

# 2011/2012

LARRY PILLARD, CHAIRMAN OF THE BOARD

Strong performance  
by all industry groups P.6

DENNIS JÖNSSON, CEO TETRA PAK

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our offerings P.10

## Promoting food safety

JOAKIM ROSENGREN, CEO DELAVAL

New vision sets the direction  
for our continued success P.14

MART TIISMANN, CEO SIDEL

Steady progress paves way  
for next-generation products P.18

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# PART 1

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**PROTECTS WHAT'S GOOD**

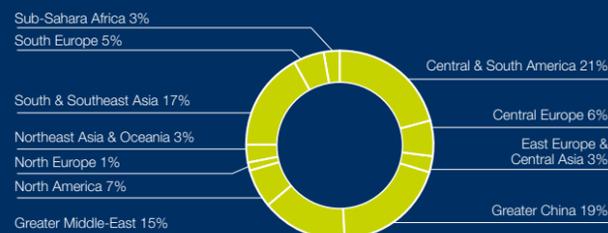
Tetra Pak is the world leader in liquid food processing and packaging. The business of the company includes much more than the packaging of liquid food products. We also provide a range of processing and packaging equipment for use with a broad array of products, from ice cream and cheese to dry foods, fruit, vegetables and pet food. By developing ambient packaging, which preserves the nutritional value and the taste of products, the distribution of these food products to consumers has been greatly facilitated.

**TETRA PAK IN THE WORLD**

Packaging machines installed	8,688
Number of packaging material plants	42
R&D units	11
Market companies	38
Sales offices	79
Technical training centres	16
Number of countries covered	>170

**TETRA PAK ORDER INTAKE BY GEOGRAPHY, 2011**

Packaging machines and Distribution equipment



**TETRA PAK SALES SPLIT BY MARKET SEGMENT, 2011**

Of 75,686 million litres of products:



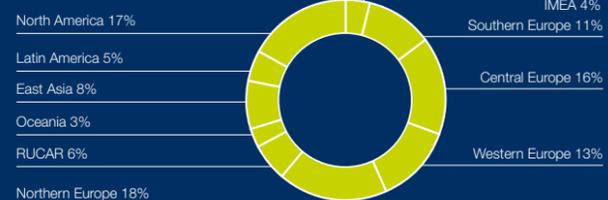
**WE MAKE SUSTAINABLE FOOD PRODUCTION POSSIBLE**

DeLaval is a full-service supplier to dairy farmers. The company develops, manufactures and markets equipment and complete systems for milk production and animal husbandry. Service and sales of a wide range of accessories are also key aspects of DeLaval's operations. The company supplies highly efficient system solutions for milking, herd management, animal traffic control, feeding, cooling, manure handling, ventilation and energy recovery.

**DELAVAL IN THE WORLD**

Number of plants	18
R&D units	3
Sales offices	35
Number of servicemen	3,200
Number of countries covered	>100

**DELAVAL SALES PER REGION, 2011**



**DELAVAL SALES SPLIT BY MARKET SEGMENT, 2011**



RUCAR = Russia and Central Asian Republics  
IMEA = India, Middle East & Africa



**PERFORMANCE AND INNOVATION. THE RESPONSIBLE WAY.**

The Sidel Group is one of the world leaders in solutions for liquid food packaging. From its two fields of strength, blow moulding and filling, Sidel offers equipment that is key to customers' decision-making in the purchase of complete bottling lines. Sidel has expanded its activities to cover three major categories of packaging: glass bottles (disposable and returnable), plastic bottles (PET, HDPE and PP) and metal cans.

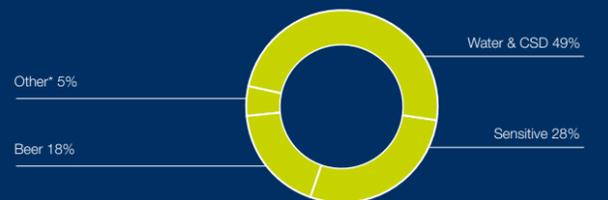
**SIDEL IN THE WORLD**

Machines installed	>30,000
Number of plants	26
R&D units	8
Sales offices	26
Service units	31
Number of countries covered	>190

**SIDEL SPLIT OF EQUIPMENT ORDER INTAKE BY GEOGRAPHY, 2011**



**SIDEL SPLIT OF EQUIPMENT ORDER INTAKE BY MARKET SEGMENT, 2011**



\* Including FHPC (Food, Home and Personal Care) and other alcohol.

**TETRA LAVAL INTERNATIONAL**

Tetra Laval International is the financial support and control function for the Board. This organisation is responsible for financing the Tetra Laval Group, Group tax planning and managing the legal, financial and equity structures.

Tetra Laval International proposes and ensures compliance with Group reporting processes, undertakes all Mergers & Acquisitions work and plays the lead role in corporate governance, internal audit and risk management.

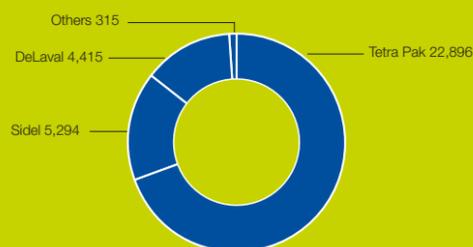
**TETRA LAVAL**

The head of each industry group has operational management responsibility for their own industry group and therefore reports directly to the Tetra Laval Group Board. The Group Board is responsible for the overall strategy of the Group and for controlling and supervising all of its business operations.

Larry Pillard is Chairman of the Board. The Chairman ensures the implementation of strategy and policy for the Group. The Chairman monitors the implementation of Group Board decisions by the industry groups and Tetra Laval International.

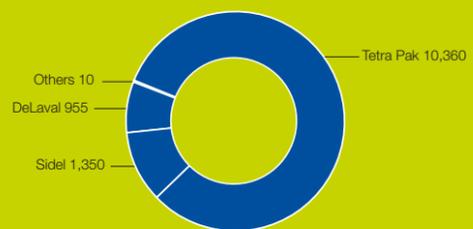
**NUMBER OF EMPLOYEES, DECEMBER 2011**

Tetra Laval Group 32,920



**NET SALES 2011, IN MIO EURO**

Total Tetra Laval Group 12,665



# Strong performance by all industry groups

2011 was a successful year for our Group. We enjoyed good growth despite political uncertainty and financial turmoil. Net sales increased by approximately 5 per cent and costs were under control even though raw materials and personnel costs put pressure on our margins. All of our industry groups – Tetra Pak, Sidel and DeLaval – performed well. From a market point of view, Tetra Laval enjoyed good growth particularly in developing markets like China, Greater Middle East, Russia and Central and South America.

Tetra Laval continued to invest 3 to 4 per cent of sales in R&D. This is in line with our long-term commitment to R&D and our ability to develop innovative products and solutions for the future. Our investment in both existing and new plants to increase production capacity, safety and efficiency, while at the same time creating environmental benefits, will make it possible for the Group to strengthen its market position in the future.

## RECORD SALES BY TETRA PAK

Tetra Pak increased net sales by about 5 per cent. Processing Systems saw extremely strong growth from fulfilling customers' needs for capital equipment investment. Packaging Solutions continued to show good sales figures and Technical Services continued its strong performance. Tetra Pak continued to focus attention on its cost structure in a challenging year with increased raw material prices. All in all, the Tetra Pak team performed very well.

## SIDEL – SUCCESSFUL PROGRESS TOWARDS TURNAROUND

Sidel continued to execute its turnaround plan and I am very proud of the team for having managed to be one year ahead of schedule. Sidel displayed good growth, above a 5 per cent increase in net sales and the order book looks solid for 2012. The company also worked diligently on costs, resulting in improved margins. The management team implemented a number of measures as part of the turnaround plan: new distribution and IT systems; establishing a fully operational headquarters in Zug, Switzerland; improved customer service; and increased capacity utilisation of the relatively new production plant in China. It is very gratifying to see how profitability and cash flow have improved as a result.

## DELAVAL ENJOYED DOUBLE-DIGIT GROWTH

DeLaval had an impressive year with double-digit sales growth coming from a robust demand for capital equipment and aftermarket products and services. Costs increased slightly faster than expected, due to increased raw material prices and currency fluctuations. Sales were healthy in the areas of both automatic and conventional milking. Dairy producers continued to invest and the strong order book is evidence that DeLaval's long-term investment in R&D is paying off. The introduction of automatic milking rotary, AMR™ was very well received by the market and the de-

mand for multiple voluntary milking system, VMST™ continued to hold up favourably among other products. One important reason for the success of DeLaval is that its products and solutions allow customers to ensure traceability and optimise milk production.

## HIGH STANDARD OF OUR CORPORATE GOVERNANCE

Tetra Laval International – TLI – is the “right arm” of the Group Board. TLI undertook a number of very important initiatives during 2011. Our corporate governance framework was reviewed with reference to other corporate governance policies. We are privileged to be able to choose the best from different governance systems. Minor changes were made as a consequence of our review and in my opinion, our corporate governance standard is comparable to any public listed company. TLI also supported the previously mentioned initiative to improve the efficiency for investments in R&D as well as supporting the Sidel team in its turnaround process. In addition, TLI diligently supported the Group with on-going financial reporting, currency hedging and risk management.

## STRONG TEAM SPIRIT AND COMMITMENT

In summarising 2011, I am delighted with the efforts being made throughout the Group. 2011 was another year of record sales despite the economic turbulence and the difficult competitive environment. The employees of Tetra Laval demonstrated an impres-

sive team spirit and devotion and I would like to express my gratitude for all their good achievements.

## FOOD SAFETY IS IN OUR GENES

The theme for this year's report is “Food Safety”, which is a natural one for our Group. For 60 years Tetra Pak has promoted food safety, protecting the quality of milk through aseptic technology, among other things. The same goes for DeLaval – developing safe, sustainable solutions for milk production. This includes not only milk quality but also products for animal health and welfare, which help the dairy producer to deliver high-quality milk. In a similar way the equipment and solutions of Sidel also promote food safety. It all compliments the consumers' need for greater confidence.

## FOCUS FOR 2012

For 2012, I believe the difficult business environment will persist with margin pressure, increased raw material and

personnel cost. Competition has become fiercer: for instance Asian players establishing themselves in other markets, such as Europe. In order to navigate successfully in this landscape we need to further control our costs. This issue is, of course, always important, but even more so during 2012. At the same time we will continue to invest and capitalise on our growth opportunities. I am a great believer in R&D. Developing innovative products and solutions will give us significant competitive advantages to lead the company into the next 60 years. Related to this is our wish to pursue environmental excellence – be it striving towards 100 per cent renewable packages or helping the dairy farmer towards greater sustainability.

## CAUTIOUSLY OPTIMISTIC

I am cautiously optimistic, considering the market outlook for 2012. More and more people require safe, high-quality food and beverages. With a growing

global population, demand will also continue to grow. Many of our customers have strong balance sheets will continue to make capital investments. There is a need for more modern equipment, which is both energy and cost efficient. Our challenge is to capture these opportunities by providing our customers with a strong level of expertise, high-quality products and state-of-the-art services. As we celebrate Tetra Pak's 60th anniversary, we must appreciate the achievements of our predecessors but also ask ourselves how we can build on these achievements to make the company just as successful for the next 60 years.

Larry Pillard



## TETRA LAVAL GROUP BOARD

# A supervisory board to all Tetra Laval units

The three Tetra Laval industry groups have operations and representatives in more than 170 countries. It is a decentralised organisation but with clear rules and guidelines. The framework for Corporate Governance establishes the Board's requirements and expectations for the industry groups, and communicates governance guidelines throughout the organisation. The Tetra Laval Group Board has six primary areas of responsibility.

- Development and definition of overall strategies and policies.
- The appointment and succession planning of senior management.
- Corporate governance.
- Financial and operational control. An Audit Committee and a Remuneration Committee support the Board in these functions.

- The Board also takes a direct role in defining financial targets for the Group's different operations and for total resource allocation within the industry groups.

The Tetra Laval Group Board schedules four regular meetings each year and when circumstances require, additional meetings are held.



## SIR KEITH WHITSON

A non-executive Board Member since 2005. Sir Keith Whitson is retired Group Chief Executive of HSBC Holdings plc. He also served as a non-executive Director of the Financial Services Authority in London from 1998 to 2003. During his career with HSBC he worked in Hong Kong, USA, Germany, Malaysia, Indonesia and the United Kingdom.

## JÖRN RAUSING

A non-executive Board Member of the Tetra Laval Group Board since 1991 (an alternate Board Member of the Tetra Pak Group Board since 1985). Jörn Rausing is also a Board Member of Alfa Laval AB and DeLaval Holding AB and of Ocado Ltd. He is the Tetra Laval Group's head of Mergers and Acquisitions. He is also the Chairman of the Remuneration Committee of the Tetra Laval Group Board.

## LARRY G. PILLARD

Chairman of the Board since 1 January 2003. Larry Pillard joined the Board as non-executive Board Member in 2001. He was previously Chief Executive of the Tate & Lyle Group since November 1996. He joined the British based sugar, cereal sweetener and starch company in 1992 as President and Chief Executive Officer of A E Staley Manufacturing Company, the subsidiary responsible for all starch operations in North America. Prior to Tate & Lyle he was with Cargill Inc for 23 years. He is a non-executive director of Bunge Ltd, USA.

## PAUL SKINNER

A non-executive Board Member since 2005. Paul Skinner is Chairman of infrastructure UK, a division of HM Treasury. He was previously a Group Managing Director of Royal Dutch Shell plc and Chairman of Rio Tinto plc. He is also a non-executive director of Standard Chartered plc and Air Liquide S.A. and a member of the Public Interest Body of Pricewaterhouse Coopers LLP.

## KIRSTEN RAUSING

An alternate Board Member since 1985 and a non-executive Board Member since 1991. Kirsten Rausing is a member of the Jockey Club and a director of the British Bloodstock Agency. She is a former Trustee of the Animal Health Trust and former director of the British National Stud and Jockey Club Estates Ltd. In addition, Ms. Rausing is the past Chairman of the European Federation of Thoroughbred Breeders' Associations (Paris) and of the E.F.T.B.A. Veterinary Commission. She is the current Chairman of the Thoroughbred Breeders Association of Great Britain.

## DR. JÜRGEN WEBER

A non-executive Board Member since 2003. Dr. Jürgen Weber became Chairman of the Supervisory Board of Deutsche Lufthansa AG in June 2003 after having served the company as Chairman of the Board of Management for twelve years. He is Chairman of the Supervisory Board of Willy Bogner GmbH & Co. KGaA and Loyalty Partner GmbH and member of the Supervisory boards of Allianz Lebensversicherungs-AG, Bayer AG and Voith AG, all based in Germany.

## DR. BERND PISCHETSRIEDER

A non-executive Board Member since 1999. Dr. Bernd Pischetsrieder has been Chairman of the Board of Management of Volkswagen AG from 2002 to 2006. He has been Chairman of the Board of Directors of Scania AB, Sweden from 2002 to 2007. He is Member of the Supervisory Boards at Metro AG and Münchener Rückversicherungs-Gesellschaft AG, all based in Germany.

## FINN RAUSING

A non-executive Board Member of the Tetra Pak Group Board from 1985 to 1989 and of the Tetra Laval Group Board from 1995. Finn Rausing, who is the Chairman of the Audit Committee of the Tetra Laval Group Board, is also a Board Member of Alfa Laval AB, DeLaval Holding AB, Swede Ship Marine AB and Nordkap Holding AG.

# Strong demand for our offerings

Tetra Pak had a good year in 2011, with both Packaging Solutions and Processing Solutions reporting solid results. We achieved most of our financial targets despite unforeseen events that shook many of our key markets, from the terrible earthquake in Japan and political unrest in the Middle East, to the EU debt crisis and

high levels of economic uncertainty worldwide.

## SALES OVER BUDGET

Net sales for 2011 increased 5.1 per cent compared with 2010, driven by a 25 per cent rise in capital equipment sales, reflecting strong demand for both our Processing and Packaging

offers, particularly within developing markets. Packaging material volumes were up 5.7 per cent year over year, a growth rate that was slightly lower than in 2010, but fully in line with budget, while Technical Service reported sales up 7.6 per cent. Processing Solutions saw exceptional double-digit growth in 2011, with sales up 26 per cent on

the back of a strong opening order backlog, which was higher still as we entered 2012.

I would like to take this opportunity to thank the whole Tetra Pak organisation for an outstanding effort during a difficult year. Strong commitment and solid professionalism enabled us to achieve many of our defined objectives.

## GROWTH IN MOST OF OUR MARKETS

Tetra Pak's strongest growth in 2011 came from its operations in Greater China, South & South East Asia and Sub-Saharan Africa. Central & South America also reported solid year-on-year increases, although at a slightly lower rate than was achieved in 2010. And it was a similar story in Greater Middle East. It was especially pleasing to see our businesses in North East Asia & Oceania return to growth after several years of stagnation, while by contrast, our progress in Europe was disappointing with some markets seeing a drop in sales.

The global packaging market grew by 3–4 per cent in 2011 compared with 2010, restrained by political and natural events that disrupted normal operations. The revolutions in Libya, Tunisia, Egypt and Yemen, coupled with political unrest in other parts of the Middle East, posed challenges to our business across the region. In Japan, the devastating earthquake and subsequent tsunami caused significant disruption. The manner, in which our employees responded to the tragedy, providing rapid and sustained support to customers across the country, stands as a testimony to the

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entire team. Overall, Tetra Pak's growth in 2011 outpaced the market – primarily due to a strong performance in the developing markets.

## GREATER COMPETITION

Competition in the international packaging market has increased in recent years, both from PET bottle manufacturers and from non-system suppliers, many of whom are moving beyond their traditional Chinese borders into other markets, including Europe. Competitors are developing packaging machines with smaller capacities in order to secure business from customers requiring lower volumes; with the aseptic milk market proving a particularly attractive target. Tetra Pak's ap-

proach to tackling this involves broadening its product portfolio, improving its service offering and continuing to enhance quality in all respects.

With increasingly fierce competition in China we have increased our resources and further adapted our products to suit the local market. As an example of our increased investment in the country, Tetra Pak opened a product development centre in Shanghai in November 2011. It provides dairy and beverage companies with processing, packaging and powder handling equipment, as well as the expertise to enable them to develop high-quality products quickly and efficiently.



**SUCCESSFUL LAUNCHES**

During 2011 our product launches included Tetra Evero Aseptic and Tetra Brik Edge, which were received very positively by the customers and consumers alike. Tetra Evero Aseptic is the world's first aseptic carton bottle for milk. It combines the simple handling and pouring qualities of a bottle with the environmental and cost advantages of a carton. Following successful testing in Germany, Tetra Evero Aseptic was launched in Southern Europe in 2011, securing strong sales improvements for the product brands involved. Likewise Tetra Brik Edge met with a very positive response when put on limited release in Europe, and its global launch is now under way with strong positive feedback from both brand owners and consumers. Alongside these launches we are working to strengthen our position in the portion pack segment. Among other things, we are focused on enhancing the functionality of our package offering, with developments such as DreamCap – an ergonomically de-

signed closure for on-the-go products – which has been extremely well received since its launch last summer.

**TOUGH ENVIRONMENTAL TARGETS**

2011 also saw us establish tough new environmental targets for the Group, including a commitment that by 2020, our global CO<sub>2</sub> emissions will be the same as they were in 2010, despite forecasts to significantly grow our business. We have also pledged to seek to double the recycling of used drinks packs by the end of the decade, compared with our 2010 baseline. This will be a particular challenge, given the low current recycling rates in countries where we are seeing most growth, including Asia and Central and South America. To achieve our target, we recognise that we must do much to raise awareness of environmental issues among the general public, and cooperate with local authorities to ensure the task of recycling is made as simple and as convenient as possible for the consumer.

**GROWTH STRATEGY LAUNCHED**

In 2010 we developed our 2020 growth strategy, focusing on four priority areas: Growth, Innovation, Environment and Performance. This strategy was rolled out through our organisation in 2011, and local plans were developed to help drive implementation. The commitment of our colleagues across the globe demonstrates a very high level of ambition, and we are now prioritising our activities to ensure we achieve our growth targets in each of our different markets and product segments.

Overall, 2011 was a difficult but successful year for Tetra Pak. And now, as we move further into 2012, it is clear that the external dynamics that buffeted our progress last year will persist, with competition growing ever more fierce, economic uncertainty remaining high and our cost base climbing. Given this environment, we will continue to drive the implementation of our 2020 strategy, with a sharpened focus on strengthening our operational performance, to ensure that we remain competitive, meeting or exceeding our customer's expectations, while continuing to invest for the future.

Dennis Jönsson



Tetra Evero Aseptic and Tetra Brik Edge are two successful product launches during 2011.

**Tetra Pak**

Group Management Team



**DENNIS JÖNSSON**  
PRESIDENT & CEO



**NILS BJÖRKMAN**  
COMMERCIAL OPERATIONS



**MICHAEL GROSSE**  
DEVELOPMENT, ENGINEERING & TECHNICAL SERVICE



**SAM STRÖMERSTÉN**  
SUPPLY CHAIN OPERATIONS



**TIM HIGH**  
PROCESSING SOLUTIONS



**MARIA VARSELLONA**  
GENERAL COUNSEL



**CHRIS HUNTLEY**  
CORPORATE COMMUNICATIONS



**ALISTAIR DAVIDSON**  
FINANCE & BUSINESS TRANSFORMATION



**ANDREAS KARL**  
HUMAN RESOURCES

# New vision sets the direction for our continued success

“We make sustainable food production possible” is our new vision, underlining the fact that DeLaval is part of a value chain that needs to feed a growing world population. And it is not just population growth that is driving demand. The food sector needs to improve food safety for the one billion people who are undernourished and meet demand from an increasingly affluent

urban population in newly developed and emerging economies.

We have an enormous potential in teaming up with professional food producers to ensure food safety and security.

For our future generations, food needs to be produced in a sustainable manner. To help our customers reduce their environmental footprint, while improving

food production, farm profitability and the well-being of the people and animals involved, we continuously strive to enhance our solutions to make it possible for farmers “to do more with less”.

## STRONG INCREASE OF SALES

DeLaval demonstrated strong growth in 2011 – sales continued with double digit growth throughout the year. The solid sales performances lead to a stronger overall market penetration. The DeLaval market share has increased mainly in the emerging markets. At the same time we achieved a satisfactory operating profit in line with the previous year, despite depressed prices and the increased cost of raw materials. The expansion in volume was the primary reason for the good results.

Sales were strong in the areas of both automatic and conventional milking. An important reason for our success is that we can offer products and solutions that give customers the opportunity to ensure quality and optimise milk production. In the aftermarket sector animal welfare is a strong area of growth, contributing to better animal health and improved profitability for our customers. Despite increased investment costs for professional milk producers, they have succeeded in increasing their returns thanks to our equipment and service.



## GOOD DEVELOPMENT IN MOST MARKETS

DeLaval saw rising sales in most of its major markets. There was good growth not just in the BRIC countries (Brazil, Russia, India and China), but also in markets such as Europe, US and Oceania. One important reason for the positive sales trend is that milk prices remain high because demand exceeds supply. Even in developing countries such as China and India the price of milk is on a par with that in Europe and the US.

## GLOBAL MARKET GROWTH

The global market continued to grow during 2011. Professional milk producers showed a willingness to invest, driven by relatively high milk

prices. The aftermarket sector also demonstrated good growth, among other things because of preventive maintenance and various hygiene solutions to guarantee outstanding milk quality. Larger farms are also fuelling strong demand, particularly for robotic milking products. There is a great need for structural rationalisation, not least in the fast-growing developing countries. The market was, to a certain degree, restricted by the global financial turmoil, which adversely affected customer access to finance.

## LEADING TECHNOLOGY IN THE INDUSTRY

DeLaval's ambition is to continue leading technological development in the industry. We commit significant

resources to research and development to support professional milk producers for more efficient operations, which contributes to sustainable milk production. We see ongoing strong demand for multiple voluntary milking system, VMS™, and our new product, automatic milking rotary, AMR™, has been very positively received by the market even before the commercial roll-out.

## SMART FARMING

The success of Herd Navigator™ continued during the year with launches in more markets. By automatically taking, analysing and reporting on milk samples, Herd Navigator alerts dairy farmers to, and advises them about, the condition and health of each cow.

It automatically detects diseases, reproductive status and feeding conditions long before they would be noticeable to the human eye.

VMS, Herd Navigator and Optifeeding™ are all good examples of Smart Farming, which is designed to empower farmers with decision-making tools and automation technologies that integrate products, services and knowledge for better milk quality, herd management, productivity and profit.

In 2011, DeLaval added a new solution to Smart Farming - DeLaval ISO identification system. The solution can reduce farms' costs as well as improve food safety when it is used to track a cow throughout the animal's lifetime.

**AGGRESSIVE GROWTH STRATEGY**

DeLaval has developed an aggressive growth strategy for the future. Our goal is to double our turnover by 2015 compared to 2010. This strategy is based on geographic expansion; development of total solutions for farm management; and growth within consumables and services.

The key markets for growth are China, Russia, Latin America and India.

Providing a Farm Management system means we are integrating the most important farm functionalities as a full-service provider: from herd health, breeding and nutrition, through productivity, land use, labour management, and water and energy impact, to re-

porting for management purposes, as well as other aspects of running a food production business.

Finally, the markets for consumables and services open up an opportunity for DeLaval to venture beyond milking. These areas are not only an aftermarket of the capital goods business, but are markets in themselves.

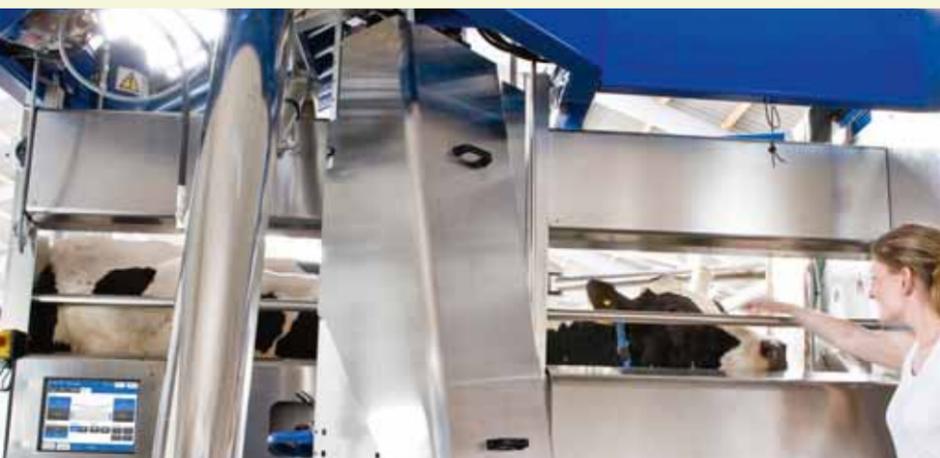
**POSITIVE OUTLOOK FOR 2012**

DeLaval will continue to grow during 2012, although not as substantially as in 2011. All indicators are that the demand for milk will remain strong. The general financial anxiety and increased prices of raw materials may affect us adversely, which means that it will be even more important to continue improving productivity in our operations.

In the long run, however, the basic conditions are in place for positive development in the dairy industry – we are part of a necessary supply chain for food – and our aim is to grow substantially in the future.

In summing up 2011, which was a very successful year for DeLaval, I would like to take the opportunity to thank all our colleagues for their extraordinary efforts during the year. Despite tough competition we reinforced our position and continued to grow above our expectations.

Joakim Rosengren



**DeLaval**

Group Management Team



**JOAKIM ROSENGREN**  
PRESIDENT & CEO



**JAN OVE NILSSON**  
BUSINESS AREA  
CAPITAL GOODS



**TIM NICOLAÏ**  
BUSINESS AREA AFTERMARKET  
& SERVICES



**MAGNUS BERG**  
SUPPLY CHAIN MANAGEMENT



**STEFAN LIDSTRÖM**  
FINANCE & IS



**HENRIK SUNDELL**  
LEGAL AFFAIRS



**BENOÎT PASSARD**  
MARKETING & COMMUNICATIONS



**OLOF GERTZ**  
HUMAN RESOURCES

# Steady progress paves way for next-generation products

Sidel kept up a steady pace of improvement in almost all regions throughout 2011, despite economic and political turmoil around the world. Our business is proceeding according to plan, and we have quietly progressed with the initiatives that constitute our transformation programme. These have continued to pay off in the form of significantly improved profits, with financial results coming in ahead of plan for the third consecutive year. Not only have we benefited from a cyclical recovery in several important markets, but our results have also substantially improved in relation to our main competitors.

Launched in 2008, our transformation programme comprises three strategic axes: Operational Excellence, Technology Leadership and Customer Proximity. To achieve operational excellence we have focused on improving quality and lead-times. Besides pleasing our customers, this has generated substantial and sustainable cost savings – bringing us closer to our ambition of being the lowest cost producer in our industry. The fact that 30 per cent of our order intake is for new or recently improved products confirms the importance of striving toward technology leadership in our industry. Improvements in customer proximity has been evident in better coverage of small to mid-size customers and improved overall market share.

## GROWTH IN DEVELOPING MARKETS

In 2011 we grew in all regions except North America and Eastern Europe. North America is a mature market

with low spending on new capital equipment, but thanks to a huge and aging installed base the aftermarket business in this region will remain strong. Although Eastern Europe has not yet recovered from the 2009 recession, we are confident growth will eventually return in this region.

Most of our growth comes from the fast-growing economies in Asia, Latin America, the Middle East and Africa, where rising incomes and urbanisation are generating an ever-increasing demand for packaged beverages. These macro trends will continue for a long time and were not affected significantly by the severe economic downturn experienced in 2009 and 2010.

## FLEXIBILITY AND COSTS IN FOCUS

Besides the strong macro trends driving overall demand, our market is characterised by our customers' increasing need to offer differentiated products to their end consumers. This requires equipment that is as flexible as possible, both in terms of different beverages that can be packaged and quick changeover times between different package formats. The need to differentiate a beverage's packaging is one of the reasons for the increasing popularity of PET, which provides more design freedom than any other packaging material. It also gives us at



Sidel the opportunity to benefit from our many years of bottle design and mould production expertise.

Another trend benefiting PET is the need to lower costs. Reducing energy consumption and water use on production lines are obvious targets for improvement. But, most importantly, there are still further opportunities to reduce the weight of bottles while improving their visual appeal. Designing lightweight, sturdy and attractive bottles is one of Sidel's unmatched strengths.

We expect continuous and steady underlying growth in the numbers of packages sold, with demand for capital equipment fluctuating around this long-term growth trend. Occasional cyclical downturns can actually benefit companies like Sidel that maintain research and development (R&D) investment and capability development through a recession.

## TWO DIFFERENT PRODUCT STRATEGIES

On the product side, we see a continued demand for complete-line solutions and have adjusted our strategy to distinguish between lines for PET and those for cans and glass. In the case of PET, we are driving to evolve the entire line into a product in its own right. It will be compact, flexible and configurable to customer needs requiring virtually no engineering time. It will be differentiated by superior blowing, filling and labelling technology, with the cornerstones of its competitiveness being flexibility and quicker changeover times.

Delivering a complete line for cans and glass will always be an integration project, with excellent line engineering being an important differentiator. This is why we created our Engineering & Material Handling (EMH) division to focus on cans and glass, and especially the

brewers segment where these packages are still dominant. Giving EMH more autonomy, while allowing the rest of the company to focus on PET, has yielded good results with significant growth both in PET and for EMH.

## STRATEGIC FOCUS ON SENSITIVE PRODUCTS

Sensitive products, which includes juices, ready-to-drink teas, isotonic drinks and dairy products, has become the fastest growing segment for PET bottles in recent years. As a result, the segment has become an important part of Sidel's core business, along with our traditional water and carbonated soft drink markets. Sidel offers both Hotfill PET and aseptic PET solutions for the sensitive products segment, with the latter increasingly gaining importance for our customers.

In this segment it is not just about offering our proven technologies.



Equally important is making our many years of experience in microbiology, product/packaging interactions and hygienic design available to our customers. True partnerships with our customers are not just an ambition in this segment, they are mandatory. This is why in 2011 we set up a new sensitive products strategic programme to reflect the increasing importance and the special requirements of this segment. For Sidel, food safety is more than just a customer requirement – it is an absolute value where we accept no compromise.

**STRONG PRODUCT PORTFOLIO**

Technology leadership is about anticipating customer requirements far into the future and making the necessary investments both in technology and product development today. Ultimately this pays off in a stronger product portfolio. With almost a third of our order intake now coming from products introduced or significantly improved during the past four years, we are already beginning to see the payback on our commitment to R&D.

We are particularly proud of our Sidel Combi Predis™ FMa, a unique

aseptic packaging solution for PET bottles. This solution saves up to 10 cubic metres of water per hour on a typical line, and reduces chemical consumption to one tenth of that used by a traditional aseptic PET system. The new Roll sleeve™ labeller launched in 2011 is another solution in which we have great confidence. By precisely applying extremely thin labels to PET bottles, it brings considerable cost and resource savings. The performance of our Universal 2 blowers has been significantly improved, with both electrical consumption and change-over times cut by half. A final example, among many other product innovations, is our Bottle Switch™ system, which allows one operator to change a mould in less than a minute.

Our market offering also increasingly includes innovations in how we serve aftermarket demand. Our services encompass spare parts, maintenance contracts, field services, options and upgrades, line and equipment audits, line re-engineering, and bottle design and moulds. Our track record here has been impressive, with growth far outpacing that of the installed base.

**A BETTER MATCH**

During 2012 we need to continue executing the transformation we initiated in 2008. The underlying trends are stable, strong and favourable to Sidel. But because our business is still mostly about making equipment that requires substantial investments by our customers, there is always the risk of a steep, albeit temporary, downturn whenever business confidence or credit availability evaporate in the market.

We believe that trying to predict exactly when this will happen next is futile. Instead we are constantly working on reducing our structural costs and growing our services business, which is much less cyclical, to better weather the next storm.

In 2012, we will begin launching our next-generation products. This will require massive internal efforts at Sidel, but the progress we have made in the past few years has made us stronger, more focused and capable of confidently managing such challenges. Thanks to a truly genuine effort to improve Sidel as a company we are ready to meet our customer commitment to be 'A Better Match'.

Mart Tiismann

**Sidel**

Group Management Team



**MART TIISMANN**  
PRESIDENT & CEO



**MICHEL PICANDET**  
LIFE CYCLE MANAGEMENT



**PETER LOGAN**  
MARKET OPERATIONS



**CAROLINE FELLENIUS-OMNELL**  
GENERAL COUNSEL



**SID JOHARI**  
INDUSTRIAL OPERATIONS



**MARC AURY**  
ENGINEERING & MATERIAL  
HANDLING



**RICCARDO ROSSELLI**  
FINANCE



**NICHOLAS BLOCH**  
CORPORATE COMMUNICATIONS



**ROBERTO BETTINI**  
HUMAN RESOURCES

Comments by the President, Tetra Laval International

# Staying focused in times of unprecedented uncertainty

In 2011, Tetra Laval International (TLI) delivered the final phase of the initiatives underpinning our 3-year plan, and exceeded our targets in a context of the Eurozone crisis and volatile financial markets. Influenced by geopolitical events such as the “Arab spring”, and natural disasters in many parts of the world, the Group businesses faced challenges in protecting their

assets and responding to customers’ expectations. With its expertise in foreign exchange management, insurance and financing, TLI played an important role in managing the effects of such events, whilst updating the corporate governance framework and providing the Board with more insights into the performance and risk profile of the Group.

## MANAGING FINANCE RISKS IN UNCERTAIN MARKETS

Although 2011 saw a gradual improvement of the financial markets, high volatility and concerns regarding counterparty risk lead us to maintain a systematic approach in this area. Overall, we experienced low interest rates, rising commodity prices and strong US Dollar and Swedish Krona.



We partially offset the negative currency movements through a combination of forward contracts and options, and implemented a new interest rate hedging policy defining minimum and maximum hedging rates within pre-defined time horizons. We have extended the hedging of our raw material exposures, and finalised the implementation of the new Group-wide Credit Risk policy by including Sidel in our standardised approach to evaluating customer risk.

## ENHANCING CORPORATE GOVERNANCE AND ENTERPRISE RISK MANAGEMENT

TLI conducted a review to assess the alignment of the Group corporate governance framework with external practices. As a result, the Board approved the updated Group Code of Conduct, Group Finance & Control policies and Group Risk Management procedure. The new version of the risk management procedure sets materiality levels for each category of risk, defines the Board oversight role and includes a formal link between

risks, policies, controls and monitoring. In parallel, we moved to a more risk-oriented audit approach, increasing the emphasis on the control effectiveness in relation to key risks.

## IMPROVING TRANSPARENCY AND VISIBILITY FOR THE BOARD

TLI continued to focus upon reporting enhancements and forecasting accuracy, with a strong emphasis on performance management and generating relevant forward-looking information for the Board. At the same time, TLI worked with the management of



Tetra Pak and Sidel to provide the Board with better visibility on R&D expenditure, which will now be included in the reporting process alongside capital expenditure. We also launched additional analysis relating to total personnel costs and pension liabilities.

**OPTIMISING FINANCE ACTIVITIES**

TLI completed a review of its equipment financing structure with a view to maximising the benefits of the Group leasing platforms, designed to support sustainable profitable growth in the industry groups. Work is underway to evaluate a new leasing system and define new processes. In cash management, we continued to extend the cash pooling structure to new markets and improve the automation and visibility of cash balances. We also achieved a significant reduction of cash balances

through accelerated intercompany payments, discount payments and faster dividend collection.

**DEFINING TLI'S NEW 3-YEAR PROGRAMME**

In 2011, TLI finalised its project plan for the period 2012 – 2014. This will lead us to work with finance teams throughout the Group to maximise value delivery along the dimensions of sustainable profitable growth, return on invested capital and cost of capital.

**OUTLOOK AND FOCUS AREAS FOR 2012**

As we begin 2012, the global economy and markets are showing continued high volatility and uncertainty, with the Eurozone capturing most attention. Fears of sovereign default and subsequent contagion in the financial mar-

kets may cause stressed corporate funding conditions and risks of credit restrictions. Nevertheless, we remain confident in our ability to finance the Group activities through our central and local facilities.

2012 will also be another challenging year for the Group businesses with a high reliance on growth in Asia and a risk of a “double-dip” recession which may impact our major customers. In this context, TLI will continue to play an important role in managing financial risks and accompanying the industry groups in their efforts to control costs and preserve competitiveness on a global scale.

In 2012, TLI is launching key projects forming part of its 3-year programme. We will prepare the new phase of the Group syndicated loan facility, whilst optimising further the overall cost of Group financing and making further progress in cash management. We will seek to further improve the quality and content of information supplied to the Board to support decision making in line with the Group’s major business challenges. In parallel, we will drive efficiencies in insured employee benefits arrangements to achieve large-scale cost savings.

We will also drive effective implementation of the new risk management procedure, ensuring that control assurance plans are formalised and auditable across all Group entities. Finally, we will launch a broader investigation of finance risk management, including natural and economic hedging opportunities and scenario planning in line with a long-term Group finance strategy.

TLI’s successful role in the Group is due to the strong expertise of its employees, and the leadership they show. This makes me confident that we will once again exceed our initial objectives and seize new opportunities in 2012.

Martyn Zedgitt

**Tetra Laval International Management**



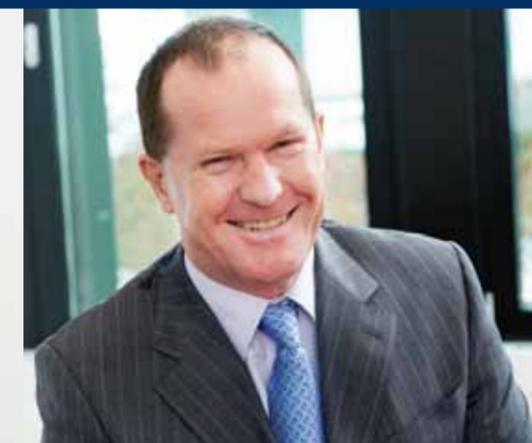
**MARTYN ZEDGITT**  
PRESIDENT



**EMILIO RUIZ-BERDEJO**  
FINANCE



**JÖRN RAUSING**  
MERGERS & ACQUISITIONS



**ROBERT SWAN**  
AUDIT



**ROBERT NORRIS**  
GROUP FINANCIAL PLANNING & REPORTING



**MARC HÄFLIGER**  
OPERATIONS & ADMINISTRATION

# Support Functions

TETRA LAVAL GROUP



**JÖRGEN HAGLIND**  
GROUP COMMUNICATIONS OFFICER

**ANDREAS KARL**  
GROUP HUMAN RESOURCES OFFICER

**THOMAS ANDERSSON**  
GROUP GENERAL COUNSEL

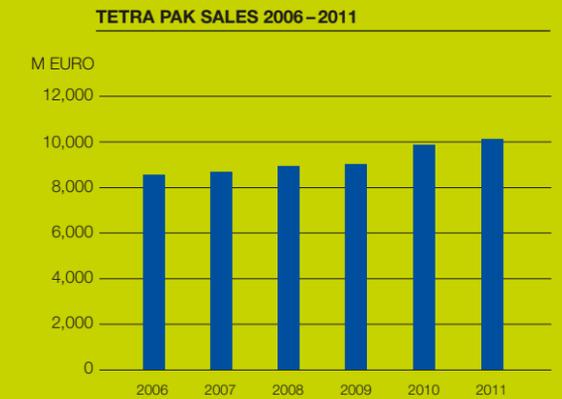
These individuals are functionally responsible for their respective area throughout the Tetra Laval Group. The roles and responsibilities encompass continuing support for the Tetra Laval Group Board, implementation of common Group standards and processes, coordination between and support to industry groups. They all report to the Chairman of the Tetra Laval Group Board.

## Tetra Laval Group

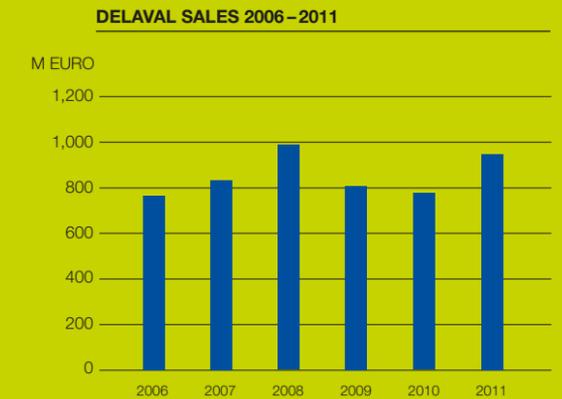
The three autonomous industry groups, Tetra Pak, DeLaval and Sidel, focus on systems for production and distribution of food.



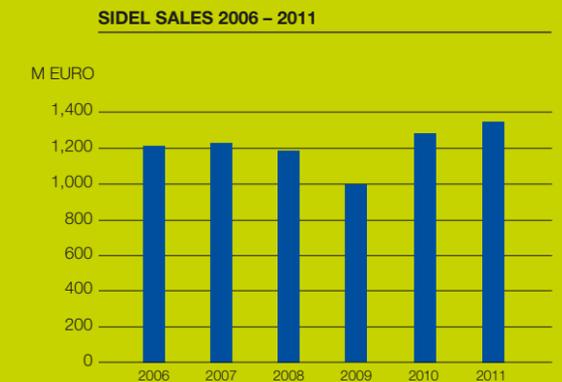
### TETRA PAK



### DELAVAL



### SIDEL



# PART 2

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# Promoting food safety

Food safety is all about building consumer trust. With unique knowledge and experience in safe milk production, food processing and packaging, Tetra Pak, Sidel and DeLaval enable food producers all over the world to achieve safe and high-quality production.

We assist our customers in creating systems for traceability of ingredients, in developing ground-breaking aseptic solutions, in keeping the best possible hygiene, and in a multitude of other food safety issues. Quite simply, we use our experience from all over the world to help securing the supply chain, from the field to the table.

School feeding to  
51 million children

40

Tetra Alcip builds  
on firm foundation  
of food safety

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A green future  
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Raising standards  
in PET

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Cleaning is key to milk  
quality and animal health

88

Fewer antibiotics and  
healthier cows North  
of arctic circle

92

## Tetra Laval committed to disaster relief support

Tetra Laval Group contributed to several disaster relief support initiatives during 2011. This was in line with its business philosophy of playing an active part in the communities in which it operates. The Group donated €6 million to support immediate disaster relief efforts in Japan after the earthquake and sub-

sequent tsunami in March, 2011. The initial support was aimed at addressing some of the more acute issues, such as supply of milk, water and food to those affected.

In East Africa, people were hit by the worst drought in 60 years. Tetra Laval donated €100,000 each to the Red

Cross and Doctors without Borders in order to help contain the famine.

The company also donated €100,000 to people affected by flooding in Thailand and another €100,000 to support victims of an earthquake in Turkey. Brazil was also hit when Rio de Janeiro state was flooded, and Tetra Laval

donated €50,000 towards relief. The flooding was described as the worst of its kind in Brazil's history and forced 20,000 people to put up shelters after losing their homes or having to abandon at-risk areas.



## Tetra Laval honoured as a top innovator

Tetra Laval has been named one of the world's 100 most innovative companies in Thomson Reuters' list of the world's 100 best innovators. The recently launched 2011 Top 100 Global Innovator programme honours companies and institutions that are world leaders in innovation and that work with inventions to create economic growth, influence future technologies and help shape the future.

Alongside Tetra Laval are such innovators as Microsoft, Apple, Procter & Gamble and Sony. All play an important role when it comes to furthering the global economy.

"Continual innovation is an integral part of our business. It makes it possible for us to provide our customers and consumers with safe, healthy and environmentally sustainable food solutions. It is an honour for us to be recognised for our innovations and the role they play in society," says Jörgen Haglund, Group Communications Officer, Tetra Laval.

# Developing an industry and a country

In Sudan, there is a great deal going on to develop the dairy sector: close cooperation between processors and farmers, school milk programme, and consumer education activities. Tetra Pak and DeLaval have decades of experience in supporting local dairy farmers and dairy processors to develop a sustainable dairy value chain.

Although Sudan in northern Africa has a dry climate, it can sustain livestock and other farming thanks to the river Nile. There are 40 million cattle and the population drink milk and consume other dairy products.

But the dairy sector is characterised by smallholder farmers who depend on 'middle men' to access the market. Despite local milk production, dairy processors rely on imported milk powder. And a majority of con-

sumers prefer to buy unprocessed or 'loose' milk, unaware of quality and food safety issues.

Tetra Laval's Food for Development Office (FfDO) uses its vast experience and knowledge to help develop and improve the dairy value chain. In Sudan, FfDO and Tetra Pak Sudan are supporting the dairy processor DAL Dairy Factory in their efforts to change the conditions for dairy farmers and provide consumers and school children with quality milk.

### MILK COLLECTION CENTRE

At the end of 2010, DAL Dairy Factory set up a pilot milk collection centre – often described as a dairy hub – in cooperation with 25 local farmers. The farmers were guaranteed a regular income and the processor gained access to raw milk, allowing it to offer a quality product for sale. Today, DAL Dairy Factory works with more than 250 farmers, has five milk collection centres and receives 150,000 litres of milk per day. Participating farmers receive training, as a result of which milk quality and yield has improved.

"We want to be the leading provider of quality milk, a goal we can only achieve by working with local farmers to help them improve quality and the health of their cattle," says Sammy Musa, Strategic Project Manager at DAL Dairy Factory.

### MILK IN SCHOOLS

DAL Dairy Factory also provides 30 schools with milk five days a week. The aim is to make consuming quality milk a habit, while improving health and school attendance, and alleviating malnutrition. The programme started in July 2011 and covers 16,000 children living in remote areas. The school milk is an important part of the children's daily nutrition.

"Attendance has risen from only 50 per cent to nearly 100 per cent in many schools, and the teachers tell us the children are energised and eager to learn," says Azza Nuri, who is responsible for the programme at DAL Dairy Factory. The goal is to extend the programme to more children in 2012.

DAL Dairy Factory is also engaged in educating consumers in the benefits of drinking quality milk. They invite teachers and mothers to visit the dairy plant in Khartoum, explaining and demonstrating how milk is being

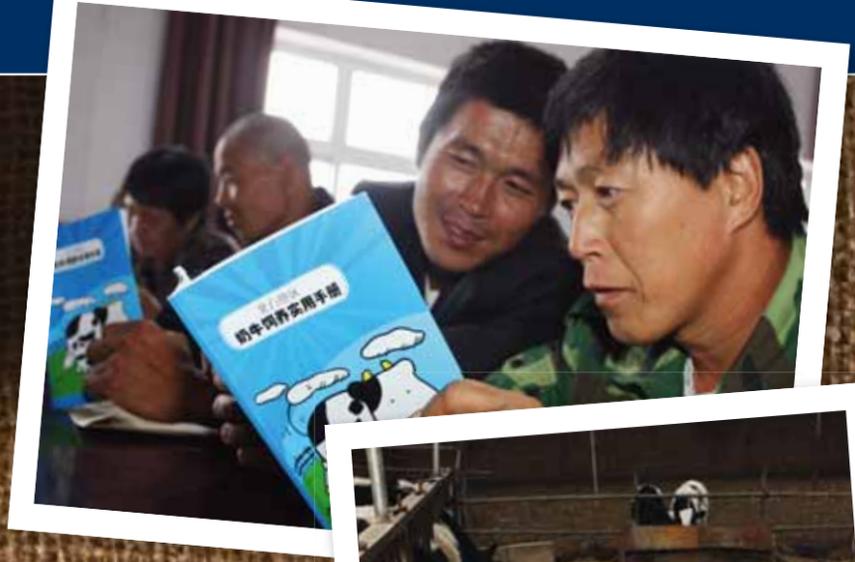
processed and packaged into safe quality milk. This is a way of raising awareness of health and food safety issues.

### DAIRY DEVELOPMENT WORLDWIDE

The Dairy Hub model was initially developed by Tetra Pak Pakistan, and has been conceptualised by FfDO. The model is addressing the cooperation between small holder farmers and dairy processors, and has been proven successful also in Sudan and in Bangladesh as well. The interest for linking small holder farmers to the market through the Dairy Hub model is growing worldwide – new dairy hubs are planned in Nicaragua, India, Tanzania and Sri Lanka to mention a few countries.

By strengthening the dairy value chain in a country, farmers get access to the market, milk quality will be improved and the sector – and the country – will have sustainable future.





# Strong support helps grow dairy farming in China

Tetra Pak and DeLaval have long supported the growth of Chinese dairy farming. Some of the more important initiatives are Project Snow White, Tetra Pak China Raw Milk Support Programme and the establishment of the Sino-Swedish Dairy Industry Centre.

In 2003 Tetra Pak and DeLaval set up Project Snow White with the Ministry of Agriculture to upgrade dairy farms through technical training and the implementation of new technical standards. By 2011, more than 100 farms had been upgraded to EU standards.

### STRATEGIC PARTNERSHIP WITH THE PEOPLE'S UNIVERSITY OF CHINA

A second initiative was to launch the Tetra Pak China Raw Milk Support Programme in early 2008 in a strategic partnership with the People's University of China (Renda). The Renda-Tetra Pak Dairy Research Centre was established and has carried out a full study across the country, looking at dairy farms, cooperatives, dairy farming families, and dairy companies. As

a result 10 research sites have been set up at cooperatives for follow-up studies.

### OTHER INITIATIVES

Training for officials in charge of dairy farming at grass roots level has also been provided. During the past three years, 160 officials from 30 raw milk-producing counties have taken part. As well, a Virtual Dairy Farmers School to help farmers gain new knowledge was launched in collaboration with the Dairy Association of China. The school has provided on-site training by dairy experts for more than 6,000 farmers in over 10 provinces so far. Through film, TV and DVD distribution the courses are estimated to have reached around 48 million people.

### THE SINO-SWEDISH DAIRY CENTRE

Initiatives to support the Chinese dairy industry date from 1985, when DeLaval and Tetra Pak, together with Beijing Capital Agriculture Group and the Chinese Ministry of Agriculture, established the Sino-Swedish Dairy Centre to provide education on milking, dairy product processing, aseptic filling lines and other related technologies. The first phase continued for 12 years, training more than 4,000 technical experts at customers' sites. A second phase was launched in 2009. Among the courses on offer are Dairy Farming Proficiency training, which uses hands-on modules to help managers and engineers of scale ranges increase the efficiency of breeding, feeding, calving, milking, veterinary practices, and farm operations.

# TETRA PAK



NUMBER OF EMPLOYEES 2012

22,896

NET SALES 2011

10,360  
MILLION EURO

COUNTRIES COVERED

>170

NUMBER OF PLANTS

42

R&D UNITS

11

TRAINING CENTRES

16



OUR BRAND

Over the past 60 years, the Tetra Pak brand has grown to become a powerful global asset, delivering solid value to both our company and our customers. Our motto, PROTECTS WHAT'S GOOD, reflects the principles upon which we built our business and underpins our Vision, our Mission and our Core Values. It is a commitment that goes beyond the contents of the package, recognising that we also play a role in shaping better futures for our customers, our company, our employees, our supplies and the communities in which we operate.

MARKETS & CUSTOMERS

Tetra Pak operates in more than 170 countries around the globe, employing almost 23,000 people. Our customers come from different parts of the food industry, such as the dairy, cheese, ice cream, beverage and prepared food sectors.



VISION

We commit to making food safe and available, everywhere



ENVIRONMENTAL SUSTAINABILITY

We are committed to running our business in an environmentally sound and sustainable way. We set goals for continuous improvement in our development, sourcing, manufacturing, and transportation activities. As part of that commitment, we take a long-term and lifecycle view, continually improving environmental performance, communicating openly with our stakeholders and reporting regularly on our performance.

PRODUCTS

At Tetra Pak we are specialists in complete solutions for the processing, packaging and distribution of food products. Our products are specifically designed to be as economical with resources as possible. Dairy products, juices and nectars, ice cream, cheese, dry foods, fruits, vegetables and pet food are examples of products that can be processed or packaged using Tetra Pak lines. We focus on keeping the consumption of all raw materials and energy to a minimum during both the manufacturing process and distribution.

Our products are divided into several categories:

- Packages
- Processing equipment
- Filling machines
- Distribution equipment
- Service products

R&D

Our customers need faster, better and cheaper developments to reduce their operational costs and to increase performance in order to remain competitive. We invest in technology and new products in response to customers needs, consumer preference and market dynamics.

CORE VALUES

**CUSTOMER FOCUS & LONG-TERM VIEW**

We ensure we add value and inspire our customers because we recognise that they come to us by choice. We dare to lead with a focus beyond tomorrow and take opportunities to learn and grow.

**QUALITY AND INNOVATION**

We do not compromise on quality. We relentlessly drive for better, fit-for-purpose solutions and breakthrough innovations.

**FREEDOM & RESPONSIBILITY**

We have the freedom to take initiative and act decisively in the best interests of Tetra Pak and our customers. We take responsibility for our actions and contribute to the communities in which we operate.

**PARTNERSHIP & FUN**

We respect and rely on one another and all our stakeholders for exceptional results. We enjoy working together and celebrating our achievements.

OUR STRATEGIC PRIORITIES

We are developing our capabilities, collaboration and employee engagement to drive long-term profitable growth and we act upon our four key strategic priorities.

**GROWTH**

Growth in all markets  
Strengthen the core business  
Deploy products and services effectively

**INNOVATION**

Accelerate value-driven innovation  
Deliver value for money to customers  
Innovate faster, better and cheaper

**ENVIRONMENT**

Drive environmental excellence  
Reduce environmental footprint across the value chain  
Develop sustainable products  
Increase recycling

**PERFORMANCE**

Strengthen operational performance  
Achieve undisputed quality leadership  
Improve productivity and customer service

FOOD FOR DEVELOPMENT

For 50 years, we have worked with customers, governments, international and community-based organisations and farmers to provide milk and other nutritious drinks in schools around the world.

In 2011, the Tetra Laval Food for Development network supported delivery of 6.7 billion packages of milk and other nutritious drinks to 51 million children in schools in more than 50 countries all over the world. School feeding programmes can have a considerable impact on the local community and economy. Not only do they improve the health and learning capabilities of children, they often act as a catalyst for agricultural and economic development.

In 2011, Tetra Pak expanded its support for school feeding programmes in Senegal, Sudan, Zambia, Honduras, Argentina, Ecuador, Uruguay and China among many other. School feeding programmes play a vital part in our business strategy and our commitment to dairy customers around the world to make food safe and available everywhere.

We expect to see a further expansion of these programmes in the coming years.

GLOBAL COMPACT

We are a member of the UN Global compact, which brings together companies, UN agencies, labour and civil society to support ten principles in the areas of human rights, labour, the environment and anti-corruption. We also cooperate with NGOs such as WWF on forestry and climate change issues, and GAIN, Global Alliance for Improved Nutrition.



## Tetra Pak releases new Tetra Rex One Step Opening cap

Thanks to superior hygiene, Tetra Rex is known to an entire generation as a symbol of freshness, convenience and safety. Now, the new TwistCap OSO 34 (One Step Opening) adds the ability to pour milk, yoghurt or juice smoothly and efficiently, and to reseal the package with one simple twist.

TwistCap OSO 34 also weighs less than other closures for Tetra Rex, combining optimal functionality with the minimum use of plastic.



## Largest Middle East facility opens in Pakistan

In March 2011, Tetra Pak inaugurated a new packaging material factory in Lahore to meet Pakistan's growing requirement for aseptic cartons. Demand for dairy beverages, juices, nectars and still drinks (JNSD) has been increasing steadily for six years, with a compound annual growth rate of 15 per cent for dairy drinks and 16 per cent for JNSD.

An investment of €92 million to build Tetra Pak's largest facility in South-East Asia shows continued commitment to customers and consumers in the region.

The factory is certified as World Class Manufacturing (WCM) standard. WCM is a set of principles, policies and

techniques for factory operations focusing on continuous improvement in quality, cost, lead time, flexibility, and customer service.

Spread over 150,000 square metres, production was initially 8 billion packages a year, including classics such as Tetra Brik Aseptic, Tetra Fino Aseptic and Tetra Classic Aseptic. The factory has the potential for 16 billion packages and many new products. While the main market is Pakistan, exports have already begun within the region.



## Unilever steps up orders to Tetra Pak Hoyer

Orders from Unilever have been arriving at Tetra Pak Hoyer at an unusually fast pace, strengthening Tetra Pak's long-standing relationship with the world's biggest ice-cream manufacturer.

Four orders for complete high-capacity Straightline extrusion lines have been fulfilled, the latest one to Unilever's US operations.

The first, for Magnum production, was delivered to Unilever's reference plant in Germany at the start of 2011. Unilever is running the line seven days a week to meet demand as the Magnum bar is selling at four times the rate predicted. The second and third orders were both for the US, for Klondike products.

Ambitious growth plans to double ice-cream capacity over the next five years lie behind Unilever's increased investment activity. Tetra Pak expects to see an even greater cooperation and further business in the future.



## Introducing a smart new Edge to ambient

The new Tetra Brik Aseptic (TBA) 1000 Edge LightCap 30 is available globally for milks, special milks, dairy alternatives, juices, nectars, still drinks, wines, and other liquid products from April 2012.

It adds a distinctive sloping top panel and a 30mm screw cap to the familiar shape of the TBA package, offering consumers greater convenience and producers an eye-catching way to promote products on the crowded ambient shelf.

The package not only uses the latest Tetra Pak closure technology, but delivers cost benefits, robust stacking capabilities, and significant environmental advantages.

Now available in material certified by the Forest Stewardship Council™ (FSC™), it will be offered with green polyethylene closures during 2012.



## Nairobi schoolchildren shine at recycling

Tetra Pak Eastern Africa joined customer GlaxoSmithKline in a carton recycling campaign targeting 80 schools in Nairobi, Kenya. The campaign was aimed at creating awareness and educating children about the importance of recycling.

Pupils from competing schools collected used Ribena carton packages. The school collecting the greatest number won €500 and the first runner-up €300. Both schools were taken on a visit to the GlaxoSmithKline factory in Nairobi to see firsthand the making of Ribena.

During the first few months of the campaign more than 6,000 Tetra Pak cartons were gathered up for recycling at Ecotech Ltd, where they were used in the manufacture of laminated boards for low-cost housing.

The project was supported by Kenya's National Environment Management Authority, whose director, Dr Ayub Macharia, called for environmental conservation studies to be incorporated into national schools' curricula.



## A step towards 100 per cent renewable packaging

During 2011, Nestlé Brazil was the first customer to launch two popular milk brands in carton packaging with caps made of plant-based polyethylene plastic. This is an important step for Tetra Pak towards its goal of producing 100 per cent renewable packaging. The renewable polyethylene was developed by Braskem, Brazil's largest petrochemical company, and is made from sugar cane.

# Tetra Recart scoops more awards in Canada



Tetra Pak has earned special recognition for its Tetra Recart packaging system in Canada, taking silver medal in the 'Sustainable Product' category at the Ontario Waste Minimization Awards in Toronto last October. Hosted by the Recycling Council of Ontario, the award recognised products or services that improve the management of resources, reduce waste and minimise negative environmental impacts throughout a lifecycle.

This was the third time in six months that Tetra Recart had won a sustainability-related award in Canada. In June last year, it picked up silver in the category 'Best Branded Package Made or Sold Anywhere in North America' at the Packaging Association of Canada Leadership Awards Gala. And in May, Tetra Recart was named 'Best Green Consumer Product' at the 2011 GLOBE Awards, which recognise Canadian organisations that balance competitive business strategies with sustainable initiatives.

The awards stand as strong testimony to the company's commitment to innovation and environmental sustainability, and strengthen Tetra Pak's position as a leader in the packaging industry.

# Ninth Product Development Centre opens in Shanghai

Tetra Pak's ninth Product Development Centre (PDC) opened in Shanghai, China, in November 2011. The centre provides dairy and beverage companies with processing, packaging and powder-handling equipment, as well as expertise, to enable them to quickly and efficiently develop high-quality products.

The PDC has advanced processing equipment for extraction, mixing, addition and filling. It offers a variety of services, including product and technology development; product formula and concept development; product processing technology and equipment optimisation; product packaging innovation; and product consumer surveys and market evaluation.

The PDC is a significant step in innovation from Tetra Pak, as it provides customers with a one-stop shop for product development and manufacturing. All equipment and facilities have been tested and certified, and adhere to the most stringent manufacturing and quality standards. The PDC is now helping Tetra Pak's customers

transform product development into safe and reliable commercial production, resulting in better return on investment and greater agility. The PDC in China follows similar centres in Brazil, France, India, Japan, the Netherlands, Singapore, Sweden, and the US.



# Next-generation cheese unit cuts energy use and costs



Tetra Pak launched the next generation of its successful Cheddar cheese blockforming unit in November 2011. The new Tetra Tebel Blockformer enables cheese manufacturers to improve environmental performance, reduce costs and minimise product loss.

Thanks to lower energy use, the new unit offers a 25 per cent reduction in CO<sub>2</sub> compared to the previous version. The reduced use of air, water and electricity also results in 20 per cent lower running costs per kg cheese. Weight accuracy is improved by as much as 20 per cent.

These improvements in performance are the result of a number of innovations driven by Tetra Pak's focus on increasing both environmental and operational efficiency.

# Tetra Evero Aseptic takes off in Spain

Milk in the Tetra Evero Aseptic package is proving highly popular in Spain, with CAPSA Alimentaria Penasanta, the first Spanish customer to commercially launch this combination, reporting good sales growth in the three product brands being sold in the new package. A marketing campaign in May 2011 led to an increase in sales of the promoted drinks – using a combination of TV spots, print ads and smart point-of-sale promotion. One of the products, Fibra, which was being sold in Spain prior to its relaunch in Tetra Evero Aseptic, saw sales start to climb even before a new advertising campaign had started, a fact that CAPSA attributes to the positive effects of the new package.

The technical results of the new system are also impressive, with excellent mechanical and aseptic performance.



# On-the-go drinking carton proves a success

The Tetra Prisma Aseptic 330 Sq with the DreamCap closure has been successfully launched in Saudi Arabia, USA, Portugal, Germany, Ukraine and Lebanon.

The package, which features a unique eight-sided shape and an ergonomically designed DreamCap closure, strengthens Tetra Pak's presence in the portion packages segment. DreamCap was developed with facial geometry in mind and provides optimum control of beverage flow.

Consumer tests in China, Thailand, Spain and the US had previously shown that the 330 Sq carton gives consumers the most comfortable drinking experience when compared to other packages.

The package is suitable for a wide range of liquid dairy products, juices, nectars, still drinks, meal replacement drinks, sports drinks, iced teas, flavoured milk, and coconut beverages.

# TETRA PAK Consumers



## School feeding to 51 million children

Through Tetra Laval Food for Development Office and network, Tetra Pak cooperates closely with governments, development agencies, NGOs, local food processors and farmers.

In 2011 Tetra Pak supported the development of a number of new school feeding programmes. In Zambia, Tetra Pak collaborated with the government, international development agencies and industry partners on a pilot project to bring milk to 15,000 school children in Zambia's Eastern Province. The pilot, designed to create a scalable model that can be rolled out across the country, is already delivering positive educational outcomes, with teachers reporting 100 per cent attendance on days when the milk is distributed. Milk is sourced from local

farmers, also offering the potential for a significant boost to Zambia's rural economies.

In Senegal, Tetra Pak is involved in a school milk programme, run by the Municipalities of Dakar, that expanded from 6,000 children to more than 80,000 in March 2011. Tetra Pak is providing administrative expertise with guidance on milk procurement, distribution, storage, best practice in terms of when and how milk is consumed, waste collection and parent awareness on milk benefits.

In Honduras, Tetra Pak has helped form a public-private partnership that, from August 2011, is bringing milk to 164,000 children in 780 schools, and increasing demand for locally produced milk. Based on a proposal from the

Honduran Dairy Farmers Federation, a new school milk law has been approved that guarantees a child's right to start receiving UHT milk in all public schools that lack refrigeration facilities.

School milk pilot programmes have also started in Argentina and Sudan. Altogether, in 2011 more than six billion packages of milk and other nutritious drinks in Tetra Pak packages were provided to 51 million children in schools in over 50 countries.



## Tetra Evero Aseptic – consumers' first choice

In 2011, Tetra Pak launched its latest ground-breaking invention – Tetra Evero Aseptic, the first aseptic carton bottle for white milk. The package combines easy handling and pouring with environmental benefits. Consumer reactions to this unique, attractive, easy-to-use package – which stands out on the shelf – have been overwhelming.

"Tetra Evero Aseptic was developed with the consumer in mind. It offers exceptional functionality as well as looking very good," says Alexander Krivolapov, Product Director Tetra Evero Aseptic at Tetra Pak.

### CONVENIENCE AND ADDED CONFIDENCE

Tetra Evero Aseptic (TEA) gives consumers convenience and confidence thanks to the world's first one-step opening with a two-step safety feature. The ergonomic cylindrical shape with

flat side panels is easier for large and small hands to hold. It also provides the ideal angle for better pouring, something highly appreciated by consumers.

"Consumer studies in a number of European markets showed that the shape of the package works. Compared to other packages this was, in many cases, the consumers' first choice," adds Krivolapov.

Tetra Evero Aseptic has so far been launched in Spain, Portugal and Italy. Tetra Pak's follow-up surveys among consumers confirm previous research showing it is seen as a convenient package with an attractive design. The most telling sign of success is increased sales for customers using it.

### BENEFITS TO PRODUCERS AND RETAILERS

There are clear benefits, too, for producers and retailers. The carton-bottle grabs attention and maximises brand impact by allowing printing across the entire package's surface. In terms of food safety, milk stays fresh for up to six months.

### ENVIRONMENTALLY ATTRACTIVE

The environmental advantages of the package are increasingly important to consumers. It is recyclable and made from FSC™-certified renewable paperboard, and Tetra Pak's ambition is to increase the percentage of renewable material to create an even greener package.

"And now we also offer the option of a separable top – which will really make recycling easy for consumers," concludes Krivolapov.



# Success with Tetra Fino Aseptic in Egypt

Tetra Pak has helped its customer Juhayna, the leading dairy in Egypt, to become successful. Using Tetra Fino Aseptic, Juhayna is offering packaged milk with its many advantages to consumers in a much more affordable way than in the past, replacing loose milk with a safer alternative. Juhayna's sales have grown steadily since the launch.



Back in 2009 Juhayna, Tetra Pak, the Egyptian Ministry of Health, Chamber of Food Industries, Alexandria University, and other dairy companies joined forces in the Loose Milk Conversion Initiative.

"We wanted to create awareness of the benefits of packaged milk and the potential hazards of loose milk," says Per Sundelin at Tetra Pak, Egypt. "We also wanted to raise awareness about pasteurisation and UHT."

## INCREASE OF PACKAGED MILK

At the start of the 1980s, packaged milk was less than 1 per cent of the total milk market. By 2009 it had increased to 10 per cent and by 2011 the ambient white (packaged) milk market had risen to 22.5 per cent.

Loose milk is unprocessed, unpackaged milk, straight from the cow or

buffalo. Consumers buy it from milkmen on their doorsteps or from corner shops, usually poured into plastic bags. Studies have repeatedly shown it is not safe; it has a high bacteria count and high levels of formalin and other additives.

"Converting loose milk into packaged milk is not only a business opportunity for us; it is also our social responsibility," says Heba Thabet, Associate Director External Affairs at Juhayna.

## ADVANTAGES OF TETRA FINO ASEPTIC

The advantages of Tetra Fino Aseptic are clear. It was introduced to Egypt by Juhayna in 1997 to benefit low-income individuals who would normally buy loose milk. Production costs of the package are low, so it is economical for consumers. Most importantly, it is reliable and convenient to use, keeping milk fresh and pleasant tasting. Since the introduction of Tetra Fino Aseptic, consumers have increasingly accepted it and sales have grown.

Stakeholders in the Loose Milk Conversion Initiative put much effort into marketing, including educational TV commercials, seminars, workshops and other initiatives to gain customer

and consumer acceptance of the product, particularly among women.

Recently, the focus expanded to include young people, with seminars in schools delivering the message through interactive learning, prompting high levels of engagement among the students.

## TETRA PAK A1 LINES IMPROVE EFFICIENCY

Juhayna's production started with the TFA/3 line. The steady growth of sales put pressure on its filling lines, and in 2007 the majority were replaced with three Tetra Pak A1 lines. Efficiency was increased, and costs and resources reduced. In 2011 Juhayna increased capacity by adding two new A1 lines, and became a test customer for the cardboard packer 12.

"We are saving energy and reducing costs. We are also seeing fewer complaints from the market regarding leaking products," says Niels Thomsen, Factories Manager at Juhayna.

The initiative continues in 2012 in order to reach the long-term objective of 80 per cent packaged milk in the Egyptian market in 2020.

# Infant formula goes from can to carton in North America



Tetra Pak in the US and Canada has successfully entered the infant nutrition category with Nestlé's Gerber Good Start infant formulas, replacing cans with Tetra Brik Aseptic and Tetra Prisma Aseptic packages. To support the can-to-carton conversion the company built a manufacturing facility in Eau Claire, Wisconsin, to produce infant formula and medical nutrition products. The plant includes eight fillers from Tetra Pak, with two dedicated to infant formula.

# Changing ideas in Kazakhstan

In Kazakhstan, there is still a strong perception among consumers that loose milk is a healthy choice. Many are sceptical about the long shelf life of packaged UHT milk, wrongly assuming it contains preservatives and additives. The national Milk Union is trying to promote the health benefits of milk and put the spotlight on UHT milk as a safe, modern choice.

The Milk Union, of which Tetra Pak is a member, led a wide-ranging information campaign with the long-term goal of shifting consumption from loose to packaged milk. Working with leading scientists and doctors, the Academy of Nutrition and the National Office of Sanitation, it conducted tests on loose milk that showed up bacteria and dangerous additives. The findings were

given wide coverage on national media.

In partnership with the Osteoporosis Association, the organisation also held a number of round-table discussions, seminars and press conferences to highlight the high occurrence of osteoporosis in the country and underline that milk is part of a healthy lifestyle. Media and members of parliament were invited to visit state-of-the-art DeLaval farms in Kazakhstan and abroad to see best-practice modern dairy farming.

As milk consumption grows steadily in the country, the Milk Union plans more activities in the years to come.



# Markets & Partnership

## Incaparina brings nutrition to Guatemala's children



A ready-to-drink nutritional beverage based on a 50-year-old recipe is improving child health in Guatemala. The Incaparina ready-to-drink product, developed by Alimentos S.A., The Institute of Nutrition of Central America and Panama (INCAP), and Tetra Pak, is now used in government nutrition programmes and is available for consumers to buy in retail stores.

Guatemala has suffered severely from the global economic crisis. The cost of damage and losses caused by weather events in 2010 alone is estimated at around 25 per cent of the national budget.

According to UNICEF, more than half the population live in poverty and

15 per cent in extreme poverty. Many children suffer from poverty and malnutrition – 40 per cent of children under five are chronically malnourished.

### FROM POWDER TO READY-TO-DRINK

The problem is not new. INCAP was founded in 1949 to promote food security in the region. INCAP developed the formula for Incaparina, a protein-rich nutritional powder based on soya and corn flour, and fortified with iron, zinc, calcium and vitamins.

The powder has been used as a food supplement in the region since the 1960s, showing remarkable results, according to a 40-year long develop-



ment study. Children fed Incaparina in the late 1960s and 1970s were more likely to finish primary school. They obtained better-paid jobs than those who did not receive Incaparina. Health issues, like reducing stunting and increasing weight, were also improved in the groups given Incaparina.

In 2008, Tetra Laval, through its Food for Development Office, partnered with its customer Alimentos S.A. and

INCAP to develop a ready-to-drink version of Incaparina. The idea was to make it easier to distribute food supplements in poor rural areas lacking refrigeration and clean water.

### A SUCCESS WITH CHILDREN

In 2009, the ready-to-drink Incaparina was launched in the convenient Tetra Brik Aseptic 200 ml Mid package, with three flavours: original, straw-

berry and chocolate. The package size was chosen as it is the ideal nutritional portion for children, and is convenient to distribute, handle and use in rural areas. The drink was a success with children – 95 per cent said they like it.

Incaparina is used in different government nutrition programmes in Guatemala, such as emergency and disaster relief feeding targeting severely malnourished children in rural areas. It is also being used in pilot school feeding programmes in Belize and El Salvador. The ready-to-drink package is sold commercially and is available in Wal-Mart stores and other retailers.

## Leclerc switches to Tetra Pak for organic juice range in France

The French retailer Leclerc has chosen Tetra Pak packages for its entire organic juice range, sold under the Bio Village brand. Leclerc decided to switch the 1litre offer from glass bottles to FSC-labelled Tetra Pak cartons – a natural choice given consumers of organic products are especially aware of environmental issues.

Since September 2011 consumers have been able to choose from eight

organic juice flavours. They are available in Tetra Brik Aseptic (TBA) 1L Square StreamCap packages in any Leclerc store in France. Leclerc is also expanding the organic juice and nectar range by offering a new size, launching three flavours in TBA 1.5L Slim with SlimCap. These new offers are also sold under the Bio Village brand and are aimed at families.



## Tetra Pak Ukraine signs largest contract ever

Tetra Pak Ukraine has secured the highest value contract ever for the cluster East Europe and Central Asia – and the largest globally in 2011. The contract is with the Ukrainian confectionery corporation ROSHEN, a privately owned company with production in Russia, Lithuania and Ukraine, and an annual turnover of around USD 1 billion.

The contract includes engineering, processing equipment, supply, instal-

lation supervision and commissioning for a green-field dairy plant. It will be built in Vinnitsa, Ukraine, with the installation of processing equipment scheduled for autumn 2012.

Tetra Pak supplies ROSHEN with equipment for the full production of milk powder, condensed sweet milk, butter, cream, and anhydrous or basically water-free milk fat for use in confectionary production.

Tetra Pak's equipment ensures full



plant automation and improved environmental performance through emissions aligned with EU limits. In addition, it will enable ROSHEN to further improve food safety through better quality control at all stages of production.

# Tetra Evero Aseptic gets ready to go global after European success

Tetra Pak launched the world's first aseptic carton bottle for milk in southern Europe during 2011. Tetra Evero Aseptic delivers ease of use, high-impact branding and cost effectiveness. The innovative package will be introduced in a number of other markets during 2012.

After successful launches in Spain, Portugal and Italy during 2011, Tetra Evero Aseptic (TEA) is now being produced on several of the revolutionary Tetra Pak A6 iLines in Southern Europe and reaction among customers is even better than hoped.

"This package is a very advanced step in comparison with what's been available until now," says Pedro Astals, President and CEO of Corporacion Alimentaria Penasanta (CAPSE), Spain's largest dairy.

"Tetra Evero Aseptic provides the perfect opportunity to match a high value-added product with a highly

developed package. To me this is doubtless a winner".

#### OFFER DIFFERENTIATION AND ADDED VALUE

There must be strong arguments to invest in a new packaging solution. Ultimately, it is essential to give more value to consumers. For customers, Tetra Evero Aseptic combines high-quality with unique design, resulting in a product that can truly create value for their brands.

"Our customers face tough competition and their margins are squeezed.

With Tetra Evero Aseptic we give them an opportunity to differentiate their brand supplying an iconic package that meets all of their functional needs and ensures their products stand out on the shelf," says Alejandro Cabal, Product Group Director Tetra Evero Aseptic at Tetra Pak.

#### COVER THE WHOLE RANGE OF LDP

Tetra Evero Aseptic is initially being targeted at the ambient white milk market, including non-oxygen sensitive milk.



#### HIGH PERFORMANCE AND RELIABILITY

Along with Tetra Evero Aseptic comes state-of-the-art equipment – the Tetra Pak A6 iLine – which provides dairy producers with a reliable and efficient packaging solution for ambient white milk in a carton bottle. The new line, with a capacity of 10,000 packs per hour, requires up to 40 per cent less space and markedly less investment than several other aseptic bottling lines.

"It's a high-performing and reliable production system that also offers a competitive operational cost, in particular reducing utility consumption compared to aseptic plastic bottling lines," Cabal points out.

#### GLOBAL LAUNCH IN 2012

After strong customer acceptance in Southern European markets, Tetra Evero Aseptic will go global in 2012. South and North America and Eastern

Europe will be next. "The real challenge for us and for our customers is to be relevant to retailers and consumers. This is one of the most exciting inventions we've seen from Tetra Pak for many years and I am in no doubt that it will be successful delivering significant added value and strong growth to both our customers, and to ourselves, he concludes.

## The 21st century alternative for canned food

In 2001, Tetra Recart revolutionised food packaging. A direct alternative to cans and glass jars, it was the first retortable carton package which allowed filled product to be sterilised within the package.

Made possible by the parallel development of a unique packaging material and new forming and sealing techniques, the compact, square-shaped carton delivers a host of benefits over alternative packaging systems. Cost efficiency, shelf space, environmental performance and consumer convenience are all seen as strong attributes of Tetra Recart food packaging.

And with the added bonus that Tetra Recart packages are manufactured using FSC-certified paperboard, which is harvested from forests that are managed according to strict environmental, social and economic standards, customers around the world are progressively making the switch from traditional cans.

Indeed, today more than 100 leading brands in about 40 markets around the world are using Tetra Recart to boost sales in mature product categories and revitalise existing product ranges. Customers say they choose Tetra Recart to meet consumer demands for safety, convenience and environmental performance in the 21st century.



# TETRA PAK Products & Innovation

## Tetra Alcip builds on firm foundation of food safety

Throughout its 60-year history, food safety has been integral to Tetra Pak's business. The company has been relentless in its development of new technologies and packages that ensure the quality and safety of food; whatever the product, and whatever the market. The latest version of the company's long-established cleaning-in-place (CIP) solution, Tetra Alcip, bears testimony to this fact. A recent example is the latest Tetra Alcip Cleaning-in-Place (CIP) solution.

Launched in September last year, the new Tetra Alcip features an advanced automation platform that greatly improves the accuracy of the cleaning process and significantly reduces the risk of human error. It also enables food and beverage producers to keep control of the cleaning of all processing equipment and achieve perfect cleaning results every time. Tetra Pak has been a provider of advanced CIP modules for many years, and this latest version of Tetra Alcip reflects the experience gained from the installation and operation of more than 1,600 earlier generation models across the globe.

### LOWER ENVIRONMENTAL IMPACT

Sustainability – in particular, waste reduction – was paramount during the development of the new module.

With that in mind, Tetra Alcip now incorporates a conductivity management system that ensures the best possible control and accuracy over detergent usage, delivering the highest levels of food safety with the optimal amount of detergent to avoid unnecessary overdosing.

When using the new "flexible dosing" option, Tetra Alcip feeds detergent into the "pressure line" rather than the "return line". In this way, detergent can be topped up continually to allow for dilution, or increased for cleaning difficult areas without stopping the process.

Compared to previous versions, the new Tetra Alcip cuts detergent use by up to 7 per cent. And with design improvements that also cut water consumption by around 20 per cent, the new system delivers benefits from both an environmental and a cost perspective.

### SERVES ALMOST EVERY NEED

Tetra Alcip serves the CIP needs of both processing units and filling machines, for nearly every kind of dairy, beverage and food production.

The new, sophisticated automation platform is more "intelligent" and safer than ever. The "CIP programme management" feature includes a number of pre-defined cleaning programmes as well as allowing the user to easily create their own programmes, which are safety validated before use. Each cleaning circuit can be set up differently, with individual temperatures, concentrations and cleaning recipes, and set for single use or recovery. Cleaning can be prioritised, so urgent needs can move to the top of a queue.

With advanced control over concentration, flow, pressure and temperature, Tetra Alcip can deliver substantial time and cost savings in any cleaning process.



## New volume kit meets customers' changing demands

Tetra Pak has developed a new concept, OptiSize, for its Tetra Fino Aseptic package. This meets our customers' growing need for flexibility, enabling them to offer packaged milk in sizes that meet consumers' differing demands and the price they are willing to pay.



"We are building on the benefits of Tetra Fino Aseptic, which is a convenient, safe and reliable low-cost package," says Michael Gullberg, Product Platform Manager at Tetra Pak. "Adding this extra benefit makes our product offering even stronger."

### DEVELOPED IN LESS THAN A YEAR

OptiSize was developed in less than a year as a rapid response to requests from customers, primarily those in China and Indonesia. The product will soon be available to other markets as well.

To create the new kit, Tetra Pak used existing packaging solutions in new ways. Different package widths and lengths are combined in the Tetra Pak A1 filling system to produce sizes other than the current base format.

The first two new sizes to be released will be 220ml and 70ml, for

ambient white and flavoured milk respectively. The primary target groups for these packages are kids, teenagers and young adults who buy milk drinks on the go, and need a safe way of consuming their daily nutrition.

### ADVANTAGES OF OPTISIZE

The normal development time for a new package is 12-24 months – in this case it was less than a year. The obvious advantages are a quicker time to market and lower development costs.

"OptiSize allows us to offer a package size that uses the optimal packaging material for each volume developed. Customers can increase profits by buying only the packaging material they need for the filled volume," says Gullberg.

The first market to roll out Tetra Fino Aseptic OptiSize is China, using the 220ml package.

## Ambient yoghurt wins newcomer award

Sales of the new premium yoghurt brand Mosili'an from Chinese dairy producer Bright Dairy & Food Co. Ltd have rocketed since its launch in 2009.

Mosili'an is the first ambient yoghurt on the Chinese market, with a solid premium position in terms of taste and appearance.

Creating a new category in the Chinese market, Mosili'an drives yoghurt consumption from chilled to ambient. The choice of the Tetra Prisma Aseptic 200 Sq package was the result of a search for a package that really stands out on the shelves and ensures a high level of food safety. It was an immediate success – in 2011 alone, 147 million packages were sold. In November 2011, Mosili'an was awarded the IDF Dairy Innovation Award for Best Newcomer Brand of Business.



## Tetra Brik Aseptic Edge for high quality juice

Dutch dairy and beverages producer FrieslandCampina has launched its Appelsientje brand in the Tetra Brik Aseptic (TBA) Edge – a first in the juices and nectars segment. The launch in December 2011 was the result of intensive collaboration between FrieslandCampina and Tetra Pak in researching and selecting the most appropriate packaging for the premium-positioned brand.

Testing showed the need for a small headspace in the package to preserve the high quality of the premium juice. This convinced FrieslandCampina to opt for Tetra Brik Aseptic 1000 Edge, clearly showing that preserving quality during shelf life is paramount in packaging innovation.

The Tetra Brik Aseptic Edge not only protects quality but also offers greater consumer benefits: easy opening and pouring, as well as quick re-closing, thanks to the LightCap 30 screw cap.

All this adds to the appeal of the Appelsientje brand, helping FrieslandCampina keep consumers loyal buyers who, in times of economic crisis, are often tempted by retail promotions of other brands.



## Nestlé crosses frontier with sugar cane cap

In a partnership with Tetra Pak and Braskem, Nestlé Brazil has launched two of its popular milk brands in a package with a polyethylene (PE) cap using a renewable resource. UHT milk for Ninho, Ninho Lezinho, Ninho Low Lactose and Molico brands has been sold in Tetra Brik Aseptic packages using caps produced with green PE since August 2011.

The new polyethylene, developed by Braskem, the largest producer of thermoplastic resins in the Americas and the eighth largest in the world, is

made from sugar cane derivatives, which are polymerized into plastics for cap production. The process contributes to the global reduction of greenhouse gases since sugar cane, a renewable resource, absorbs CO<sub>2</sub> from the atmosphere.

The launch represents a landmark in the use of polyethylene made from 100 per cent renewable raw materials in the food and beverage packaging industry. By using the new cap, Nestlé will be encouraging environmental awareness, and providing consumers

with a product that makes use of renewable sources in its packages.

“The use of polyethylene made from a renewable raw material is another important step towards our goal of achieving 100 per cent renewable packaging,” says Paulo Nigro, President of Tetra Pak Brazil. “This demonstrates our innovative leadership and our commitment to support our customers and society in our shared goals of creating a healthier, sustainable planet.”



## Tetra Lactenso creates an economical lifecycle

Dairy food producers face a range of challenges: demands for total food safety, higher quality, purer products, wider portfolios, greater efficiency, and increased profits. Aseptic dairy technologies are meeting these challenges, rapidly evolving for the dynamic markets of today and tomorrow.

Being competitive in today's dairy industry requires diverse products, differentiation, and technology that maximises output while minimising costs and environmental impact – without affecting food safety.

Tetra Pak pioneered aseptic technologies – described as the greatest food science innovation of the 20th Century – in the 1960s. And although the world today is a very different place, they continue to provide safe, nutritious and flavoursome foods for millions worldwide. Aseptic technology remains relevant because Tetra Pak has continued to refine and improve it.

Its future is driven by two trends: consumer demands for greater choice (convenience, quality, and natural and healthy products), and the need for greater efficiency, absolute food safety and improved environmental performance within the industry.

### MEETING CHANGING NEEDS

Aseptic processing technology keeps food in unopened packages fresh for months at ambient conditions. It is based on one of two techniques:

energy-efficient indirect sterilisation or direct steam, producing milk with taste and nutritional values very close to a fresh product.

Dairies are under pressure to achieve ever-lower operating costs and ever-higher productivity. This places demands on processing equipment in terms of reliability, efficiency and throughput. In the drive for higher operational performance, it is crucial to design a line and optimise production planning for maximum efficiency.

Tetra Pak meets the needs of the changing dairy markets with its Tetra Lactenso concept, which draws on best-practice solutions designed to deliver efficiency, product quality and sustainability.

Tetra Lactenso combines Tetra Pak's unparalleled knowledge and experience of the dairy industry with cutting-edge engineering expertise. This foundation allows the company to offer objective advice and deliver customised solutions for each customer's production needs and product requirements, whether for individual components or complete lines. This bespoke approach ensures that every customer can achieve an outstandingly economical lifecycle.

Tetra Lactenso stands for the cutting edge in cost-effective dairy solutions and performance is guaranteed.

### AN ENDURING TECHNOLOGY

Aseptic products continue to appeal because of their versatility. They are easy to produce and distribute, last longer, and help make food safe and available everywhere. Aseptic technology is economically and environmentally superior when compared to chilled products and other ambient products such as powders and canned goods. Aseptic technology development is at the forefront of the drive towards reducing water and product loss to zero.

Tetra Pak continues to invest in and evolve its groundbreaking aseptic technology, fine-tuning and improving to keep pace with changing needs. It is one of Tetra Pak's contributions to increased food safety around the world.



# TETRA PAK Sustainability



## Tough environmental targets for sustainable growth

Tetra Pak is raising the bar with tough new environmental targets for sustainable growth. The company's aim is to cap carbon emissions at 2010 levels by the end of 2020 while the market is still growing. Tetra Pak will also increase efforts to double the recycling rate for used beverage cartons by the end of the decade.

Environmental efficiency has always been a part of Tetra Pak's strategy because it is critical to both business performance and society as a whole. The 10-year targets are part of an ambitious environmental programme that aims to provide sustainable packaging using only renewable materials, achieve a minimal environmental footprint and create zero waste.

### CLIMATE 40 PER CENT RELATIVE REDUCTION BY 2020

With an estimated 5 per cent compound annual growth rate, Tetra Pak aims to cap carbon emissions at 2010 levels by the end of 2020 – this will require a 40 per cent relative reduction in CO<sub>2</sub> equivalent emissions. This target does not only include Tetra Pak's operations, but those across the entire value chain, meaning that it will include emissions from Tetra Pak's suppliers, customers, transport and waste management.

### RECYCLING 40 PER CENT RECYCLED CARTONS IN 2020

Tetra Pak is committed to helping double the global recycling rate of its used beverage cartons by 2020 to 40 per cent. This means valuable raw materials can be provided for new products. With a compound annual growth rate of 5 per cent, this goal would lead to almost 100 billion used beverage cartons being recycled in 2020 alone. In 2011 more than 36 billion used Tetra Pak cartons were recycled.

### RESPONSIBLE SOURCING 100 PER CENT FSC™-CERTIFIED PAPER BOARD

Tetra Pak works closely with its suppliers and other stakeholders to increase access to FSC-certified (Forest Stewardship Council™) wood fibre. The company's goal is to increase the supply of FSC-certified paperboard

used in its carton packages to 100 per cent. In 2011, that figure was 34 per cent, of which a total of 18.4 billion Tetra Pak packages, or 11 per cent of sold packages, carried the FSC label.

Finally, Tetra Pak, is taking important steps toward supplying packaging material derived 100 per cent from renewable materials. Its cartons are already mainly based on paperboard from renewable resource – wood fibre.



FSC standards are globally recognised as the highest social and environmental standards in forestry.

The mark of responsible forestry

## Separable top makes recycling easy for consumers

Tetra Evero Aseptic is the first aseptic carton bottle for white milk, combining easy handling and pouring with proven environmental benefits. Now, Tetra Pak has strengthened the environmental performance of this package even further by introducing an optional separable top. The top can easily be separated from the carton sleeve for more efficient recycling. By offering a separable top of Tetra Evero Aseptic, Tetra Pak makes recycling easy for consumers. Making it easier for consumers to recycle also supports Tetra Pak's ambition to double the recycling rate of used cartons by 2020, achieving 40 per cent globally. As the company is actively working to reduce the environment footprint along the value chain it also aims to increase the share of renewable content in the Tetra Evero Aseptic package.



## Cartons turned into roof sheets aid Thai flood victims

Almost 12,600 green roof sheets made from recycled cartons have been installed on 230 permanent houses for flood victims in Thailand. The homes, in Krabi, Surat Thani, and Nakorn Sri Thammarat, and Uttaradith were provided by the Princess Pa Foundation, Thai Red Cross Society.

The project began in 2010 when 72 tonnes of cartons, around 7.2 million in total, were collected and turned into 3,600 roof sheets.

During 2011, more than 308 tonnes of cartons were collected and used to produce more than 15,000 roof sheets. They were distributed to natural disaster victims through the Foundation or installed on permanent houses in various provinces.



# Driving environmental excellence for our customers' success

Environmental performance is increasingly important for Tetra Pak's customers. The company has a strong product and service offering which supports the customers' needs of reducing the environmental footprint and improving operational efficiency.

Food manufacturers are under pressure from rising energy costs, scarcity of fresh water and the cost of wastage. Tetra Pak's Processing Systems is stepping up its efforts to support customers in all three of these areas.

"Driving environmental excellence goes hand-in-hand with our customers' need to reduce environmental impact and operational cost," says Lars Lundahl, Environmental Manager in Processing Systems.

## **AMBITIOUS ENVIRONMENTAL TARGETS**

"Some of our customers, especially large multinational corporations, have set ambitious environmental targets, and here we can help them directly. But it is also important for our customers

to strengthen their brands with a sound environmental profile – for instance big Asian companies that want to grow in an international market," adds Lundahl. Energy and water consumption and product losses are key factors in the environmental performance of a food processing plant. Tetra Pak includes these in its new product development process at an early stage through its 'design for development' approach. From the start, clear targets are set for improvements in areas such as CO<sub>2</sub> footprint and water consumption.

## **NEW HIGH-PERFORMANCE SOLUTIONS**

OneStep technology, which combines several processes for UHT milk treatment in one step, is an example. This

process can reduce CO<sub>2</sub> emissions by 40 per cent and water consumption by 60 per cent, compared to conventional processes. It also cuts operating costs by up to 50 per cent.

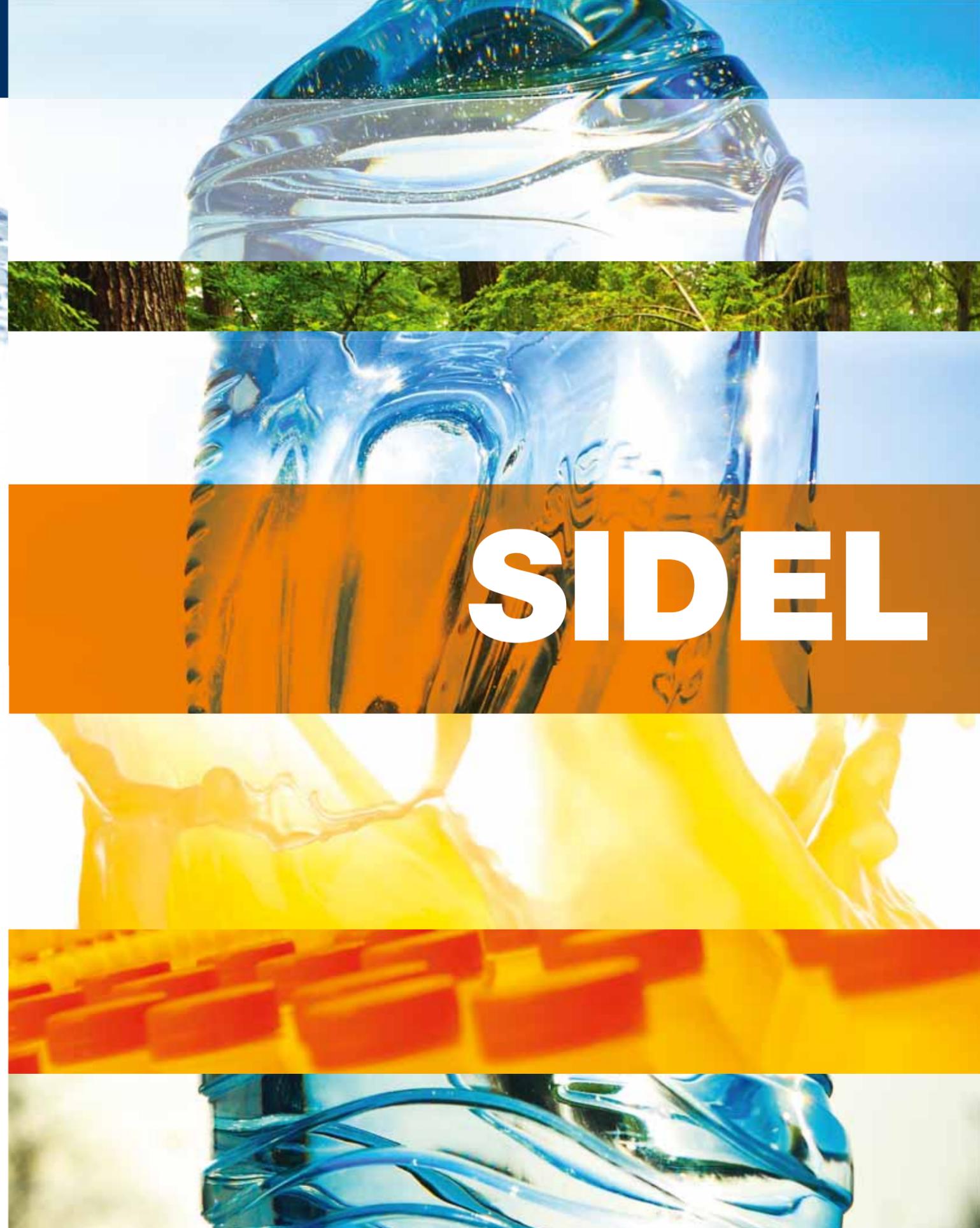
The intelligent cleaning-in-place (CIP) Tetra Alcip system is another example. It gives food and beverage producers complete control and perfect cleaning-in-place of their systems, as well as reduced environmental impact and enhanced food safety.

## **IMPROVING EXISTING SYSTEMS AND DEVELOPING NEW ONES**

Services to improve the installed base can also contribute. As Lundahl says: "Through audits and upgrades we can help customers to reduce their energy and water consumption as well as product losses and effluents,"

Tetra Pak audits a customer's production site and suggests system improvements. These can range from a change of machine components to a new automation solution, which would reduce product and packaging material losses.

The company is also developing systems for the recovery of energy, water and product. "For instance, we can recover evaporator condensate in milk powder production and re-use the water in the plant. With filtration systems we can also recover milk components and water from milk-water mix-phases in dairies," Lundahl points out.



NUMBER OF EMPLOYEES 2012

**5,294**

NET SALES 2011

**1,350**  
MILLION EURO

COUNTRIES COVERED

**>190**

NUMBER OF PLANTS

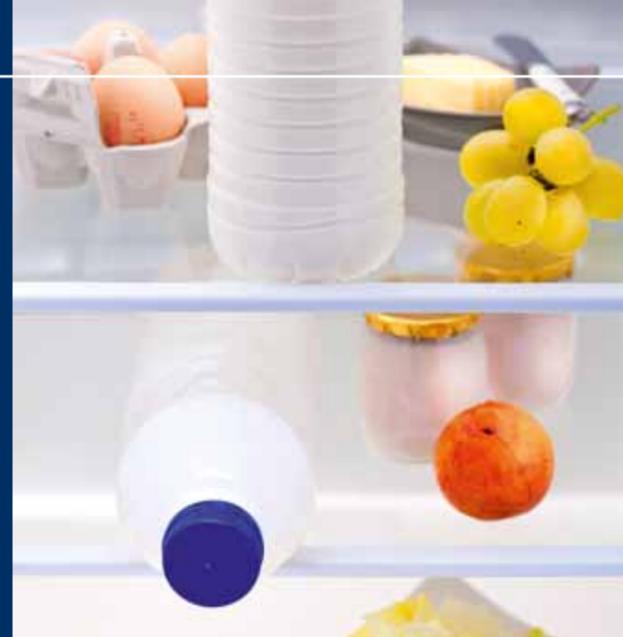
**26**

R&D UNITS

**8**

SERVICE UNITS

**31**



■ Industrial subsidiaries  
● Sales & Services offices

**MARKET PRESENCE**

Sidel has installed more than 30,000 machines in 190 countries: from China to Brazil, taking in the United States, Germany, Japan, South Africa and Russia on the way. Sidel is making its mark today as a multicultural group, employing around sixty different nationalities, totalling some 5,000 employees.

**CUSTOMERS**

Our customers come from all parts of the beverage industry; from beer and alcoholic beverages to soft drinks, juice and mineral water. In addition, we offer solutions for other liquid food categories, such as edible oil and dairy products.



**VISION**

**We commit to being the most innovative, responsive and reliable partner, providing sustainable solutions for the beverage industry**

**PRODUCTS**

With more than 30,000 machines installed in 190 countries, the Sidel Group is one of the world leaders in solutions for liquid packaging including water, carbonated soft drinks, milk, sensitive beverages, edible oil, beer and other alcoholic beverages, in three main types of container: glass bottles, plastic bottles and drink cans. Sidel can support complete line engineering needs, from preliminary design to developing an investment budget, drafting plans for line layout or building the bottling line on-site. The equipment offer encompasses blow moulding machines, barrier treatment, Combi equipment, fillers, conveyors, labellers, pasteurisers, palletiser / depalletiser, robotic equipment and end-of-line operations.

**R&D**

Sidel is a pioneer in beverage packaging solutions, especially for PET bottles. Some innovations are: the Combi system, facilitating bottle making, filling and capping for PET bottles; Predis, a revolutionary sustainable solution to enhance aseptic hygiene. Sustainability is Sidel's new frontier for innovation.

**CORE VALUES**

Passion lies at the core of our values and is applied to every aspect of our work – from our desire to create the best products to the respect we have for our colleagues, our workplace and the environment.

**LISTEN & UNDERSTAND**

We listen – to our customers, suppliers and colleagues so that we can understand and anticipate their unique needs. We allow for an open, transparent and flexible work environment where we are equally involved and passionate about our work, continuously developing our skills. We cooperate on all levels to ensure that we provide the quality of work that our customers can rely on and that we are proud of.

**CHALLENGE & INNOVATE**

We challenge the limits of technology in order to provide the best possible solutions. Together we have the creative mindset that sets us apart from our competitors – and gives us the flexibility and urgency to design innovative and adaptable solutions. At Sidel, there's room for everybody's input, but once a decision is made, we unite our efforts and move together in one common direction.

**DELIVER & OPTIMISE**

We follow through on our commitments to our customers, to our suppliers and to our colleagues. We are consistent, straightforward and honest, and always act with the highest level of integrity in everything we do. We are passionate about learning at all times in order to optimise our processes and achieve excellence.

**OUR BRAND**

**A BETTER MATCH**

In a world of constantly changing needs, today's bottle is tomorrow's old news. But by having approximately 5,000 skilled employees all over the world, we are able to listen to our customers, offering them reliable production-systems that are easily adaptable to new developments – without causing expensive downtime. At Sidel, a company of the Tetra Laval Group, we are a driving force in PET, can and glass solutions. Our value-added service secures both our customers & us with a sustainable business in the global environment. No doubts, no compromises, just A Better Match.

**STRATEGIC PRIORITIES**

Our Strategy: To deliver on our promise to be A Better Match each one of us must work and live by our values every day, and we must all understand and execute our strategy of transforming Sidel along the strategic axes of Customer Proximity, Technology Leadership and Operational Excellence.



**ENVIRONMENT AND CSR**

The world leader in liquid packaging for PET bottles, Sidel's concern for the environment is not a recent development. We have an established track record of source reduction initiatives and have been particularly instrumental in PET bottle lightweighting. Our industry-leading knowledge of PET, package design and equipment expertise enables customers to achieve optimal package and line performance vis à vis package weight, with many able to achieve as much as 20-30 per cent gram weight reduction. Sidel has proposed a number of equipment innovations aimed at reducing the consumption of energy and other resources. In addition, we have led research in the field of packaging material possibilities, from the use of recycled materials to testing materials made from renewable resources.

# Efficiency and cost-saving in Mexico

When beverage producer Jugos del Valle, based in Mexico were ready to expand production they chose Sidel, who delivered two hot-fill Combi production lines.

With Sidel's solution Jugos del Valle have been able to eliminate unnecessary handling of empty bottles, reduce the number of machines they use, increase package hygiene and improve production reliability. In short: more efficient production at less expense.

Sidel's solid industrial expertise added to Jugos del Valle's efficient mapping of requirements and goals. This gave a solid foundation for mastering the complexities of hot-fill production and the ability to cater to their specific needs.



# Sidel named Supplier of the Year by South African Breweries

At the annual South African Breweries (SAB) Brewers Breakfast Sidel was awarded the Supplier of the Year title. The award recognized Sidel's expertise and effectiveness in the supply, installation and commissioning of a Hydra Bottle Washer on Line 6 in SAB's Prospecton brewery in Durban.

Special emphasis was put on Sidel's expertise in effective customer communications, professional and enthusiastic installation and the careful and precise project planning. The successful delivery of the washer resulted in SAB also investing in Sidel's Swing Tunnel Pasteurizer, which led to a tripled production rate and a clear reduction in energy consumption for the brewery.



# Online technical training from Sidel

Sidel's technical training offering is now available online in a user-friendly and easy-to-navigate interactive format, including search and download of entire documents or selected pages.

The Technical Training Catalog features courses based on Sidel's entire product portfolio. The new Technical Seminars is a global training service with seminars for mixed audiences from different companies, with the benefits of cross-cultural perspectives.



# A daily dose

Sidel always aim to provide package solutions with marketable designs, and a sustainable production process at low cost and high profit. One of the latest is the DailyDose™.

This is a multipack solution for consuming small amounts of fruit or yoghurt drinks on a regular basis and on-the-go. Six bottles are sleeved individually and linked with one label. DailyDose™ is a flexible and cost-effective concept, offering one design for different products.



## A new distinctive look for California's Penta Water

Penta Water Company from California, US needed a new, more appealing, look for their ultra-purified bottled drinking water. Through past experience they turned to Sidel for expertise in bottle design. Penta's vision was to build the brand by introducing a new look representing the company's tradition of delivering great taste and purity.

After through investigation of the customer's needs, Sidel fully incorporated the inherent brand values in the design. The new bottle, created in 2011, has a sleek, contoured shape which is ergonomic and visually pleasing. As a result Penta can create a family brand identity for new sizes and product line extensions.



## New Pressure-Sensitive Labeling (PSL) Unit for Beer: a Sidel original

In response to a growing demand for quality labeling, Sidel has created the new Pressure-Sensitive Labeling (PSL) Unit for beer. This original invention is efficient, flexible and sustainable and was successfully field-tested by Swedish beer brand Spendrups.

The new PSL unit is more stable and significantly reduces vibration. The use of ultra-thin films results in less waste, lower costs and greater flexibility. In addition, the new system reduces maintenance and lowers the risk of human error. Overall, the new PSL unit gives top quality performance at extremely high speeds with a built-in auxiliary system which minimizes malfunctions and creates a non-stop labeling process.



# SIDEL People

## Health and food safety drive sensitive products segment

Françoise Raoul-Duval is Sidel's Vice President for Sensitive Products. She is responsible for leading Sidel's innovation and business growth in this market segment. Working with teams of experts based around the world, she helps ensure Sidel's customers receive the best tailored solutions for their multiple needs. Here Françoise explains how Sidel strives to be "A Better Match" for sensitive products.

### WHAT IS SIDEL'S OVERALL APPROACH TO SENSITIVE PRODUCTS?

In the sensitive products business, you always need to start by understanding the needs of the end product, before any configuration of packaging or lines. The first step is understanding the consumer's needs and the key parameters of the end product – ingredients, sugar

level, PH level, carbonation, light sensitivity, desired shelf life, viscosity etc. The second is assessing the customer's needs and key buying factors – such as efficiency, simplicity, flexibility and sustainability – which will lead you to define the related packaging solutions and line configurations.

To meet specific needs while permanently ensuring a beverage's quality and safety, we deploy a wide spectrum of

expertise and technologies. Our expertise, for example, covers microbiology, material and packaging, product and packaging interactions, equipment design and line engineering. We have especially focused on developing strong aseptic and hot-fill capabilities to serve the demand from our customers for high-end solutions with lower operating costs. This includes solutions incorporating high production speeds and significant end-product and packaging flexibility.

### HOW DO YOUR CUSTOMERS' NEEDS DRIVE THIS APPROACH?

First, we always need to consider efficiency plus total cost of ownership, because our customers are continually seeking to reduce their operating costs. We do this through new products, product evolutions, innovative options and upgrades, maintenance programmes, bottle design, line audits and re-engineering solutions. On top of this, our key axes for product development are simplicity, flexibility and, of course, sustainability. We have a unique sustainable solution with Predis, enabling very significant water and energy savings, as well as unlimited reduction of bottle weight.

### HOW DO YOU INCORPORATE FOOD SAFETY INTO THIS APPROACH?

Food safety is a critical objective on which we accept no compromise. Food safety is in our DNA. It is in the cultural mindset of our employees, notably in the field of aseptic PET, from product designers to front-line staff, from labora-

tory technicians to installation engineers. In addition to adhering to local regulations around the world, we work with our customers, peers and industry associations to reach the highest possible standards.

### WHAT KEY TRENDS ARE DRIVING THE WAY YOU DEVELOP NEW PRODUCTS?

Higher demand for healthier and more natural drinks has increased our customers' need for ultra-clean solutions applied to carbonated juices (without preservatives) and for aseptic and hot-fill solutions for flat beverages containing pulps and particles, such as fruit juices with sacs or large pieces. This demand started in Greater China and the Middle East, and is now rapidly spreading across the world, both in aseptic and hot-fill, for juices and dairy products. We recently launched our Veloce ISD hot-fill solution, with integrated slurry dosing functionality: this filler allows a precise quantity of high quality pulp and particles to be used in the final product, and guarantees a very good quality of the sacs, pulp or particles.

Concerning the sensitive products segment as a whole, we still see emerging markets in Asia, Latin America, the Middle East and Africa as key growth drivers. There has been significant growth of fruit juices, teas and functional drinks in China, Japan, Indonesia and Vietnam. Aseptic and hot-fill solutions are proving increasingly popular in the Middle East and Africa. In Europe, we have seen repeated orders for our ultra-clean solutions and also for our aseptic solutions for juices and UHT milk.

**SENSITIVE PRODUCTS** A sensitive product is defined as a drink that requires extra care to achieve its expected shelf life while protecting its quality, taste and vitamins. Sensitive products include juices, nectars, soft drinks, isotonic and teas (JNSDIT) and liquid dairy products (LDP) like fresh milk, UHT milk, flavoured milk, drinking yoghurt or soymilk. All beverages are sensitive in some way but these product types can more easily suffer changes due to light, oxygen and temperature, and are therefore deemed sensitive products. To find out more about Sidel's offering within sensitive products, please visit [www.sidel.com](http://www.sidel.com).

Sidel combines different methods and technologies for packaging sensitive products: specific product treatments (such as heating), specific filling conditions (such as aseptic, hot-fill or ultra-clean) to protect the product while it is being packaged, and specific barrier materials on packaging for products that are sensitive to light or oxygen. The solution depends on the liquid food type, the desired shelf life, the packaging shape specifications and the distribution channel (ambient or cold chain).

### CAN YOU GIVE SOME EXAMPLE OF THE SOLUTIONS SIDEL PROVIDES FOR SENSITIVE PRODUCTS?

Our Combi Predis FMA and Sensofill FMA lines have proven popular with our customers. The Predis, based on dry preform sterilisation technology, is unique to Sidel and offers dramatically lower water usage and chemical consumption than wet systems. It also allows our customers to decrease bottle weight by much more than with traditional dry bottle decontamination systems. With over 50 Predis systems now in operation at our customers' plants, this technology is giving beverages producers around the world an edge in terms of lower total costs of ownership and sustainability advantages. The Predis can be used for aseptic and ultra-clean solutions for all types of end products, high- or low-acid, including

UHT milk. Thanks to Predis and our aseptic filler (FMA), Sidel is the leader in aseptic PET.

### HOW WILL YOU KNOW THAT YOU HAVE BECOME "A BETTER MATCH" FOR SENSITIVE PRODUCTS?

With three large manufacturing sites in Europe and China, six packaging and tooling centres across five continents, and localised account and project management services worldwide, we constantly strive to be close to our customers. Being 'A Better Match' implicitly represents our ability to combine our capabilities, expertise and global reach to develop solutions that match our customers' diverse needs and challenges. Only our customers can tell us when we achieve this goal.



# SIDEL Products & Innovation

## Raising standards in PET

The new high-speed version of Sidel's Combi Predis FMA is dedicated to single-serve bottles, meeting the sensitive beverages industry's expectations in terms of reduced operational costs and sustainability.

Using its expertise relating to end products and proven experience of aseptic packaging solutions, Sidel is enlarging its portfolio by adapting its aseptic Combi Predis/Capdis FMA technology. The new high-speed version can handle up to 48,000 bottles per hour when filling small containers up to 700 ml, used mainly for on-the-go consumption. It is the perfect solution to a growing demand for teas, juices, nectars and isotonic, which are increasingly filled in aseptic cartons. This is especially true for Asia, a market requiring high-output

production where demand for water is rising as supply decreases.

### **SUBSTANTIAL EXPERIENCE IN ASEPTIC**

The market for high-speed production of sensitive products is very demanding in terms of optimising operating costs and reducing environmental impact. For this reason Sidel is extending filling technologies by developing the proven aseptic Combi Predis/Capdis FMA. Its unique dry preform and cap decontamination system allows for the sterilising of all types of preforms and caps within an integrated blow-fill-cap solution for sensitive products, while using less and

saving more. It has achieved worldwide success and reinforced Sidel's role as an industry pioneer of beverage packaging technology, as well as its conviction that innovation can raise standards in the beverage industry.

### **BASED ON THE PROVEN PREDIS TECHNOLOGY**

The first Sidel dry preform decontamination, by H<sub>2</sub>O<sub>2</sub> spray with the Combi DISIS, took place in 1998. In 2006, attention focused on a more advanced technological breakthrough which redefined the industry standard – Sidel Predis, a unique dry preform decontamination solution. Predis has been adopted for aseptic bottling of any kind of beverage whether low- or high-acid: fruit juices,

teas, isotonic beverages, liquid dairy products and UHT milk. Sensitive beverages, which were traditionally packaged with preservatives, can be reformulated naturally, satisfying evolving consumer preferences and increasingly strict food regulations.

Predis is one example of a technological leap forward that introduces a new economic and environmental model. While such aseptic solutions are technologically advanced, they are also extremely simple.

### **ECONOMICAL, ECOLOGICAL AND FLEXIBLE**

The Predis technology is used within the Combi system, which combines bottle blow moulding, filling and capping in a single enclosure. The Combi Predis is available in different configurations depending on the products to be filled, from water to UHT milk, and the distribution channel chosen, cold chain or ambient temperature.

In that specific configuration, the Predis technology ensures high stan-

dards of hygiene while offering unrivalled cost-effectiveness along with product and environmental benefits. Unlike traditional filling methods that require hygienic rinsing, the Combi Predis performs dry decontamination, setting a new standard by guaranteeing 100 per cent sterilisation of the package for sensitive products using no water and very few chemicals.

While 250 m<sup>3</sup> of water and 200 litres of chemicals are used daily to decontaminate bottles on a traditional aseptic bottling line, Predis dry-solution decontaminates preforms using hydrogen peroxide mist, requiring no water and creating no effluent. Other benefits include energy savings, a smaller footprint and the potential for lighter bottles. Dry preform decontamination is also proven to cut yearly operating costs by 30 per cent (compared with traditional dry bottle decontamination) and to help preserve the environment.

Because bottles are blown from decontaminated preforms and the empty

bottle is not subject to any thermal stress, the revolutionary Combi Predis system gives total freedom of design and shape. It is also proven to deliver quick and easy format and liquid changeovers as well as 120 hours of non-stop production.

#### **PREDIS AT A GLANCE**

- 60 Combi Predis systems sold worldwide so far
- Available for 10,800-48,000 bottles per hour
- More than 5 billion bottles produced worldwide with Predis to end 2011
- 1 million litres of chemical agents saved
- 600 million litres of water saved (equivalent to 220 Olympic swimming pools)





# Giant Combi installed in Argentina

Sidel reached another milestone in South America in 2011 by installing a high-speed Combi Eurotronica FM-c at Refres Now in Argentina. The machine fills large containers for carbonated soft drinks (CSD) at high speed.

Solutions for filling CSD at ambient temperature in family-size PET bottles from 2-3 litre handling units are mainly demanded by markets in South America, and more recently Eastern Europe. In these regions, consumers are in search of big capacities for family consumption, driving industrial bottlers to seek high-production capacity for large containers. Sidel's solution to this was to develop Combi equipment with higher speeds for big containers, going beyond 36,000 bph for the 2 L format.

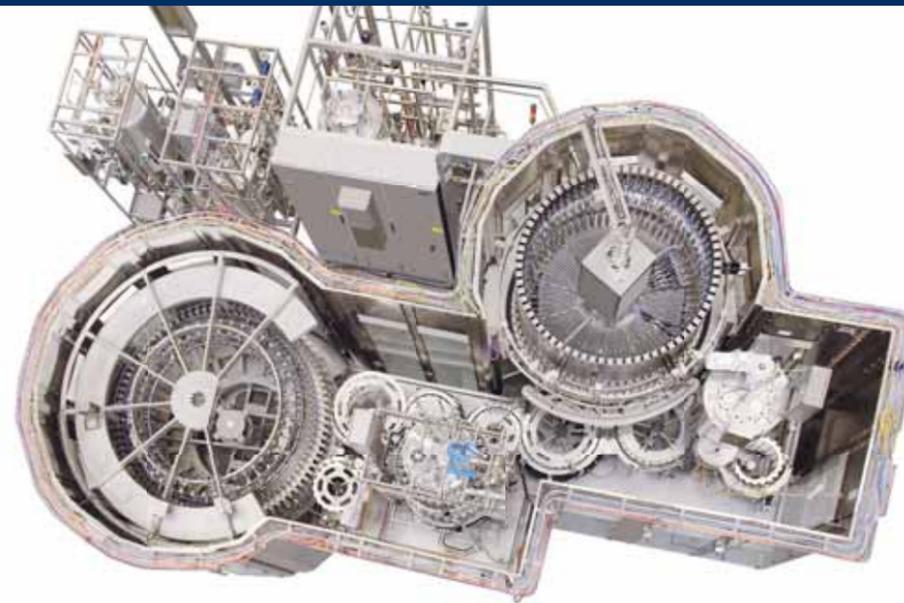
Refres Now in Argentina is among the customers investing in a Combi Eurotronica FM-c, one of the largest Combi machines.

"The challenge was to satisfy Refres Now's needs while simultaneously providing a highly technical solution," explains Stefano Baini, Product Manager CSD/Beer at Sidel.

"The Combi Eurotronica FM-c is equipped with 20 blow-molding stations, 162 electronic flow meter filling valves and 18 capping heads. The carousel

diameter pitch measures 6.5m, and is the largest ever made."

The filling carousel is as high as a three-floor building. Brushless motors and an interface between blowing and filling functions contribute to energy savings and increase security. Cap control before the capper guarantees cap quality as well as the correct orientation. A Starblend mixer was provided with this Combi.



## Filling technology with original pulp

The increasing demand for products containing pulp and particles is spreading rapidly across the world. The beverage industry now needs solutions to match this demand. Sidel can provide the right technology to fill such products either in hot-fill or aseptic.

Beverages including pulp or particles are becoming more and more popular due to consumers' requests for a more natural feel and added value. To help the beverage industry meet the rising demand for healthier drinks, Sidel is developing its filling alternatives to care for these sensitive products.

### SPECIAL REQUIREMENTS

Products containing particles are not standard sensitive products. They are produced with original ingredients from fruit and are considered premium products. There are multiple types of particles, such as pulp, nata de coco, fruit pieces, aloe vera, citric fruit sacs etc. Such wide

diversity brings more complexity when it comes to filling. The challenge is not only the dimension of particles. Their physical integrity and characteristics are also very important, as the raw material remains very fragile. These challenges create highly specific requirements regarding not only the quality and accuracy of the filling, but also the distribution of the particles.

### COMPLEMENTARY PARTICLE FILLING TECHNOLOGIES

To address the specific product and market requirements, Sidel is broadening its filling equipment portfolio. Two technologies are now available for bev-

erage production with pulp or particles in PET containers: hot-fill and aseptic, respectively using the Veloce ISD and the Sensofill FMa fillers. Both technologies exactly match different market expectations. They can dose particle quantities concentration ranges from 10 to 200 ml, depending on the recipe and bottle size (from 200 ml to 2 L). Both meet the relevant official standards for sensitive products found in different countries.

### ACCURATE PARTICLE FILLING AND A HIGH LEVEL OF PRODUCT INTEGRITY

The filler's high dosage accuracy guarantees a steady and precise quantity of particles in the final beverage bottle, and minimises waste of raw material. Sidel's range of fillers also guarantees the filled beverage quality, and consequently can maintain the physical integrity of particles. The product is handled carefully to keep the particles intact and to make sure the liquid concentration meets specifications. With contactless valves, hygienic filling is improved and the flow cut-off of the stream is precise and does not cause any dripping or product wastage. The result is a premium beverage, with an authentic feel.

SBO Compact2:

## Stretching out the quality

The SBO Compact2 takes Sidel's reliable and robust linear blow-molding machine to a new level for improved bottle quality.

This latest evolution of the SBO Compact2 is industrially improved and more robust, delivering higher performance due to the addition of electrical stretching. A new stretch-blowing system for the preform replaces the traditional pneumatic process with an electrical process by installing a servomotor and ballscrew assembly.

### FASTER AND MORE FLEXIBLE

The new stretching console provides many benefits. It enables constant control of the stretching position and speed for perfect repetition of the process. It is more flexible as it can work on a variety of bottle sizes without the need for manual adjustments of the pre-blowing and blowing start detectors. The maxi-

mum stretching speed is increased from 1 m to 1.3 m per second enabling faster production. The stretching parameters are managed directly from the Human Machine Interface (HMI), and no longer within the machine, making change-overs quicker and easier.

### FROM SMALL TO LARGE CONTAINERS

Whatever the product, be it water, carbonated soft drinks, juice, dairy products, detergent, or cosmetics, the SBO Compact2 can blow simple or standard shapes using either PET or other plastics in sizes from 200 ml to 10 litres. It can also manage the blow-moulding of complex packaging, such as asymmetric shapes or flat containers, through the

preferential heating process.

The improvements do not stop there. Sidel is constantly enhancing its technology and is working to increase processing capabilities further to manage any type of container, including wide-mouth jars and heat-resistant packages.



## Juicy ambitions for Hana Water

Hana Water, Saudi Arabia's leader in bottled water, is making a bold move to juice. Sidel was trusted to develop the perfect technological fit for this sensitive transition.

Long considered the water specialist in Saudi Arabia, Hana Water has recognised the potential of the rapidly expanding market for juice products. According to Ahmed H. Al Theyab, Managing Director at Hana Water, Saudi Arabian consumers will drink 1.14 billion litres of juice this year alone.

"After more than 30 years as a leader in water, we have acquired a great deal of expertise, an excellent reputation, strong links with our customers, and the financial force necessary to enter into the beverage business. We see this transition to juice as a multi-phased approach," he says.

The first phase will be fruit drinks and iced tea, followed by a gradual move to nectars, then flavoured milk, smoothies and finally, 100 per cent fruit juices with no preservatives. All recipes will comply with the highest standards and food regulations, which have become increasingly strict in Saudi Arabia.

### PREDIS FOR FULL FREEDOM

The biggest challenge was to decide what kind of production line was most adapted to Hana Water's needs and ambitions. The choice of the aseptic Sidel PET line with Combi Predis FMA was driven by several factors. Hana Water was interested in the environmental

benefits of using dry preforms decontamination technology. This helps reinforce its position as a truly responsible and innovative company: the Predis system uses no water and very few chemicals, reduces energy consumption, minimizes floor space and helps lower maintenance costs.

It also offers the option of innovative bottle designs. Predis can produce any bottle shape, which well suits Hana Water's wish to position the new product in the premium segment.

### BUILDING EVERYTHING FROM SCRATCH

Entering a new market segment meant Hana Water opened a new production facility. The factory hosts seven lines – three aseptic, three box, and one can.

Throughout construction, Sidel worked closely with Hana Water to choose the best filling technologies and the best consumables for bottles and caps. Sidel showed how to guarantee optimal sterilisation of product and container, and its experts helped with various engineering matters in the production area. For instance, they provided advice on the general environment, such as proper lighting, air treatment to ensure quality filtration, and temperature control to

prevent critical areas from getting too hot. In addition, Sidel will provide extensive on-site training sessions for technicians and operators.

### USING COMBINED EXPERTISE

As this was a multi-partner project, Sidel coordinated and cooperated seamlessly with other suppliers on the line, including Tetra Pak for process control and piping.

"With such a huge transition like this, having the combined expertise of Sidel and Tetra Pak was very valuable, especially on issues like closure and bottleneck finish, material distribution, oxidation prevention and overall output efficiency. Now we will achieve optimal protection for our preservative-free juice products, and up to nine months of shelf life in local-environment conditions," explains Ahmed H. Al Theyab.

The first aseptic line was delivered in October 2011, with production starting during the first half of 2012.



## Meeting changing markets with innovation

For more than a century, LSDH has known how to reinvent itself. Its thirst for challenge and innovation has made it one of the leaders of the French fruit juice market. It is a strategy that Sidel greatly contributes to.



Laiterie Saint-Denis-de-L'Hôtel (LSDH), founded in 1909, was a company of dairy farmers who pooled production equipment and delivered products to the main centres of consumption in France's Loiret region. Today, LSDH offers a full range of drinks and operates in line with its four major values bases its image on four major ambitions: nutrition, innovation, naturalness and sustainability.

### SUPPLYING BIG-BOX RETAILERS

In 1984, French milk quotas, mainly aimed at stopping surplus production, put two-thirds of milk producers out of business. This was a turning point in the development of LSDH.

Instead of shutting down production, the company diversified its offering from only dairy to all other liquid foods, including fruit juices, diet products and protein drinks. Since then, with a steady growth in references and recipes, LSDH has continuously aimed to offer customers a highly diversified range of products.

With such a clearly diversified offering, it is essential to focus on relations with large retailers. Examples include Carrefour, for which LSDH produces a significant quantity of fruit juices, and Système

U Group, with whom LSDH has launched various milk products. In the latter example, production was made possible by Sidel's aseptic line.

### CO-OPERATION WITH GROUND-BREAKING RESULTS

In 2007, LSDH purchased a Sidel line equipped with the Combi Predis FMa. This ground-breaking technology, the first in the world to offer dry decontamination of preforms, enabled LSDH to package UHT milk aseptically in a lightweight, two-layer PET bottle with no sealing foil. The bottle proved very popular and has received a dozen awards.

Due to the simplicity of use and performance of the Combi Predis FMa, the investment has proved both sustainable environmentally beneficial and financially well-founded. It has decreased plastic use and eliminated water consumption.

Hydrogen peroxide use has been cut sharply which in turn has reduced effluents sent to waste treatment stations.

"The work performed jointly by our two companies immediately bore fruit. Compared to a standard machine, we cut our overall water consumption by a factor of three for all of our production facilities," LSDH CEO Emmanuel Vasseneix explains enthusiastically.

With the Combi Predis FMa, LSDH also successfully reduced the weight of its 1 litre bottle by 4g: initially produced at 32g on an aseptic line with wet decontamination of bottles, it now weighs 28g, and the goal is to cut it to 24g. It is a fantastic result. It is a fantastic wager, according to Vasseneix, who says: "Coupled with reduced maintenance and faster output, this innovation has led to the creation of jobs at the Varennes-sur-Fouzon site. Sidel has a pearl in its hands!"



### CHALLENGING THE MARKET WITH SIDEL

LSDH aims to anticipate market changes and customers' future needs in terms of flavour and package design. In the past 20 years the company's technology investments amount to more than €150 million. Its production sites are constantly evolving, which requires forward-thinking partners. Sidel is an important supplier of innovative technologies for realising LSDH's ambitions. "Our sites will always be perpetually evolving, since our customers' demands are constantly changing. To respond to these new needs, we turn to partners like Sidel and to innovative technologies such as Combi Predis FMa," adds Vasseneix.

Today, LSDH production lines are saturated operating at full capacity, the reason for a new €60million investment programme which includes two new Sidel aseptic lines equipped with the Combi Predis/Capdis FMa. Says Vasseneix: "With these medium- and low-speed lines, we will offer retailers a kind of industrial laboratory. They will be able to entrust us with the launch of new products and new recipes and to focus on the marketing of their brands."

### EXPANDING WITH SOCIAL AND ENVIRONMENTAL RESPONSIBILITY

Environmental and social values are as important as product strategy to LSDH. "The company takes concrete actions to minimize its environmental footprint and to stop depleting fossil resources. It is replacing fuel oil boilers with gas, installing waste treatment systems, reducing the weight of PET containers, and using 25 per cent recycled materials.

Driven by its values of passion, ambition and humanity, LSDH also takes social responsibility seriously. Initiatives include LSDH-funded schools in Akpakli, Benin; sponsorship of sports clubs, donations to non-profit associations and humanitarian actions with other companies.

LSDH aims to expand internationally well beyond a partly declining French market. It is involved in various raw material sectors, such as soy, milk, apples and oranges, and is planning a production-based expansion. First steps will be taken in the growing markets of Germany and the UK.

### LSDH IN NUMBERS:

- 900 employees
- 4 production sites
- 1.2 billion packages
- €500million in sales
- 150 million bottles per year:
- 100 million bottles for milk
- 50 million bottles for juice



## Aseptic: the right technological choice for Aujan

Aujan seized the exciting opportunities of PET to produce its Rani brand on a new PET aseptic line from Sidel.

For more than a century, Aujan has been a leading provider of fruit beverages throughout the Middle East and beyond. The juice market there is booming, and Aujan is keeping ahead of consumer expectations. Its flagship beverage line, Rani, is most notable for its wildly popular Rani Float, which includes chunks of fruit and comes in a variety of delicious flavours. In order to accelerate the continuing success of these beverages, Aujan decided it was the right time to further capitalise on the powerful potential of PET.

The company chose Sidel to guide it through a major transition, which included a new aseptic PET line with Combi Predis/Capdis FMa installed in 2011, in contrast to the typical hot-fill technology used for such juices in the Middle East. This new approach is providing Aujan with an extensive range of possibilities for its products, including new sizes and formats (1.5 and 1 L, 300 and 250 ml), new flavours (orange, mango, guava, apple, cocktail, grape juice and carrot), and attractive new designs.

### MORE FREEDOM IN DESIGN AND PRODUCTION

Historically, Aujan's individual fruit drink range has been limited mainly to aluminium cans and glass – and recently PET for some juice products - via hot-fill technology only. Aujan considered this too limiting in terms of format and design. So, when it invested in an innovative aseptic PET line, packaging opportunities (in terms of light weighting and design) were important.

In moving towards aseptic PET, Aujan's foremost objective was to optimise the cost of packaging. But the company wanted more, and seized the opportunity offered by the filling technology to optimise the actual packaging as well. Various factors convinced the group to rethink its approach and choose the Combi Predis/Capdis FMa.

In terms of packaging design, the Combi FMa offers more shape freedom than hot-fill technology. Sidel's packaging design team played a key role in making sure that marketing and aesthetics dovetailed seamlessly with pro-



duction. Sidel worked closely with Aujan's marketing department and development teams to achieve optimal designs for each product.

"If you don't know what you are doing, aseptic can be complicated," says Michael Meunier, Engineering and Project Manager at Aujan. "That is why a lot of companies stick to hot-fill. But with the right partner, there are a lot of great possibilities. Sidel are aware that our success is theirs too, so it is really a win-win situation for everyone."

### ASEPTIC FILLING: THE RIGHT DECISION

In order to produce the diverse bottle formats that consumers want, aseptic

technology was a must. For Aujan, aseptic is not merely an added dimension to its processes. In fact, it plans to progressively phase out hot-fill production completely, the key reason being the technological benefits of aseptic.

First, it reduces water consumption, which is a significant advantage in a dry desert region like Saudi Arabia. Aujan also considered that Sidel's aseptic PET line offered the most attractive benefits thanks to its simplified design and operation and easier maintenance and cleaning. Likewise, the rapid format changeovers offer the ability to alternate flexibly between multiple formats and flavours while reducing operating costs.

Despite the typical investment concerns,

Meunier says there was no major difficulty convincing anyone at Aujan to change to aseptic. "We conducted a lot of feasibility studies as well as cost-efficiency analyses, and everything reconfirmed that we must move to this technology," Meunier continues. "We have made a significant investment here, but it was well worth it. Today we are very confident that we've made the right decision."

### AUJAN: WELL-POSITIONED AND FOCUSED ON THE FUTURE

Although Aujan is well-established in Saudi Arabia, that market represents no more than 40 per cent of its production. It is also very strongly represented across the Middle East, the Maghreb, and Eastern Africa, distributing its products in as many as 70 countries. Aujan has factories in Dubai and Iran as well

as its head factory in Dammam, Saudi Arabia, where the new Sidel line was installed. In these three factories, Aujan's three main brands are produced:

- Barbican is Aujan's non-alcoholic beer and a high-growth product in the region. It represents about 20 per cent of the group's turnover.
- Vimto is both cordial and carbonated soft drink and very popular in the re-

gion. In fact, it is largely considered "the" drink of the Middle East and the beverage of choice during the Ramadan season.

- Rani is the driving force behind Aujan's portfolio and accounts for half of the company's annual revenue. Last year saw an enormous 21 per cent year-on-year jump in sales compared to 2010.

## A green future for plastic



A new generation of bio-plastics capable of replicating the properties of traditional plastic are set to usher in a more sustainable era for packaging.

With fluctuating oil prices and greater consumer awareness of sustainability issues, there is a growing demand for a new generation of bio-plastics for packaging.

"The bio-plastics industry is small but it is undergoing significant growth and continual change. One key driver for the packaging industry is to replace oil-based materials because oil is not a renewable resource and is being rapidly depleted," explains Jim Lunt, Managing Director of US consultants Jim Lunt & Associates.

One of the most important new bio-plastics being targeted is non-petroleum derived PET. Around 50 million tons of PET, a tough, heat-resistant polymer, are produced each year, largely to meet the demands of the packaging and bottling industries. This, says Lunt, means Bio-PET is a red-hot topic in the industry today.

Bio-PET is currently produced using a bio-based ethylene glycol, although 70 per cent of the product remains oil-based. Bio-PET products include Coca Cola's PlantBottle™, which contains 30 per cent monoethylene glycol (MEG) made from sugar molasses, a by-product of the sugar industry, with the rest made from petroleum-based purified terephthalic acid (PTA). The ultimate goal for the industry is to replace this PTA with a bio-based version.

### FLUCTUATING COSTS

So what is fuelling this push for 100 per cent plant-based PET? A key factor is the continual fluctuations in oil production, which are reflected in the ever-changing costs for containers and bottles.

"Companies like Pepsi and Danone, for example, want to reduce their dependency on oil-based products, and they want to have a stable supply chain where the price does not fluctuate significantly," continues Lunt.

Materials such as bio-PET can offer this but at the moment a bio-PET bottle costs at least 30-40 per cent more to produce.

"The first goal is to reach price parity. Major companies know the consumer is very selective – they will not pay more," adds Lunt.

Consumer fears about toxic materials leaching from oil-based plastics are also influencing the way in which the industry is moving. And typically, manufacturing oil-based plastics is expected to be more energy intensive, and to produce more emissions, than bio-based alternatives. This is an important consideration for companies who want to be able to prove to their consumers that they are doing things in a more sustainable manner.

### LIFE CYCLE ASSESSMENT

Some companies are using Life Cycle Assessment (LCA) to analyse the true impact of bio-plastics using a "cradle to grave" approach (from agricultural production of biomaterial to the end of life of the packaging).

Replacing fossil petroleum with bio-sourced products usually





means a reduced carbon footprint. The carbon balance for the plants themselves is neutral (the atmospheric carbon captured by plants is re-emitted when using them) while for fossil materials the balance is negative, because the carbon emitted into the atmosphere does not remain sequestered in soil.

But the balance should be equilibrated by taking into account additional carbon emissions from various fossil energy use and materials during the agricultural phase as well as fertilisers' emissions such as nitrous oxide.

Focussing only on carbon footprint may generate pollution transfers. So LCA also takes into account several other effects such as chemical damage to the environment, due to pesticide use in agriculture or fertilisers entering rivers: this encourages algal blooms which uses available oxygen and destroys water biodiversity.

Jim Lunt points out that producing bio-PET involves an additional step of converting bioethanol to ethylene. And, depending on the route used to manufacture biobased PTA, there can be more steps than to oil-based PTA. "You are not more sustainable just because you do not use oil. You are more sustainable because you do not use as much oil, you do not use as much energy, and your emissions are reduced," he says.

#### **CROP ROTATION**

Many bio-plastics rely on food crops for raw materials, and using arable land and foodstuffs for industry has become a controversial subject.

"A lot of consumers are concerned that by using food crops like corn to make ethanol, you are driving up the price of food and taking it out of the mouths of people. Experts argue this is not the case but the consumer perception is difficult to change," says Lunt.

As a result, companies are turning to alternatives such as waste wood and corn stover (the stalks from corn), while PepsiCo is investigating the suitability of other waste materials, such as orange and potato peel, and oat hulls.

#### **INDUSTRY STANDARD?**

Bio-plastics currently account for less than 1 per cent of all plastics produced worldwide but, says Lunt: "Renewable, durable, non-compostable, recyclable products are the heart of a growing market." These new generations of materials are aligned more with their recyclability within the existing infrastructure, which is developing rapidly.

And with oil prices continuing to fluctuate and the technology behind bio-plastics now moving from the drawing board to the laboratory, and ultimately to full-scale production, the 100 per cent bio-PET bottle will become a reality.

So a new industrial challenge is under way. The winners will be the ones who will master the supply chain of a constant quality biomass, efficient bio refineries, at the costs of the traditional oil-based PET.



NUMBER OF EMPLOYEES 2012

COUNTRIES COVERED

R&D UNITS

**4,415** **>100** **3**

NET SALES 2011

NUMBER OF PLANTS

NUMBER OF SERVICEMEN

**955** **18** **3,200**  
MILLION EURO



OUR BRAND

It is our goal to turn the very well-known and respected brand that DeLaval is into a promise to our customers, a promise that is relevant to them and which they see as a reason to choose DeLaval. As dairy farmers, our customers have one of the toughest and most interesting jobs there is. They manage their farms with an increasing level of high technology, and larger staff strength as a result of the consolidation in the industry, and of course larger herds. They juggle all the above complexities to produce one of the world's most nutritious foods. DeLaval helps farmers run their farms their way by providing their solutions, every day.

Our brand promise is therefore to empower the dairy farmer with improved control over milk production.

DeLaval accomplishes this by offering complete, reliable and profitable solutions, including close support.



VISION

**We make sustainable food production possible**

MARKETS AND CUSTOMERS

DeLaval operates with close to 4,500 employees in more than 100 markets. DeLaval provides integrated solutions that cover not only cow but also sheep, goat and buffalo dairy farms to over 1,000,000 customers around the globe.

SOLUTIONS

DeLaval offers five Capital Goods systems: Conventional Milking Systems, Automatic Milking Systems, Cooling Systems, Feeding and Housing Systems and Farm Management Support Systems.

DeLaval customers can also choose from a wide range of services and consumables which are grouped in four portfolios: Liners & Tubes, Farm Supplies, Services & Original Parts, Milk Quality & Animal Health.

R&I

Research and innovation has been essential to DeLaval's steady progress. This is especially emphasised in product development, where the team works in close contact with a worldwide network of farmers, academics, dedicated research facilities, scientists, sales teams, authorised dealers and other agricultural experts.

CORE VALUES

**PASSION** We share a passion for delivering customer value. We are proud of our heritage and our success. From our leading position in dairy farming, we expand our business with passion. This passion distinguishes us from other companies.

**PEOPLE** We have the ability and are trusted to make decisions within our area of responsibility. We build our success on competence and constantly invest in personal development. We share our knowledge, support each other and enjoy being part of a team. We encourage diversity and appreciate the creativity that comes from a mix of cultures, gender, sexual orientation, religions, experiences and personalities. We are part of a global network.

**PROFESSIONALISM** We deliver quality in everything we do. We have clear responsibilities and fulfill our commitments. We listen, learn, innovate and constantly improve. We are proud of who we are and humbly reflect this through our attitude and behavior. We stay true to our values.

**PARTNERSHIPS** Our customers, their needs and expectations, are the starting point for everything we do. Our dealers are business partners with whom we jointly deliver customer values. DeLaval employees, our dealers and customers partner for long-term business results.

OUR STRATEGIC PRIORITIES

**Sustainability**

We aim to reduce the environmental footprint of farms, while improving milk production, farm profitability and the well-being of the people and animals involved. Our vision is to make sustainable food production possible.

**Farm Management**

A significant part of our innovation investments is focused on developing an integrated system to improve overall farm management.

**Geographical Expansion**

From our leading position in dairy farming, we innovate and expand into new segments and new geographies.

**Consumables and Services**

We reach customers through innovative channel development and develop products and new services that support sustainable and profitable food production.

**Industrial Footprint Excellence**

Our aim is to secure a proper industrial presence worldwide in order to support sales excellence and the quality of the products and services delivered to our customers.

SMART FARMING

Smart Farming is a DeLaval initiative aimed at influencing and shaping the future of dairy farming today. The goal is to accelerate the transition from milking management to global farm profitability management by harnessing emerging decision tools and automation technologies for better quality milk and profits.

CORPORATE SOCIAL RESPONSIBILITY (CSR)

CSR cornerstones are:

**Sustainable Dairy Farming**

Sustainable Dairy Farming is a DeLaval initiative to support farmers do more with less. The goal is to reduce the environmental footprint of farms, while improving milk production, farm profitability and the well-being of the people and animals involved. DeLaval believes this goal can be achieved by providing smart technology and services to increase resource efficiency.



**Food for Development**

Food for Development is an important part of DeLaval's corporate social responsibility.

The target is to achieve sustainable social and economic dairy development by promoting public-private partnership in developing countries.

We are committed to helping customers, governments and community based organisations to provide milk to children around the world. A public-private partnership is the best way to fight rural poverty and malnutrition through dairy development. All DeLaval activities are long-term business development projects aimed at encouraging demand for locally produced dairy products and pushing for transformation of subsistence smallholders into commercially viable farmers.



## E-commerce is a channel for the future

Customers of DeLaval Sweden have benefited from a direct web shop. Growth and development in 2011 was significant – 40 per cent – and several new features were introduced. Today, customers can register, place an order and pay by credit card. Customers who have a buying history with DeLaval can see their most frequent purchases and easily reorder online.

Swedish farmers find the web shop extremely convenient, with fast deliveries and access to a wide DeLaval aftermarket of consumables, supplies and spare parts. For DeLaval, this is a channel for the future.

# DeLaval steps up cooperation with universities

For DeLaval, it is not enough to focus on the present: the future is crucial when it comes to research and development.

In Sweden, DeLaval is supplying the Swedish University of Agricultural Sciences' new Livestock Research Centre with equipment, including the recently launched automatic milking rotary, AMR™, and voluntary milking system, VMS™. The university has a long tradition of providing important research on how to improve animal welfare and dairy production. The new centre will further enhance the quality of the research and will work with both the VMS

and the recently launched AMR system in addition to a wide range of DeLaval products and solutions that are integral to the DeLaval Smart Farming concept.

Cornell University's College of Veterinary Medicine in the US are committed to the advancement of dairy management and are planning to build a new teaching barn during 2012. DeLaval is supplying the new barn with milking equipment and DeLaval Activity Monitors for monitoring cow activity and cow health. Approximately 150 cows will be milked at the new facility, which will be available to College of Veterinary Medicine and College of Agriculture and Life Sciences students.



## DeLaval honoured with Australian Agsafe award

In Australia, DeLaval Pty Ltd, which supplies farmers and vets, has been striving to continually improve safety, storage and

transport facilities for several years. In 2011, that dedication was rewarded with a national Agsafe Achievers Award.

The awards are part of the Agsafe Accreditation and Training programme, an industry initiative that assists agronomy and veterinary chemical businesses to comply with government regulations. DeLaval employees are all Agsafe

accredited and have been involved with the service for more than 15 years.

Both the Advanced Agsafe Accreditation and the Achievers Award are dedicated to a small warehouse staff in Tullamarine who have worked tirelessly to ensure that DeLaval endeavour to meet their obligations on safety, transportation and warehousing on a daily basis.



## First North American farm installs Herd Navigator™

In 2011, DeLaval's Herd Navigator was installed on the first of four Canadian reference farms, Heeg Dairy Incorporation, in Ontario, Canada. Heeg Dairy milk their Holstein herd with the DeLaval voluntary milking system, VMS™. To Sjoerd and Rinske Heeg, and Sytse and Anita Heeg, co-owners and operators of Heeg Dairy Incorporation, the decision to invest in DeLaval's Herd Navigator was easy.

With Herd Navigator, they see future benefits associated with the improved monitoring of their herd's health. Herd Navigator takes a proactive approach. By automatically taking, analysing and reporting on milk samples, it alerts the farmer to the condition and health of each cow. When linking Herd Navigator to VMS, dairy farmers move closer to Smart Farming and an on-farm integrated productivity system.

For the Heeg family, animal welfare is number one priority. They believe that with Herd Navigator they can achieve their goals of combining farm profitability and good animal welfare.

## Detergent cuts environmental impact and safeguards milk quality

A new detergent giving superior hygienic results at much lower temperatures is helping customers reduce energy use. Reduced Temperature Detergent, RTD™ – containing DeLaval's patent-protected unique dispersing technology – gives the same Cleaning in Place (CIP) results at 45°C as is obtained at 75°C with conventional detergents.

With less energy needed to heat water for cleaning milking systems and bulk tanks, some customers may see power consumption reduced by up to 50 per cent. The smart technology used in RTD not only helps reduce a dairy farm's environmental impact, but also safeguards its milk quality. It is especially useful for farms having trouble maintaining a consistent supply of hot water.



# DeLaval supplies Turkey's first robotic milking farm

The Sarp Farm has become the first in Turkey to buy a DeLaval voluntary milking system, VMS™. The first robotic milking farm in the country, the Sarp Farm aims to be Turkey's most production-efficient farm.

Entering the Turkish market with VMS is a significant step for DeLaval. During the past few years Turkey has undergone major changes and shown indications that both farming and milk production have evolved to become important economic sectors.

The Sarp farm, founded in 2010, is proof. The owner, Cuneyt Özgümüş, farms

135 cows but has capacity for 500, and wants to maximise operations as soon as possible.

DeLaval's VMS allows for round-the-clock milking to optimise a high-quality milk yield. It helps farm managers run more sustainable, professional and productive dairy operations. The 2011 system offers smarter technologies, additional possibilities for system integration and further upgrade options than previous versions.



## VMS™ is the fastest milking robot

A careful evaluation of several factors lies behind choosing a milking robot supplier: investment cost, annual costs, capacity, reliability, service options and much more.

An evaluation by Danish FarmTest shows that the DeLaval voluntary milking system's milking robot is the fastest in overall process time – including teat-cleaning, pre-milking and milking. This is thanks to optimal stimulation of the cow during the teat cleaning and pre milking process, which provides shorter milk let-down time, alternating lasers from the camera to find the teats, and the Smart milking features which provide flexibility to adapt to the particular milking characteristics of each individual cow.



## AMR™ showcased in North America

The DeLaval AMR™ is the world's first automatic milking rotary system. Winner of the EuroTier 2010 Gold Medal for innovation, the system has been tested on farms in Sweden and Australia.

Now it has also been showcased in North America at the World Dairy Expo in Madison, Wisconsin. Many visitors expressed interest, asking about the future of AMR™.

So far, the system has been installed at five locations worldwide.

## DeLaval AMR™ wins a Golden Hoof

The DeLaval automatic milking rotary, AMR™ is designed to accelerate dairy farmers' transition from milking management to total farm management. It can help them grow profitably by working smarter to drive greater efficiency, productivity and business sustainability.

In 2011, The DeLaval AMR received a Golden Hoof at the Agribex 2011 exhibition in Belgium. DeLaval has won a Golden Hoof six times during the last seven editions of the Brussels International Agricultural Fair. Previous wins were for products such as the Cell Counter (DCC) and Herd Navigator. The fair has nearly 500 exhibitors and attracts more than 100,000 visitors from over 20 countries.

## DeLaval had Best Booth at World Dairy Expo 2011

When DeLaval attended the World Dairy Expo in Madison, Wisconsin – the international dairy meeting place – it scooped the prize for Best Booth. The five-day event showcases the finest in dairy genetics and the newest technologies available to the industry.

The jury was impressed by DeLaval's newest automatic milking technology – the voluntary milking system, VMS™ and part of the automatic milking rotary, AMR™ – as were the many visitors who stopped to see it in action. The stand's "classy" design and knowledgeable experts – ready to answer any and all questions regarding DeLaval solutions – were praised.



# Markets & Partnership

## Dairy hubs help farmers in Bangladesh

Smallholder milk is a hidden resource in Bangladesh, yet to be fully utilised in the growing market for milk and dairy products. Milk produced by smallholder farmers could potentially replace milk powder imports. The introduction of dairy hubs is one way of reaching this goal.

In an effort to increase the collection of locally produced milk for industrial processing, DeLaval and Tetra Pak joined forces to support PRAN Dairy Ltd, part of the PRAN-RFL Group food processing conglomerate, in expanding its collection network by setting up dairy hubs.

This model has proven to be very successful in increasing profitability for smallholder farmers and helping dairy

processors to access more and better quality milk.

### **SERVICE, TRAINING, COLLECTION**

"A dairy hub is a centre combining collection of smallholder milk with services and training for farmers," says Stefan Bergstrand, DeLaval milk production expert and a member of the Tetra Laval Food for Development Office, a joint initiative between DeLaval and Tetra Pak.

A hub typically brings together 15-20 villages with 800-1,000 smallholder farmers and up to 10,000 cows, all working closely with a dairy processor collecting their milk. By treating cows from many villages as one herd, econo-

mies of scale are achieved and farmers receive training in feeding, breeding and animal health.

The first hub in Bangladesh opened in September 2010 in Chatmohar in Pabna district, and the second in September 2011 in Sirajgonj district. The site for a third is being evaluated and PRAN plans to establish many more in the coming years.

PRAN is also setting up a dairy academy to train dairy hub staff, experts and farmers in milk production. DeLaval is supporting the development of practical training modules in such areas as feeding practices, silage and hay making, breeding, calf rearing, cow health,

mechanised dairy farming and milk production as a business.

### **LOWER COSTS**

"PRAN's first dairy hub showed that their investment was justified and collection costs for each litre of milk have gone down. Intake of local milk has also increased. In the Chatmohar district it went up from 2,000 litres to 24,000 litres a day during the first 15 months, resulting in a more cost-efficient milk collection for PRAN" says Bergstrand.

Benefits of increased milk production and expansion of cattle farming will go beyond PRAN and the whole country will be benefited. Cattle farming can

help create more jobs in rural areas.

"We want farmers to treat dairy farming as a business. For the farmers, the possibility of delivering milk to a dairy hub saves valuable time. Previously, they had to spend hours waiting at the market to find buyers" says Chief Executive Officer of PRAN-RFL Group Amjad Khan Chowdhury.

### **HIGHER INCOME, MORE MILK**

Farmers connected to the first hub increased their monthly incomes from an average 100 to 133 USD between October 2010 and January 2012. During the same period, milk yields increased from just under 6 to almost 8 litres per

cow per day, compared to the average in Bangladesh of around 3.6 litres.

"With our knowledge, experience and products, we can help transform Bangladesh's dairy sector from a country relying heavily on imports to a country where many of the 1.4 million dairy farmers can improve their lives by specialising in milk production," concludes Bergstrand.

# Russian mega-farm uses DeLaval technology



When Farit Rakhimov installed 16 DeLaval voluntary milking system, VMS™ at his farm in the Russian Federation republic of Tatarstan, it became the biggest VMS installation in Europe and Asia. Now, the farm is poised to become the largest VMS installation in the world, with 32 systems.

Rakhimov decided in 2009 to use VMS for milking the 1,150 cows at his 6,290-hectare Rakhimovo Farm.

"We are seeing great results in terms of milk quality and volume," says the 25-year-old entrepreneur.

## PRODUCTION INCREASED

Cows are milked about two-and-a-half times a day and it takes just two employees to supervise the entire process. Rakhimov's underlying philosophy is to minimise the influence of human factors to boost cows' productivity. Cows average around 27 kilogrammes of milk a day, with some providing as much as 30 kilos.

Although his farm is already a large one, Rakhimov is planning to expand and increase his herd. In July 2011, he ordered another 16 VMS from DeLaval.

"We have always dreamed about the creation of a mega-farm," he says. "We chose DeLaval to deliver the additional 16 VMS as we believe them to be the leaders in large-scale automation technology and they have long experience in delivering modern dairy farming solutions. Our continuing partnership is advantageous for both sides, as we have an excellent exchange of technology expertise and feedback from our operations."

## MAJOR INVESTMENT

Since the farm was set up in 2008, Rakhimov has invested more than 1 billion roubles (about €25 million), in its development.

The quality of the milk is key, he says, in order to ensure the best price but also because food safety is critical. After slightly more than a year of operations, Rakhimov Farm's milk quality met European standards and Unimilk Volga, owned by Danone, began buying from it.

The farm also has breeding farm status, which means that Rakhimov can sell Holstein heifers. He imported his initial group of Holsteins from Australia.

Although he began dairy farming only a few years ago, he is no stranger to farm life. His grandfather operated a farm in the Soviet Union and Rakhimovo Farm is named in his honour.

Before deciding to install VMS, Rakhimov and a group from the farm visited Mason Dixon farm in the US, which then had the world's largest VMS installation. He and key farm staff also visited DeLaval in Sweden to learn about VMS.

"Using VMS really give us an edge," says Rakhimov.

Because he can work closely with DeLaval, both sides benefit. "It helps improve our work, as well as DeLaval's," he says. "We can give them feedback on the equipment and they can give us new solutions."

## SHARING KNOWLEDGE

This farmer does not just want to create a mega-farm. He is also sharing the knowledge he has gathered, with DeLaval's help, through a training centre on the farm. DeLaval provides consulting services and knowledge to the centre and helps the farm manager and veterinarians run training sessions and workshops.

About 20 farm managers from Tatarstan and nearby regions have attended sessions at the centre, which offers a mix of theoretical and practical training. Courses cover much more than just VMS.

"Our goal is to share our experience with farm managers, enabling them to apply skills and knowledge in their daily routines for running dairy businesses efficiently on a long-term basis, utilising innovative technologies and progressive know-how," he concludes.



# China strives to improve milk quality

With dairy farming in China rapidly developing, the need for well-trained Herd Managers is growing equally fast.

A cooperative programme, the Sino-Swedish Dairy Centre, which involves DeLaval, Tetra Pak, the Swedish University of Agricultural Sciences (SLU), the Chinese Ministry of Agriculture, China Agricultural University and Beijing Capital Agriculture Group is helping to meet that need.

## FIRST GROUP TRAINED

The first course participants were Chinese dairy farm managers and the introductory programme started in August 2011, at SLU in Uppsala. They also had on-site training at Hamra, DeLaval's state-of-the-art farm at its headquarters in Tumba, Sweden.

Course participants were able to see the latest DeLaval technology and learn about new operating methods that improve milk quality and food safety, while still ensuring reasonable operating costs.

The participants say the programme has helped them better understand the relationship between healthy, happy cows, food safety and profitability as well as how to manage large herds. And they look forward to being able to use new methods and equipment on their farms.

## RAPID GROWTH

In the past decade, Chinese milk production has increased 400 per cent and demand is still growing. To meet that demand, dairy farms have been consolidating. Major farm operators often have very large herds, with as many as 100,000 cows.

The Chinese government believes that dairy products are a very valuable source of nutrition and is investing heavily in the dairy industry, as well as supporting the training programme.

But China does not have a long tradition of large scale and efficient milk production, notes George Zhang, managing director of DeLaval China. Farms have

been small, with herds of five to 20 cows.

As farms have consolidated, milk quality has not kept pace. Better herd manager training can help improve milk quality, ensuring food safety and consumer confidence. And the larger herds now existing also require new management methods.

## FOOD SAFETY, COW HEALTH KEY

The training programme comprises nine modules. They cover such topics as udder health, disease management and feeding and nutrition. The entire programme is aimed at helping herd managers understand the importance of good food safety and cow health.

Michael Hughes, DeLaval Competence Development Director, says that through the programme, "We are confident we will see improvements in milk production when it comes to both the quantity and quality."

# DELAVAL Products & Innovation



## Cleaning is key to milk quality and animal health

From the US to China, Russia to South America, dairy farmers are concerned about food safety, biosecurity and the health and comfort of their cows. In addition, they must meet challenging regulatory requirements as the quality of milk products is improved in line with increasing customer demands.

The challenges for DeLaval include satisfying farmers' needs for cleaning and disinfecting equipment; cow comfort; adapting products to diverse regulatory regimes; and attaining the highest environmental standards.

Throughout the world barn disinfection, udder health and teat cleaning are growing in importance.

Despite that, the emphasis on what is most important differs, as do cleaning

and disinfection methods, says Bruno Van Den Bossche, DeLaval Product Manager, Product Portfolio Milk Quality & Animal Health EMEA.

For instance, in most parts of the world udder preparation before milking is often carried out with iodine-based disinfectants, while in Europe the focus is on teat cleaning.

Milk quality and food safety are high on the agenda in the US and Europe, but in the latter there are also concerns about chemical residues.

### FAST GROWING MARKETS

Meanwhile, in markets including Russia, Asia and South America, there is growing awareness of the need for cleaning and disinfection to maintain milk quality

and cow health as production rises steadily. The market for a wide range of products is "booming," says Van Den Bossche.

The focus on increased milk production demands a higher level of animal care to prevent diseases such as mastitis. The more milk a cow produces, the more stress she is under, and the more attention she needs.

"A 10,000-litre-a-year cow is like an elite sports star," adds Van Den Bossche. "She requires more care."

While greater emphasis is given to cleaning, erasing milk deposits is not always easy: they consist of minerals, proteins and fat, all of which require different means of removal.

Cleaning solutions must also be envi-

ronmentally friendly to help in the drive for sustainable food production. DeLaval is working in particular on products that reduce energy and water consumption, a growing focus for dairy farmers.

Elizabeth Sjödin Ögren and her husband Dan Ögren, of Brattens Lantbruk in northern Sweden, are two of those farmers. They have successfully increased the size of their herd from 20 to 75 since they took over from Dan's family in 1988.

In 2008 they installed a DeLaval voluntary milking system, VMS™. Elizabeth says that cleaning and disinfecting are critical to help maintain their cows' low somatic cell counts.

They use DeLaval's Prima (hydrogen peroxide-based teat dip for disinfection)

as well as DeLaval milk filters and Ultra (DeLaval's liquid alkaline detergent), which is designed to work with hard water. All are specially designed to work with VMS.

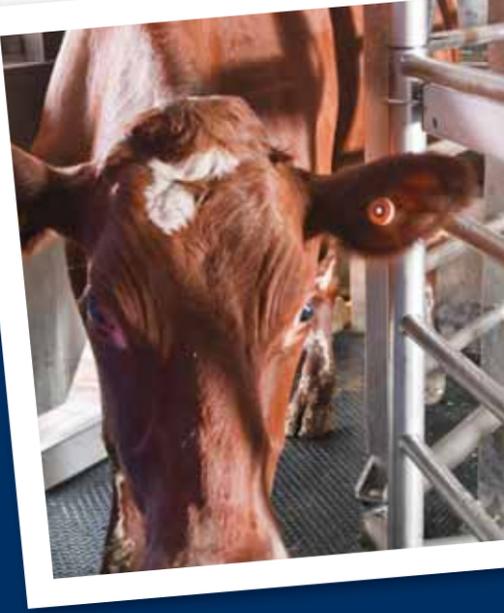
"Prima has proved a definite advantage, says Elizabeth, because the formula does not clog spraying equipment."

### CUSTOMERS KEY

Customers such as these play a key role in product development, providing feedback about what works and what they need. Local sales representatives also report regularly on successful products and solutions. Products can be easily distributed through DeLaval's Mobile Shop, which also gives farmers the chance to try new products in a convenient way.

With help from customers and distributors, DeLaval's top researcher-developers are working to improve food safety, biosecurity and animal health, while keeping sustainability in mind. The global R&D team continuously develops new technology leading to novel cleaning and disinfection products.

"What is really driving our research is the search for more sustainable products to reduce the impact on the environment," Van Den Bossche adds.



## ISO ID system helps improve food safety

Knowing where cows are, all of the time, and whether they are healthy, is an important factor in maintaining proper milk quality and food safety.

From January 2012, the DeLaval ISO identification system is available and can be integrated with the voluntary milking system, VMS™ to make tracking cows easier.

Increasingly, in many places, such as the European Union and Australia, tagging cows for identification, particularly with ISO tags, is a legal requirement. Tracking cows can improve food safety because the animals can be better

monitored for disease, helping to prevent the outbreak of an epidemic.

The DeLaval ISO system for VMS tracks cows through ear tags; each animal is fitted with tags that send out half duplex radio signals.

"With this system, farmers get an accurate and cost-effective way to identify their animals," says DeLaval VMS Business Development Manager Jouko Tiainen.

It took several years of testing at farms before DeLaval was sufficiently satisfied with the system's technology to release it commercially.

The ISO system is designed so that it can be installed in existing barns as well as new ones, and it can be used with DelPro herd management. At the same time, DeLaval will continue to support its other identification systems.



## Revolutionary AMR™ sees first commercial installations

On opposite sides of the globe, two dairy farms are the first in the world to use DeLaval's revolutionary automatic milking rotary, AMR™.

The first commercial AMR installation is in Tasmania, Australia. Three generations of the Dornauf family already had three dairy operations, milking more than 1,100 cows. Gala Farm, home of the new AMR, was their fourth. Automatic milking began in February 2012.

In Germany, AMR is being installed at the Laproma farm in Schlossvippach. Although the two farms are different, both the Dornaufs and Dietrich Kirchner, managing director of Laproma, see the advantages of AMR in milking large herds.

"Our goal is sustainability and growth in milk production," says Kirchner. Currently, 900 cows are milked at the farm and AMR will allow the herd to grow by another 720."

### BETTER MILK, BETTER SAFETY

The Dornaufs also plan to expand their herd, thanks to AMR. "We see this technology as being vital to the future of the dairy industry, and we are excited about being involved at the start," says Chris Dornauf.

Years in development, AMR is intended to provide three key benefits: profitability, farm management and flexibility. The teat preparation and spray

system is very precise, helping improve food safety and animal health, as well as yield better quality milk.

In Tasmania, the Dornaufs are already seeing improved milk quality. Better data management means cows with high somatic cell counts (SCC) can be identified and treated earlier. Customisation options and flexibility of the software also mean high-risk cows can be automatically isolated for observation and treatment. "SCC has been amazing so far, averaging between 25,000-45,000 consistently, and as low as 7,000 in one instance," says Nick Dornauf, Chris' son.

"We see this move to large-scale automated milking as a key milestone in our business development," adds Chris Dornauf. "We invested in the AMR because we wanted to manage our farm in a way that allows us to focus on the cows' performance rather than on the manual task of milking them."

With AMR, fewer people are involved in milking. Farm staff can spend time on more interesting tasks, which means they and farm families gain leisure time.

### SUSTAINABLE AND FLEXIBLE

Dietrich Kirchner sees AMR as an excellent blend of technology and flexibility. "Sustainability also means having the right personnel and we are not only a young team with a highly professional education but also have ambitions for

milk production," he says.

"In the new production unit we will be fully focused on animal health, environment, animal welfare and cow comfort, and of course we have an excellent working environment for our people."

In Tasmania, DeLaval is providing specialist training on the AMR as well as specialists who will further help staff. Training and dealer service are ongoing.

Gala Farm was used as a 'dry stock' farm until starting AMR construction in May 2011. As the Dornaufs run a traditional grassland farm system, special cow traffic facilities were developed for the AMR by FutureDairy and DeLaval farm system specialists.

### EASIER MILKING

"The farm layout has been designed to create a voluntary cow traffic system, so cows can come to the AMR for milking," explains Ron Mulder, System Specialist for AMR. Installation was carried out by the local DeLaval dealer and Australian technicians who had been extensively trained at test AMR installations in Australia and Sweden.

Similar training and specialist help will be provided in Germany. There, a new site will be developed, with a new barn and dairy centre.

For both the Gala Farm and Laproma, AMR means herds and profitability can be increased and food safety improved.



## Sustainable cleaning promotes food safety

Proper food processing is a cornerstone of food safety. At the same time, minimising the effect of chemicals on the environment is vital.

DeLaval Cleaning Solutions, based in the US, helps customers do both. The company also provides training on everything from good manufacturing prac-

tices to the chemistry of cleaning and the latest in food safety techniques, to ensure the highest standards.

Better, more efficient cleaning also means better quality food and milk products, which ensures more satisfied customers. DeLaval Cleaning Solutions also helps to meet increasingly strict

regulatory requirements, as well as saving time. Single step cleaners eliminate the need for multiple washings.

By constantly developing better cleaning products and methods, DeLaval Cleaning Solutions also contributes to sustainable food production. Water consumption is reduced, in some cases by thousands

of litres. Electricity consumption is also lower and production is improved. That means less environmental impact, while at the same time helping to cut costs and improve profitability.

That not only leads to better business, it means more sustainable business, and being able to do more with less.



# DELAVAL Modern farming

## Fewer antibiotics and healthier cows North of arctic circle

As a dairy farmer, Tor Arne Eilertsen wants to ensure his cows are healthy and produce the best quality milk possible.

As a veterinarian, he knows that catching mastitis early can make all the

difference. Thanks to careful use of DeLaval's voluntary milking system, VMS™, Feed First and Online Cell Counter (OCC), Eilertsen has been able to cut the quantity of antibiotics he needs to give his cows by 80-90 per cent.

"That not only helps ensure food safety", he says, "but also makes good economic sense."

Dairy farmers in Norway receive an agreed-on price for milk, based on the number of somatic cells it contains. Somatic cells indicate disease and if the cell count is above the approved level,

farmers are paid less. If levels are too high, they cannot sell it at all.

"That can create serious economic problems for farmers", he says. And he points out that a cow's production can be permanently affected if it has chronic problems and high cell counts, further damaging a farmer's business.

### QUALITY COUNTS

"Quality milk is extremely important," says Øyvind Erikstad, DeLaval Marketing Manager in Norway. "The farmer is able to keep cows much healthier by insisting on it."

Eilertsen is also very concerned about the development of bacteria that is resistant to antibiotics.

"That's a problem around the world," he says, "and something we really need to think about." Reducing the quantity of antibiotics given to his cows helps lower this risk.

Eilertsen took over the family farm in Harstad, far North of the Arctic Circle, from his parents and faces some unusual challenges.

With winter stretching from October to June, his herd has to be kept indoors for a large part of the year and organising cow traffic is a challenge. Ensuring that cows get sufficient, good-quality feed

so they can produce the best quality milk is another.

VMS and Feed First help with both, he says. In 2008 he built a new barn and installed VMS for milking 70-80 cows. VMS was chosen because DeLaval's flexible systems let him closely steer cow traffic and monitor milk production. He sees cow traffic as one of the most important considerations for any dairy farmer thinking about building a new barn.

### FINE TUNE PRODUCTION

"DeLaval is the only one who has this flexibility," he notes. "It's very interesting to watch how the cows are producing, how much milk and its quality. I can really control the production."

Feed First also helps him steer cow traffic and is another way to ensure cows receive the best feed and the right amount of it. The healthier the cow, the better the milk quality, and the less need there is for antibiotics.

By integrating VMS with Online Cell Counter he can quickly see cell counts when each cow is milked. If a high somatic cell count indicates mastitis, Eilertsen can milk more frequently. That makes it easier for the cow's immune system to fight off disease and so lower its somatic cell count more quickly.



He can also keep the cow's milk out of the tank, which means better milk quality and food safety.

In 2012, Eilertsen plans to upgrade his VMS software to DeLaval's DelPro, which he says will allow him to further fine-tune his cow traffic system.

### MORE LEISURE

Beyond the economic and food safety issues, Eilertsen appreciates the freedom VMS offers him and his family. He grew up with his parents working 12-hour days on the farm, seven days a week. Cows had to be milked by hand and there was little flexibility in the milking schedule.

But with VMS, he and his wife Bodil, also a veterinarian, can take their young children out and enjoy leisure time as a family.

"It's important to have a more normal life," he says. "VMS makes it easier to do that."



# Food safety improved with DeLaval InService™

When it comes to producing top quality milk and ensuring food safety, the right equipment is important. But it is equally important to make sure that equipment is kept in the best condition.

Well-maintained equipment not only means optimum milk production, it also helps ensure food safety by keeping herds healthy, with fewer cases of mastitis and lower somatic cell counts.

That is something Tom Eaves Jr. realised after he installed DeLaval's double-20 cascade parlour at his Double E Dairy in the US state of New York, where he has more than 650 cows.

## MAINTENANCE PAYS OFF

He sat down with DeLaval Scheduled Maintenance Technician Joe Filiatrault to work out a monthly InService maintenance plan. And, he says, it has paid off.

"It has helped us keep our parlour and equipment in tip-top shape and keep our dairy healthy and producing milk that allows us to be paid the top

premium at our dairy co-op," he says.

Nor is the maintenance plan static. Joe Filiatrault calls Tom Eaves Jr. every month to talk about what needs to be done at the Double E Dairy. InService allows maintenance to be customised for every farm.

## FLEXIBLE SYSTEM

The programme was developed in 2008 and is offered in a variety of countries throughout the world. The InService software automatically suggests which equipment components need to be replaced, and how often.

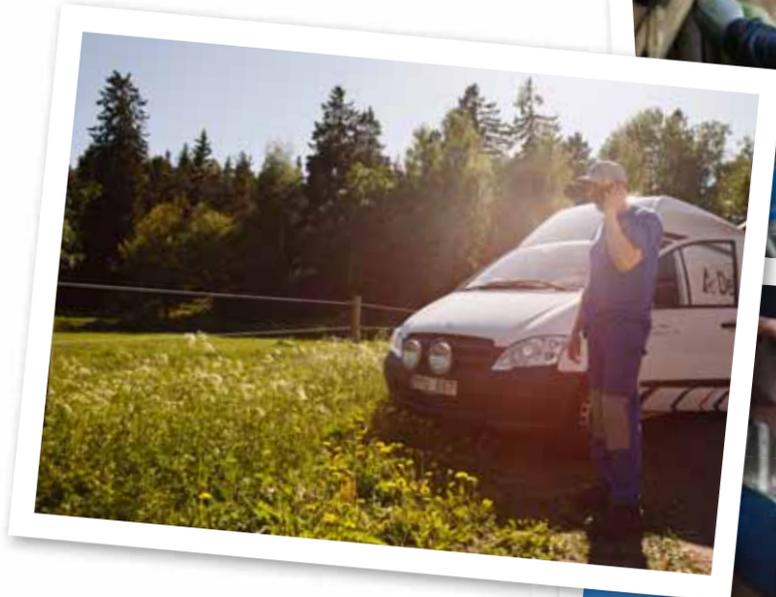
Farmers can choose which equipment they will be responsible for and which the DeLaval dealers will take care

of. InService even allows farmers to use the software for non-dairy equipment or equipment not supplied by DeLaval.

Regular preventative maintenance helps reduce the need for emergency service and unplanned stoppage of equipment. That means lower operating costs, and better production.

Well-functioning equipment also means cows are less stressed. The lower the stress, the better cows' immune systems function and that translates into better quality milk and higher yields.

"This program is not an expense. It has proven to be an investment," says Tom Eaves Jr.



## Silicone liner increase profitability on dairies

For Chilean dairies, saving time, increasing milk production and reducing disease are vital.

DeLaval's silicone liner helps the farm more than meet those goals.

Since January 2011 several dairies in Chile changed from rubber to silicone, and in all dairies saving in milking time, mastitis decrease and better cow behavior was observed.

Because the liner is very gentle with teats, cows are calmer during milking. As a result, milking goes faster even when milk production per cow increases.

Developing the liner took two years and the target was to create a silicone liner that provides excellent milking performance while being gentle to the teats, a goal which was more than met.

Besides Chile, the silicone liner is being used in Brazil, Argentina, Canada, Germany, Denmark, Poland and Russia.

For the dairies in Chile using the silicone liner, shorter milking times and less mastitis translates to better milk quality and food safety, saved time and better profitability.



# DELAVAL Sustainability

## New motors improve total farm sustainability

Energy costs are among the top environmental concerns of dairy farmers. DeLaval's new, energy-efficient motors and variable speed drives are examples of how innovative technology can help address this.

With farms growing larger and higher levels of mechanisation and automation, electricity consumption and costs are likely to increase. New technology and appropriate routines including proper maintenance can make an important difference.

DeLaval's new motors meet the highest environmental standards. They are based on European Commission requirements for energy efficiency in electric motors scheduled to take effect in 2017. These are stricter standards than the first new requirements of June 2011, and call for about 50 per cent more energy savings.

"We are pushing ahead by introducing these motors before the regulation requires," says Tord Ringenhal, DeLaval Assortment Manager, Conventional Milking Systems.



### DELAVAL'S EXTRA EFFORT

By meeting the EC standards early, DeLaval can help customers stay ahead of the curve on energy efficiency standards for electrical motors – for both automated and conventional milking systems.

With the new motors, a farmer using the DeLaval voluntary milking system, VMS™ 2012 for 150 milking sessions daily can cut energy consumption by about 8 per cent. VMS was already one of the most energy-efficient automated milking systems on the market in 2009, according to tests performed by the

Danish Agricultural Advisory Service. The new motors can be used to upgrade a wide range of vacuum and milk pumps, as well as VMS. While their efficiency is important, combining them with a frequency control means a vacuum pump can be operated only when needed. This can cut energy consumption by as much as 70 per cent. They are often recommended as one of the first investments a farmer can make to reduce energy consumption.

### SLASH ENERGY COSTS

The Innovation Centre for U.S. Dairy, which helps farmers reduce energy use, says variable drives can help cut vacuum energy costs in half. In New Zealand, one power utility working with dairy farm customers also recommends using variable drives for this purpose.

There are other valuable benefits. The frequency control adjusts the vacuum level automatically, ensuring the pump operates at the correct level at all times. This means better udder health and milk quality, contributing both to food safety and higher productivity.

### WHISPER QUIET

A further benefit is that the newly launched frequency control is almost silent. It also reduces earth leakage currents, making it possible to use standard residual current breakers. This can help improve cows' health and reduce stress, two im-

portant factors in milk production. And a quieter environment is also better for farmers.

In addition, the technology used reduces the electromagnetic disturbance in farms' electrical circuits, something that has prevented farmers using variable speed drives in the past despite their many benefits.

DeLaval plans to launch more products incorporating the noise-free frequency controls in different sizes, and to offer upgrade packages for existing equipment. These will be easy to install as no special cables are needed.

These motors and vacuum pumps are just some of the ways DeLaval helps cut energy costs. InService maintenance programmes help keep milk cooling tanks and other equipment in top condition, reducing energy use.

### MORE ENERGY SAVINGS

Using waste heat from milk production also saves energy. DeLaval's heat recovery system can recover about 60 per cent of the heat created when milk is cooled and convert it to hot water. For a farm with 200 cows, that can mean cutting electricity use by 11,200 kilowatt hours a year, with significant cost savings.

Reducing the amount of water used also contributes. DeLaval's Reduced Temperature Detergent means milking systems and bulk tanks can be properly

cleaned at lower temperatures, cutting energy costs by as much as 50 per cent. Milk quality is safeguarded and lower water temperatures may help extend the equipment's life.

### SUSTAINABLE BENEFITS

While cutting costs and profitability may be the drivers for energy efficiency, the result is a better environment, cow health and comfort - all important factors in improving the total sustainability of a dairy farm.

Says Tord Ringenhal: "We know many farmers want to be more environmentally friendly, but just about everybody wants to drive down costs, so we are happy we can now offer them solutions that will do both."

# World dairy summit focus on food security

How can dairy producers meet growing demand? This was one of the hottest topics at World Dairy Summit 2011.

Titled Sustainable Food Security, the event gathered 1,500 participants from 72 countries in Parma, at the heart of Italy's Po Valley. Delegates included producers, cooperatives, processors, input suppliers, distributors, non-governmental organisations and consumers.

And being Parma, the summit also included some fine cheese and ham.

New for 2011 was a roundtable discussion on the current important supply chain issues.

Among the main discussion topics were how to reduce food waste and increase production in an environmentally sustainable way.

The world's population is expected to grow beyond 9 billion by 2050. Based on current demand patterns, this could mean 70-80 per cent more milk will be needed. This will make significant demands on the entire dairy chain, not least producers who will increasingly face land constraints, environmental challenges and volatile markets for capital, labour and feed.

On the question of how to produce more milk to meet growing global demand, Mark Blake, Manager, CSR Reporting, DeLaval, told the roundtable: "One opportunity we have is to learn from highly resource-efficient dairy farmers. By applying best practice, and supporting them further with innovative services and technologies, we can produce more quality food with less negative impact. In developing markets, we can also build on the Dairy Hub concept to increase professionalism."

## Blooming brushes make royal bouquet

Sweden's Crown Princess Victoria is used to receiving bouquets. But the one she got from DeLaval for Earth Hour 2011 could well be a first, since instead of flowers the entire bouquet was made up of dish brushes.

The presentation was made while Princess Victoria and her husband, Prince Daniel, were touring Tumba Centre, near DeLaval headquarters in Sweden.

While the princess seemed rather surprised at first, she quickly appreciated the spirit of the gift and kept the bouquet with her throughout the visit.

Earth Hour is an annual event organised by the World Wildlife Fund (WWF) to promote environmental awareness by encouraging people to turn off their lights for an hour. More

than 30 DeLaval units around the world took part in 2011.

The top quality dish brushes offered by DeLaval can last for years, designed as they are to withstand the demands of a dairy farm's milk room – or a royal court kitchen.



PHOTOS: Tetra Pak ImageBank, DeLaval photo archive, Sidel photo archive, Mats Persson, Malmö, Sweden, Dotti Fotografia, Modena, Italy, Getty Images.

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