



FOODS & FUNCTIONALS

RESEARCH • RESULTS • PARTNERSHIP • PROGRESS • 2/2009

VALIO DEMI™ AT FOOD INGREDIENTS EUROPE
All about demineralised whey powders

CUSTOMER NEWS
Maeil Dairies
Tine BA

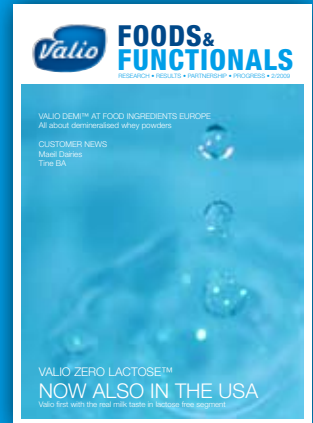
VALIO ZERO LACTOSE™

NOW ALSO IN THE USA

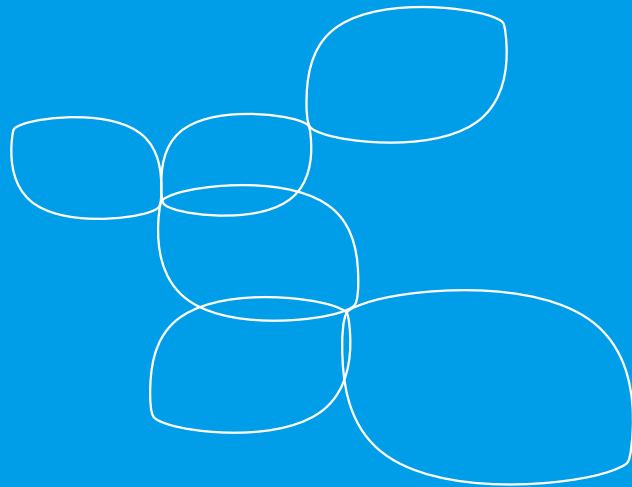
Valio first with the real milk taste in lactose free segment

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Valio Healthy Dairy – the dairy that does more

Valio's mission is to develop new and innovative product concepts for health and well-being, and make them commercially successful. Alongside our proven business model of licensing Valio technologies in selected territories we deliver products directly in domestic and nearby markets and have now developed a third pillar supporting success.

Valio is strongly positioned in its core markets of Finland, Sweden, Russia and Estonia as an orchestrator taking products to market independently, with more than enough marketing and sales capacity and expertise to channel products via customers to consumers.

Elsewhere Valio is a challenger with less influence making the introduction of new concepts a more complex proposition. So we have initiated a new type of business concept we call the integrator model forging close partnerships that leverage Valio innovations to create new business.

The recent launch of Valio Real Goodness™ lactose free milk

in the USA is the first real test. We have outsourced production and sales but maintain our own marketing and management functions, in effect creating a matchless business platform realised together with our partners.

While Valio has always exercised pivotal expertise in science and R&D, there are many as yet unexploited opportunities to generate business based on the innovations we develop. New ways of thinking such as Valio Healthy Dairy will mean more value added for the Valio brand and grow revenues in categories beyond traditional dairy.

Valio is set through the introduction of new and innovative dairy concepts to be the dairy that does more for its consumers, customers, employees and owners than traditional dairies do.

Veijo Meriläinen

Executive Vice President,
International Operations and
Innovations



This edition of Valio Foods & Functionals is dedicated to Valio Zero Lactose™ technology and its widespread applications, and will be distributed at the Food Ingredients Europe 2009 exhibition in Frankfurt.

VALIO REAL GOODNESS™ lactose free milk in the USA

Valio USA's Healthy Dairy Division launched its great tasting Valio Real Goodness™ lactose free milk in August 2009



Valio's Zero Lactose™ proprietary ultrafiltration process starts with real milk and gently removes lactose, leaving behind nothing but the great taste of milk and the essential minerals it contains. The majority of US and international lactose free milk brands tend on the other hand to taste watered-down or too sweet due to their production process.

Valio Real Goodness™ is "The Taste You Remember" and will liberate people who suffer from lactose intolerance to enjoy the delicious taste of milk once again.

Lactose intolerance in the USA

"Some 60 million Americans suffer from lactose intolerance, especially older Caucasian adults as well as a significant portion of the African-American, Asian-American and Hispanic-American populations who miss the taste of real milk," says Sam Aquino, Sales Director, Valio USA.

Marketing communications matter

Creating consumer awareness of the terrific taste benefit of Valio Real Goodness™ is key to its successful launch. The new Valio Real Goodness™ brand is supported by a dynamic marketing campaign that includes advertising, promotions and public relations initiatives. Other valuable marketing channels include health care professionals and science networks. ■



VALIO REAL GOODNESS™

Valio Real Goodness™ is the first and only lactose free milk in the US that tastes like real milk. The product comes in fat free and 2% milk varieties in quart and half gallon sizes and will initially be available in the Northeastern part of the United States.



Snapshots from the new Valio Real Goodness™ TV commercial.



VALIO USA Dairy That Does More™

Valio USA is a force to be reckoned with on two fronts and we asked key personnel for their views on the new organization

Chris Franco, CEO: Valio is the dairy industry pioneer that consistently demonstrates the capacity to leverage its scientific research and leading edge technologies to create innovative, value added products that promote well-being.

John Sottile, President of the Finlandia Cheese Division: Finlandia Cheese has a long and successful history of marketing and selling tasty high quality cheeses in the US and now operates as a part of Valio USA. We've perfected Finlandia's outsourcing model over the years and are now applying it in a new context partnering with Byrne Dairy to produce Valio Real Goodness™ lactose free milk locally employing Valio patented technology monitored by our quality experts from Finland.

Lawrence Morris, Marketing Director: The other half of the new organization is the Healthy Dairy

Division, which will bring incremental growth to Valio USA via the commercialization of Valio's brands in the US, starting with Valio Zero Lactose™ marketed as Valio Real Goodness™.

Valio Healthy Dairy supports customers, consumers and commercialization

Globally renowned as the developer of functional foods and unique dairy technologies, Valio is building on success in its domestic and nearby markets supported farther afield through licensing partners worldwide. The dairy industry's wellness sector is a highly competitive business. This benefits consumers as companies strive to develop ever greater value added. Ultimately, it's the products people buy that compete in the marketplace. ■

www.realgoodness.com
facebook.com/realgoodness

VALIO ZERO LACTOSE™

Valio Zero Lactose™ has essentially created a whole new dairy category in Europe and Valio lactose free products are already well established in Finland, Sweden and Belgium, with Russia and the Baltic States not far behind. Valio Real Goodness™ lactose free milk will help grow Valio USA because it provides benefits American consumers want and need.

MAEIL DAIRIES

– Striving for a better tomorrow

With more than 40 years at the top in South Korea and customers from 30 countries worldwide, Maeil Dairies continues to grow its reputation as an international dairy company sharing the future with stakeholders in the global community.

Maeil Dairies invests in quality first and this value was supplemented in 2008 with an ever sharper customer needs orientation, summed up as “The top healthy company, our customers’ partner” offering top quality products and services with the core values: Customer Oriented, Initiation & Challenge, Social Contribution, Talent Development, Confidence & Trust.

A strong corporate ethic and transparent management style are spearheading Maeil’s intention to expand its influence on social responsibility by providing customer satisfaction combined with a commitment to welfare through

e.g. charity support, scholarships and promoting family well-being.

Profit with responsibility

“We believe that a company exists not simply to turn a profit but has a responsibility and indeed an obligation to bring about the satisfaction of consumers as a social entity,” explains CEO, Vice Chairman Jung Wan Kim.

“Maeil is now ready to make the leap via innovation and competitiveness to become an internationally admired company creating a bright future for all our customers, shareholders and employees.”

“Our aspiration for growth through change is underpinned by our core capacity for development through long-term planning, R&D investment in state-of-the-art facilities, and strong brand management.”

A lasting partnership

In 1998, Maeil began buying Valio DEMI™ demineralised whey powder as an ingredient for its infant formula products and marketing probiotic yoghurt containing Valio Lactobacillus GG. Maeil promotes its LGG® product as “LGG® is the world’s most researched probiotic and it guarantees a healthy living to customers

World Figure Skating Champion 2009, South Korea’s Ms Yuna Kim is pictured here with a selection of Maeil Dairies products.





Jung Wan Kim is CEO and Vice Chairman of Maeil Dairies.

in about 40 countries around the world”.

In 2005 Maeil licensed Valio’s unique Zero Lactose™ technology to produce Korea’s first lactose free milk.

As Valio has developed new and innovative technologies and applications, Maeil has kept pace by utilising them to maintain its cutting-edge market advantage.

Lactose Free – a tremendous opportunity going forward

Research indicates that more than 80% of Koreans are lactose intolerant. While existing lactose free products that may supply milk’s valuable nutrients have an unpleasantly sweet taste, Maeil ensures the original taste and nutritional values of milk are in place by employing Valio’s patented Zero Lactose™ process.

While there is insufficient information available to Korean consumers to help them recognize lactose intolerance, Maeil continuously communicates the value of lactose free milk to its customers.

Functional foods and health claims

The Korean Health/Functional Food (HFF) Act of 2004 describes two types of HFF, namely generic and product-specific, that are permitted to carry a health claim.

The Korean Food and Drug Administration (KFDA) reviews the standardization, safety and efficacy of a new active ingredient in order to grant its approval and subsequent registration as an HFF that can be marketed with a specific health claim. There are currently 67 categories of functional ingredient approved.

Looking West

Korean eating habits have become increasingly westernised since the 1950s to include more

processed foods, while lifestyle changes have led to the growing consumption of snack and convenience products whether traditional or foreign.

More recently, the focus has shifted to healthier products amid concerns about overall mental and physical welfare. The desire to be healthy, happy and prosperous is manifested in a significant trend favouring products that promote well-being. Maeil has also changed with the times to help support health through innovative dairy products.

Supporting South Korean consumers natural instinct for healthy eating

Koreans in fact see healthy eating as an essential part of a healthy lifestyle and well-being in preventing disease and providing the body with the nutrients it needs, so consumer demand for health promoting functional foods will continue to grow and for instance the yoghurt market is becoming increasingly competitive. Mounting concerns about obesity are meanwhile driving the nascent market in reduced fat milks whose sales increased dramatically since last year.

Through its scientific research, Maeil strives to develop products suitable for lifelong health. ■

<http://www2.maeil.com/>





TINE Laktosefri Lettmelk is a totally lactose free ESL semi-skimmed milk that tastes like real milk and is manufactured at TINE's Brumunddal plant in South-East Norway.

TINE DAIRIES process pure, natural raw materials into good, healthy food products

TINE BA is Norway's largest producer, distributor and exporter of dairy products, the country's biggest food industry player and a familiar part of the Norwegian cultural landscape.

The dairy industry must strive to be profitable and environmentally friendly characterised by pure products of high quality, a clean environment and the deployment of environmentally friendly technology.

Partnership breeds success, particularly in changing markets

A great expansion in dairy farming has led to increased benefits stemming from co-operation within the industry. Innovative product development

calls for challenging teamwork involving customers, R&D, marketing and production. Comprehensive quality control systems including supplier assessments, raw materials and packaging specifications, thorough testing – both internal and external – all ensure the delivery of consistent quality.

Shared values, prime products

One of TINE's primary goals, in step with Valio's, is the production of clean and safe food. In markets



TINE Production Manager Stein Sletten (left) and Project Manager Steinar Evavold together with Valio Research Engineer Harri Kallionen presenting TINE Laktosefri milks.

where regulations are constantly being developed and harmonised at home and abroad, compliance with strict controls on international producers and standards along with public legislation ensures that

TINE BA is the leading dairy company in Norway as well as the country's largest food processor. TINE processes 1.46 billion litres of cow's milk and 19 million litres of goat's milk annually, and employs 4,700 people.

consumers and customers are supplied with the highest quality products.

Valio has licensed two key technologies to its Norwegian partner

TINE's Biola range including varieties of yoghurt, fermented low-fat milk and flavoured fermented milk contains Valio's *Lactobacillus rhamnosus* GG strain (LGG®) licensed to TINE in 1994 and marketed locally as the probiotic lactic bacteria that balances and strengthens the natural immune system in the digestive tract.

TINE Laktosefri Lettmelk

TINE has since picked up a Valio Zero Lactose™ technology licence and on 1st September 2009 launched the first lactose free milk to appear on the Norwegian market. The product is totally free from lactose but tastes just like normal fresh milk.

TINE already sells a range of low lactose products and expects TINE Laktosefri Lettmelk to generate new milk consumers, just as happened in Finland and Sweden when Valio launched the world's very first lactose free milks some years ago.

Around 2–4% of the Norwegian population lacks the lactase enzyme and consequently suffers from lactose intolerance, and that percentage continues to rise as the number of immigrants increases. ■

www.jarlsberg.com and www.tine.no

4th IDF Symposium on Science and Technology of Fermented Milk 7–9 June 2010

The Symposium sets out to further knowledge on fermented milk science and technology and provides a platform for knowledge exchange between top international experts from industry and academia. Tromsø in Norway acts as the host city this year.

Both Valio and TINE are represented in the organising and programme committees while this magazine's Editor-in-Chief Kalle Leporanta (Export

Manager, Technology Sales) has been invited to speak on Traditional Nordic Fermented Milk products.

The International Dairy Federation is a global forum for dairy industry experts in which Valio staff play an active role. Finland's National Committee is headed by Riitta Korpela, Vice President, Nutrition Innovations at Valio Ltd. ■

www.idffer2010.no

Lactobacillus rhamnosus GG genome sequenced

New research data on the effective mechanisms of *Lactobacillus rhamnosus* GG genome sequence further strengthens evidence for Valio probiotic's beneficial health effects.

Read research article in full

<http://www.pnas.org/content/early/2009/09/16/0908876106.abstract>

Valio supplies highly valued innovative technologies and ingredients to the global food industry

Significant synergies exist between Valio's ingredients and licensing businesses whose experts work hand-in-hand to meet customer needs.

In some cases Valio licensing customers may choose to buy ingredients as well as technology, says **Veli-Matti Riitamaa**, Vice President, Ingredients. "That relationship has become even closer for instance with Valio Zero Lactose™ where a licensee also needs key ingredients. Customers may even buy Valio lactose free milk powder as a starting point for trial marketing prior to licensing our patented Zero Lactose™ technology."

Partnerships grow and develop

Valio licensing partners such as Maeil Dairy Industry Company Ltd, which licenses *Lactobacillus rhamnosus* GG (ATCC53103) and Zero Lactose™ technology from Valio, and Inner Mongolia Yili Industrial Group Co. Ltd, a licensee for *Lactobacillus rhamnosus* GG (ATCC53103), are also significant buyers of Valio ingredients including Valio DEMI™ demineralised whey powders for infant formula products.

Valio DEMI™ 70 and DEMI™ 90 are popular and well respected infant food industry ingredients and customers set the very highest and most challenging standards for their suppliers. As one of the top three suppliers to the Chinese infant formula business, Valio's reputation is matchless.

Valio DEMI™ 40 & DEMI™ 50 powders can be found in global brand confectionary products.

Valio ingredients benefit from leading edge process technologies and R&D

Valio boasts the most modern demineralised whey plant in the world, which came onstream in Lapinlahti, Finland towards the end of 2008. The state-of-the-art DEMI™ whey line employs advanced technologies to produce high volumes of unique quality powders.

Valio invested in safety and capacity to provide customers with tailor-made products as



VELI-MATTI RIITAMAA

Veli-Matti Riitamaa first joined Valio in 1986 as an engineering consultant before being appointed export manager and now Vice President, Ingredients. Valio sells ingredients worldwide to a total of some 70 countries including its domestic and nearby markets such as Sweden, the Baltics and Russia. China is a significant buyer working through Valio Shanghai Ltd.

each infant formula producer sets requirements for its own unique mineral profile. Strict standards and flexible specifications were in a sense client driven.

In the very long term, the ultimate aim is to produce consumer products made with whey proteins which would be of tremendous value to e.g. the fitness industry and a real benefit to public health in terms of tackling the obesity epidemic currently seen in the West.

What's the best way to make demineralised whey powders?

Valio whey is derived from the production of Edam, Emmental and Havarti type cheeses whose mild flavour is perfect for making Valio DEMI™ whey powders. All the milk used to produce our cheese comes straight from Valio owner cooperatives' dairy farms and is traceable back to those farms within a matter of hours. As one of the world's least polluted countries with few insects and little incidence of vegetable diseases, the levels of heavy metals and pesticides in our milk are the lowest in the EU and Finland's cool climate also promotes bovine health. ■



Valio's Lapinlahti production plant.

FIE 2009

Food Ingredients Europe (FIE) is the global meeting place for all stakeholders in the food ingredients industry.

Valio ingredients and technology on show include

Valio Zero Lactose™ technology producing lactose free milk with the real milk taste

Valio DEMI™ demineralised whey powder

Valio Mineval Milk Powder Product which has a special mineral profile conferring exceptional heat stability for cooking applications





New lactose free products employing Valio technology

USA



Country: USA

Company: Valio USA

Product Brand: Valio Real Goodness™

Product type: Lactose free fat free (0%) milk and Lactose free reduced fat (2%) milk

Package: Half gallon (1.89 litre) and one quart (0.95 litre) cartons

Note: New launch, new market

SWEDEN



Country: Sweden

Company: Valio Sweden

Product Brand: Valio Laktosfri™

Product type: Organic lactose free semi-skimmed milk drink

Package: 1 litre

Note: First product where Valio Zero Lactose™ technology is applied to organically produced milk

NORWAY



Country: Norway

Company: Tine BA

Product Brand: TINE Laktosefri

Product type: Lactose free milk, semi-skimmed

Package: 1 litre carton

Note: New launch, new market

BELGIUM

Country: Belgium

Company: Valio-Vache Bleue

Product Brand: Valio Zero Lactose™

Product type: Lactose free yoghurt

Package: Plastic cup, 4 x 125 g package

Note: Range extension





New products with LGG®

AUSTRALIA

Country: Australia
Company: Parmalat Australia
Product Brand: Vaalia Light
Product type: New yoghurt with LGG®
Package: Plastic cup, 4 x 150 g package

Country: Australia
Company: Parmalat Australia
Product Brand: Vaalia Kids
Product type: New yoghurt with LGG®
Package: 140 g foil package



FINLAND

Country: Finland
Company: Oriola
Product Brand: Gefilus®
Product type: Gefilus® drops, food supplement
Package: 7.5 ml bottle
Note: New product format, LGG® in oil, easy to dose for babies and for adults



RUSSIA

Country: Russia
Company: Unimilk
Product Brand: Bio Balance
Product type: Fruit quark with muesli in separate chamber
Package: Double-chamber plastic cup, 140 g
Note: Extension of LGG® product range



Country: Russia
Company: Unimilk
Product Brand: Bio Balance
Product type: Fruit yoghurt
Package: Plastic cup, 4 x 125g
Note: Extension of LGG® product range



New products with LGG® Extra

FINLAND

Country: Finland
Company: Valio
Product Brand: Valio Gefilus® MAX
Product type: Drinking yoghurt with LGG® Extra probiotic combination, Strawberry-bilberry
Package: 8 x 100 g carton bottle
Note: New pack size





VALIO ZERO LACTOSE™ – LACTOSE FREE DAIRY PRODUCTS, GENUINE DAIRY TASTE

Valio has developed methods to separate lactose from milk totally. Patented Valio Zero Lactose™ technology makes it possible to manufacture a milk drink that contains no lactose but still tastes exactly like normal milk. The technology is based on membrane processing and enzymatic hydrolysis.

Valio released its lactose free milk drink in Finland in 2001 and has since launched the Laktosfri™ brand in Sweden, Valio Zero Lactose™ products in Belgium, the Baltic States and Russia, and Valio Real Goodness™ brand milk in the USA. Further launches are planned. The first licensed product was launched in Switzerland at the end of 2003. Licensed products are also available in Spain, South Korea and Norway.



EVOLUS® FOR CARDIOVASCULAR HEALTH

Evolus® was developed by Valio as a unique fermented milk drink that helps to control blood pressure and was launched in Finland in 2000. The health effect is based on bioactive peptides formed during fermentation. Several clinical studies show the product's efficacy in controlling blood pressure. In 2004, Valio launched Evolus® shot drinks in 100 ml daily-dose bottles. Valio Evolus® Double Effect which both controls blood pressure and lowers cholesterol was released in Finland in 2008.

Valio has licensed Evolus® technology to its European partners. In 2003, Mjólkursamsalan in Iceland became the first company to launch a product and another licensed product is also available in Spain. Valio continues to develop and license Evolus® peptides that are proven to help control blood pressure.



LGG® – THE WORLD'S BEST DOCUMENTED PROBIOTIC

Lactobacillus rhamnosus GG (ATCC53103) is the world's best documented probiotic strain. Proven to survive in and colonise the human gastrointestinal tract, this remarkable bacterium protects the body against infections and imbalances.

Lactobacillus rhamnosus GG (ATCC53103) was isolated in 1983 by professors Gorbach and Goldin and is now one of the world's most researched probiotics. Valio acquired an exclusive worldwide license to *Lactobacillus rhamnosus* GG (ATCC53103) in 1987 and launched the world's first LGG® products in 1990. Valio has used *Lactobacillus rhamnosus* GG (ATCC53103) in its Gefilus® range of products since 1990 and now offers a wide variety of LGG® buttermilks, yoghurts, milk, fruit drinks, cheeses, shot drinks and fermented whey-based drinks.

Valio grants rights to *Lactobacillus rhamnosus* GG (ATCC53103) to other dairy companies and the network presently covers almost 40 markets and territories.

The LGG® logo and Gefilus® are registered trademarks of Valio Ltd. LGG® is a registered trademark of Valio Ltd and the registration implies that Valio Ltd has sole right to the trademark LGG®.



LGG® EXTRA – THE PROBIOTIC COMBINATION THAT CALMS A STRESSED STOMACH

LGG® Extra is a new patented development from Valio. It contains a unique combination of probiotics that calms a stressed stomach. *Lactobacillus rhamnosus* GG (ATCC53103) is the most studied probiotic strain worldwide and LGG® Extra comprises three other beneficial strains to expand its health benefits into novel areas.

In 2008, Valio launched products with LGG® Extra in Finland, Sweden and the Baltic States under the Gefilus® MAX brand. Valio is now ready to begin licensing this technology to its partners worldwide.



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Licensing Valio technologies

www.valio.com => Valio worldwide => Innovative
concepts and Technologies

Valio LGG® research

www.valio.com => R&D => Nutritional research =>
Lactobacillus GG

www.valio.com => Valio worldwide => Innovative
Concepts and Technologies => Lactobacillus GG

Valio Evolus® research

www.valio.com => R&D => nutritional research =>
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Valio Zero Lactose™

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