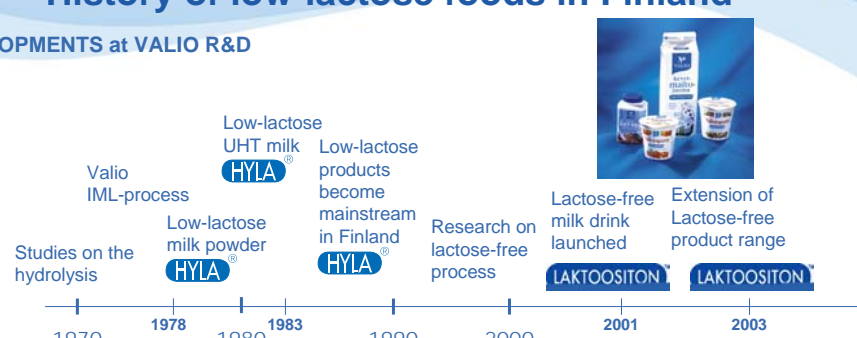

**LGG® Plus**

**Protects against adults stress diseases**

**VALIO**

## History of low-lactose foods in Finland

### DEVELOPMENTS at VALIO R&D



1970: Studies on the hydrolysis

1978: Valio IML-process

1978: Low-lactose milk powder **HYLA®**

1983: Low-lactose UHT milk **HYLA®**

1983: Low-lactose products become mainstream in Finland **HYLA®**

2000: Research on lactose-free process

2001: Lactose-free milk drink launched **LAKTOOSITON®**

2003: Extension of Lactose-free product range **LAKTOOSITON®**



### LACTOSE INTOLERANCE



1963: First publications

1970: Studies on the prevalence of lactose intolerance

1980: Approximately 17% of Finns are lactose intolerant

2000: High public awareness of lactose intolerance





## Lactose removal vs. hydrolysis

### Lactose-free milk by Valio

- **no lactose** (<0.01%)  
→ suitable even for strictest lactose intolerants
- **original, fresh milk taste**
- 40% less carbohydrates  
→ **lower calory content**
- **ESL**

### Low lactose milk

- lactose partly hydrolysed by enzymes
- lactose content typically <1%  
→ may cause symptoms for lactose intolerants
- **sweet taste**

Lactose residue < 1% in hydrolysed low lactose products

Lactose residue < 0,01% in lactose-free milk



## Lactose-free products from Valio Ltd



Peach-apricot-raspberry yogurt and strawberry yogurt



Lactose-free cooking and whipping creams



Semi-skimmed lactose-free milk drink  
Fat-free lactose-free milk drink  
Fermented lactose-free milk drink

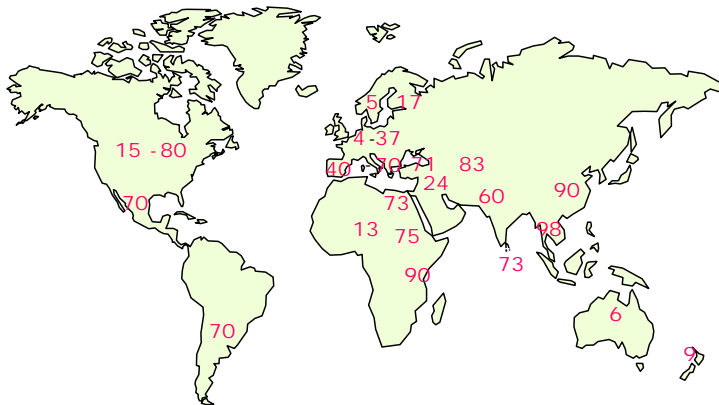
Milk drink on the Swedish market



Lactose-free Feta type cheeses - low-fat (9%) and regular



## How common is it? -by percentage of population



### Marketed by Valio

- Finland 2001
- Sweden 2002
- Belgium 2005

### Produced under Valio license

- Switzerland 2003 (Emmi)
- Spain 2005 (Kaiku / Iparlat)
- Korea 2005 (Maeil)





## BAP to control blood pressure



**Evolus**

Iceland, Portugal,  
Spain, Korea,  
Chile, Mexico,  
Argentina, Brasil

Peptides  
help to control blood  
pressure.  
Beneficial to health



## To lower serum cholesterol -1

**Benecol**



By license from Raisio Group Ltd  
[www.benecol.com](http://www.benecol.com)

**Valio Benecol yoghurts, buttermilk  
and daily dose drinks**  
– enriched with plant stanol ester



## Consumer needs Personal & Social Needs



### Achieve more

- ❖ enhanced physical health
- ❖ mental performance

### Body shape

- ❖ fit & active; youthful;
- ❖ **weight management**

### Sense of well-being

- ❖ balance;
- ❖ no stress; mood; sleep



## Finding Functionality in Milk

MILK



processing

Milk Components



fractionation

Milk Fractions



high throughput screening

discovery  
cycle

Bioactive Lead Compounds



Animal & Human Studies



## International Partnerships at Valio

### Issues for future partnership management & development

- Confidentiality
- IPR
- Openness
  - Internal
  - PR
- Win-Win
- Project Management
- Competition law



## Passion of Innovation, Discipline & Simplicity

