ENGINE OF THE ECONOMY

THE DUTCH DAIRY SECTOR’S STRENGTHS AND THE CHALLENGES AHEAD
The Netherlands is dairy country. The Dutch love their milk, cheese and yogurt, the cattle grazing in the fields. For most of us, though, the economy is not what first comes to mind when we think of dairy. The Dutch dairy sector, however, is an important part of the Dutch economy and its international trade. In the growing global market, Dutch dairy is renowned for quality products and innovations – but here in the Netherlands, the economic side of Dutch dairy has largely gone unrecognized.

Dairy is a strong economic sector. Dairy farming and the dairy industry mean tens of thousands of jobs and billions in revenue. Even in times of economic crisis, the sector grows and companies invest. Across the sector, barn builders, animal feed companies, breeding farms, wholesale-sellers, business services and many other companies are thriving. And together, they make up a strong dairy cluster.

Dairy’s importance for the Dutch economy is underscored by the large international dairy trade and the potential its future holds. The dairy sector accounts for no less than 8% of the Dutch trade surplus, significantly contributing to the earnings capacity of the Netherlands. An economy, after all, hinges on those sectors which are exposed to the EU regulated prices. This fluctuation is due to a number of factors, including economic developments, weather, currency rates, reserves, and capacity. Volatility is here to stay, and represents a significant challenge for the dairy sector. Those companies which can handle the volatility will be successful in the long term. They will rely on both cost efficiency as well as high added value: excellent milk which is turned into high-quality, reliable and delicious dairy products in a sustainable and efficient way.

Rising price volatility is the next challenge: liquidity planning, building up buffers, and using these if necessary.

The Dutch dairy sector wants to be competitive, but it also wants to be sustainable. Sustainability is a social and economic necessity which demands cooperation, so the dairy sector is coming together. The sector’s shared agenda is making it more transparent and accountable. Though important progress has been made, this transparency has made it clear that there is still work to be done to make the sector more sustainable.

Dutch dairy is a quality product that is part of a sustainable and healthy diet. Its richness in nutrients, the relatively low calorie content and the relatively affordable price make it a staple. Milk and dairy are part of a balanced, healthy, sustainable, affordable and delicious diet. Players in the dairy chain are continuously improving product quality. The international reputation of the Dutch dairy sector’s quality and entrepreneurship are important competitive advantages in serving the new middleclass in emerging countries.

The Dutch dairy sector is an excellent position to seize these international opportunities and to face the challenges that come with the more open market. Its climate, soil and logistics give the Netherlands, as a production center, a natural competitive edge. Entrepreneurship and innovation are at the heart of this competitiveness. The Dutch dairy industry and dairy farms are seizing the opportunities that have come with the elimination of the milk quota – within applicable environmental requirements, of course. Companies are investing heavily in R&D, and several of the world’s most leading dairy research institutes can be found in the Netherlands. With the close cooperation between companies and these research institutes, and with dairy companies putting their knowledge and technologies on the market, agro & food in the Netherlands is deservedly one of the country’s “top sectors”.

The Dutch dairy sector wants to be competitive, but it also wants to be sustainable. Sustainability is a social and economic necessity which demands cooperation, so the dairy sector is coming together. The sector’s shared agenda is making it more transparent and accountable. Though important progress has been made, this transparency has made it clear that there is still work to be done to make the sector more sustainable.

Dutch dairy is a quality product that is part of a sustainable and healthy diet. Its richness in nutrients, the relatively low calorie content and the relatively affordable price make it a staple. Milk and dairy are part of a balanced, healthy, sustainable, affordable and delicious diet. Players in the dairy chain are continuously improving product quality. The international reputation of the Dutch dairy sector’s quality and entrepreneurship are important competitive advantages in serving the new middleclass in emerging countries.

The strong position, its economic potential, the close ties to the Netherlands and its traditions of entrepreneurship, cooperation and innovation give the dairy sector enduring importance for the Dutch diet and culture, the landscape and the economy: an engine of the economy. Or, as State Secretary Dijkhoff of Economic Affairs in the Dutch House of Representatives said, “We can all see that the Netherlands is a leading dairy country. We see this not only in the levels of entrepreneurial expertise and technical and economic performance, but also in the high quality of our dairy industry.”
**A ROBUST ECONOMIC SECTOR**

**Production value [EUR bn]**

<table>
<thead>
<tr>
<th>Year</th>
<th>Dairy farming</th>
<th>Dairy industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>3.5</td>
<td>4.9</td>
</tr>
<tr>
<td>2010</td>
<td>5.9</td>
<td>5.0</td>
</tr>
<tr>
<td>2014</td>
<td>7.0</td>
<td>6.4</td>
</tr>
</tbody>
</table>

**Employment [1000 fulltime jobs]**

<table>
<thead>
<tr>
<th>Year</th>
<th>Dairy farming</th>
<th>Dairy industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>48.3</td>
<td>44.7</td>
</tr>
<tr>
<td>2010</td>
<td>44.7</td>
<td>44.7</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**International benchmark**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Per capita revenue (EUR) in 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ireland</td>
<td>48.3</td>
</tr>
<tr>
<td>2</td>
<td>Netherlands</td>
<td>44.7</td>
</tr>
<tr>
<td>3</td>
<td>Denmark</td>
<td>44.7</td>
</tr>
<tr>
<td>4</td>
<td>France</td>
<td>44.7</td>
</tr>
<tr>
<td>5</td>
<td>Belgium</td>
<td>44.7</td>
</tr>
<tr>
<td>6</td>
<td>Germany</td>
<td>44.7</td>
</tr>
<tr>
<td>7</td>
<td>Italy</td>
<td>44.7</td>
</tr>
<tr>
<td>8</td>
<td>Spain</td>
<td>44.7</td>
</tr>
<tr>
<td>9</td>
<td>UK</td>
<td>44.7</td>
</tr>
</tbody>
</table>

**A STRONG CLUSTER**

Illustration of the cluster

**Dairy sector**

- 18,000 dairy farms
- 1.6 million cows on 18 thousand dairy farms in the Netherlands...
- produce 12.7 billion kilos of milk
- 23 companies with 52 factories in the Netherlands process 98% of this milk into dairy products and ingredients

**Dairy farming**

- Livestock feed and health
- Equipment/stalls
- Breeding
- Research institutes
- Business and financial services
- Wholesalers, retailers and food services
- International benchmark

**Dairy industry**

- Cheese
- Milk powder
- Pasteurized milk and products (incl. cream)
- Condensed milk
- Butter
- Other

**STRONG ECONOMIC SECTOR**

**DAIRY COUNTRY**

The Netherlands and dairy are inseparable. Dairy is deeply embedded in our diet, our hearts, and our culture. On average, the Dutch drink two glasses of milk a day. Cows out at pasture dominate the landscape - a nostalgic sight for Dutch who live abroad. Everyone remembers the Joris Drieprinter, “milk, the white engine”, and “cheese cube” commercials. And around the world, the Netherlands is symbolized by images of cheese and milkmaids in traditional dress.

Behind our diet and our culture stands a modern, innovative and entrepreneurial economic sector of dairy farming and industry: 18,000 farms and 1.6 million cows produce 12.7 billion kilos of milk per year. Two glasses of milk a day for nearly 100 million people. The Netherlands accounts for 8% of European milk production, fifth after Germany, the United Kingdom, France and Poland. 28 companies and 52 factories in the Netherlands process 98% of raw milk into dairy products like cheese, butter, pasteurized milk and milk powder. And the sector does even more with milk. From whey, a byproduct of cheese, high-grade proteins are extracted for products like baby food and sports drinks.

**A ROBUST ECONOMIC SECTOR**

In 2014, Dutch dairy farming and the dairy industry had a production value of EUR 8 billion and EUR 7 billion, respectively. The sector’s size is about 1/6 of the total Dutch food industry and, for comparison, is larger than the country’s electrical appliance, pharmaceutical or automotive industries. In terms of revenue per capita, the Netherlands is second in the EU. The sector’s growth is robust. It is larger than it was the day before the economic crisis began.

The Dutch dairy sector is in relatively excellent condition: the country’s climate and soil are good for dairy cows and for the grass they eat, the Netherlands is strategically located in Europe, with good access to potential markets, and the logistics infrastructure here is first-rate. For the Netherlands, dairy is a logical choice.

The dairy sector also means 45,000 fulltime jobs. Automation has brought the numbers down somewhat, but on the other hand has improved the sector’s competitiveness. Productivity is high. Milk production per cow is in the global top, and through gradual expansions Dutch dairy farms are realizing increasingly higher and more efficient yields. And they do this with enormous care for the well-being of livestock, and in accordance with environmental standards. Most dairy farmers have organized into cooperatives through which they sell their milk to the cooperative-owned milk processing company. The cooperative gives farmers security, market power and an investment in future generations. For milk processing companies, the cooperative means a shareholder which can lead them in the long term. But the dairy sector also has private businesses, bringing a balance to the sector that makes it strong.

Of the world’s five largest companies in the dairy industry, one is Dutch. FrieslanaCampina, a cooperative of 15,000 member dairy farms in the Netherlands and abroad. And two of the five have research and production locations in the Netherlands, Danone and Nestlé respectively. The Dutch dairy industry also has many other unique companies, like COND Kaasmakers from Beemster, now over 100 years old. De Graaffbroek, a cooperative of 150 farmers with a cheese factory in Bleskensgraaf. C2 Rouxveen, experts in specialty cheeses and which even offers cheeses à la carte. DOC Kaas, a cooperative of 1,200 dairy farms in Hoogeveen, Bel Leerammer, the maker of Leerammer cheese and part of the French Bel Group. Vreugdenhil Dairy Foods, exporting milk powders and ingredients around the world. Ausnutria Hyproca, which has conquered the world with baby food. The Danish Arla Foods, which produces and delivers fresh dairy products in the Netherlands. Hochwald, one of the largest German dairy companies, with a production location in Bolsward for condensed milk. Yakult from Japan, producing its well-known drinks in the Netherlands for the European market. A-were Food Group, a dairy services provider which has also recently entered production, its first cheese was made in its brand new factory in December 2014. And Henri Willig, visited by nearly one million tourists a year who come to learn about the cheese maker’s craft.

**A STRONG CLUSTER**

The dairy sector is part of a larger dairy cluster. Wholesalers buy dairy products which retailers and food-service companies sell to consumers. There are companies that supply special semen for breeding new cattle with higher yields. Other companies supply animal feed, products to make or keep livestock healthy, the newest barns and machinery, financial services, education, knowledge and technology. The Dutch dairy cluster is a cluster of winners, known for its strong, international players which contribute considerably to the Dutch economy.
### Countless Exports, Countless Future Opportunities

**Strong Balance of Trade**

The Netherlands is traditionally a trading nation, and international entrepreneurship is one of the pillars on which the Dutch dairy sector is built. In 2014, the sector exported EUR 7 billion worth of products, around half of which were cheese. Export value grew by an average 7% per year between 2005 and 2014 – despite the economic crisis. Imports are much smaller – in 2014, the Dutch dairy sector saw a trade surplus of EUR 4.3 billion. The dairy sector is thus making a significant contribution to the earnings capacity of the Netherlands. An economy, after all, hinges on those sectors which are exposed to and successful on the international playing field. Those are the sectors that determine the prosperity of a nation; in the Netherlands, dairy is certainly such a sector.

**Trading with the Entire World**

The Dutch dairy sector trades with more than 150 countries around the world. Measured in product value, 71% of these exports go throughout Europe. 29% is traded outside of Europe, 20% of which is made with milk produced in the Netherlands. The Netherlands is thus the largest exporter of dairy products from the inside to the outside of the EU. And this international export is growing quickly.

At the national level, our European neighbors are our most important trading partners. We export mostly to Germany: EUR 1.8 billion. Belgium and France follow, together accounting for EUR 1.6 billion of Dutch exports. Export to these countries has risen sharply in recent years, but growth is even larger for export to several emerging countries outside of Europe. Exports to China grew an average 25% per year between 2005 and 2014, reaching EUR 260 million last year. The Dutch dairy sector not only exports dairy products, but also expertise, technology and dairy farmers. FrieslandCampina’s Dairy Development Programme is one such example, providing knowledge and people to support the development of dairy farms in Asia and Africa. Experts help local dairy farmers increase their yields and assist them in the process of joining the international quality system. In 2014, FrieslandCampina and Huishan Dairy started a joint venture to locally produce, sell and distribute baby food in China.

Given growth in demand for dairy products, particularly from emerging countries in Asia, South America and Africa, growing prosperity means a shift in eating habits, from grains to more expensive animal products like dairy. Urbanization is also giving more people access to grocery stores, where they can buy fresh dairy, and refrigerators in which to store them. Globalization is giving more and more people a taste for dairy.

The OECD and FAO expect that producers in emerging countries in Asia and Africa will not be able to keep up with the growing local demand for milk powder and ingredients. They estimate that the shortage of milk powder in Asia and Africa (demand minus local production) will reach 3,600 kilotons (kt) by 2023 – 18 times today’s milk powder production in the Netherlands. Cheese shortages in Asia and Africa are forecasted to rise by 9% by 2024 on average for the coming 10 years. These shortages will have to be supplemented by countries elsewhere. This is a big opportunity for the Netherlands.

Internationally, there is also a great need for Dutch expertise. According to the FAO, by 2050 we will need 60% more food than we do now. The agricultural sector, including dairy farming, uses scarce natural resources. The answer to the growing demand for dairy and other food cannot be found in using more agricultural land – in many areas, that isn’t even possible. Food security means a future where food is produced more efficiently: doing more with less. For many countries, food security is a major challenge. A great deal of the growth in consumption – of fresh products – must be met by local production, where the growth itself is taking place. Here lies opportunities to create value by exporting Dutch knowledge, technology and projects to help achieve higher productivity levels and a more sustainable world. The Netherlands has the right climate and position for efficient and sustainable dairy production, and a wealth of knowledge in this field. This comes with not only an opportunity to export products and expertise, but also a great social responsibility to contribute to global security: from helping farmers in other countries learn to produce more efficiently, to producing and processing enough dairy in the Netherlands that we can also feed other countries.
**GOOD BUSINESS**

A lot has changed in the dairy sector in the last decade. Before 2007, it was heavily regulated in Europe, which counteracted global market volatility and ensured stable EU milk and dairy prices. In 2007, the export subsidy in the EU was phased out and support for dairy farms in the EU was uncoordinated from production – in a period when the global demand for dairy was growing strongly. Today, Dutch and EU milk and dairy prices are largely determined by international demand and supply, and by milk prices in other international milk markets. In April 2015, additional deregulations in the EU will see the elimination of the milk quota. A freer market means higher price fluctuations. After 2007, fluctuations in EU milk prices were 85% higher than in the previous period; since then, fluctuations have been more similar to those long familiar in countries like the US.

**CONTINUED PRICE VOLATILITY**

Volatility in milk prices is driven by a mix of factors behind global demand and supply. The global economic crisis was one of the reasons for the drop in demand and thus milk prices in 2009. But demand is also influenced by exchange rates, regulations, the buildup and depletions of reserves, and by events like the Chinese melamine scandal that pushed up prices in 2010 and the sanctions against Russia in the second half of 2014 which put sales and thus prices under pressure.

The causes behind price volatility also lie on the supply side. Milk production depends on the weather, especially in areas where cows are primarily outside and feed on grass, such as in New Zealand. Droughts in New Zealand and floods in Argentina led to around 3 million tons less milk production in 2007/2008, which pushed up milk prices. Double-digit percent fluctuations in fixed prices – a major cost factor in dairy farming – have also contributed to the peaks and valleys in milk prices in recent years. Entrepreneurs respond to changes in prices: at high prices, they increase capacity (more cows, increased use of feed concentrates), at low prices, they reduce capacity, and many companies cease operations. At the dairy farm, however, capacity adjustments cannot be made from one day to the next, where production changes could be aligned with the milk price. This further intensifies price fluctuations. After 2007, fluctuations in EU milk prices were 85% higher than in the previous period; since then, fluctuations have been more similar to those long familiar in countries like the US.

**MANAGING VOLATILITY**

Volatility is a major challenge. Dairy farms which can handle the volatility will be successful in the long run. Managing volatility demands a robust business, entrepreneurship, and the buildup of buffers in better times. In the coming years, this is what many dairy farms will have to do.

The Dutch dairy industry, with its vast supplies of entrepreneurship, is in a good position to handle the price volatility. The product mix is diversified relatively well. In the Netherlands, cheese makes up a relatively large share in the product mix, and cheese is one of the most stable products in terms of price. By adapting the product mix to global demand and supply, Dutch dairy entrepreneurs can stay responsive to reality and can counteract the effects of price volatility. Flexibility is an entrepreneurial balance. It requires building up costly production facilities that make rapid adjustments possible. This also holds true for the diversification of exports to various countries and regions across the world. Dutch dairy entrepreneurs travel to all corners of the world and trade where circumstances are favorable. This way, they create flexibility. Entrepreneurship remains essential here; it is a challenge for the sector to continue to do business, to dare to do business, with the greater risks that come with increased price volatility.

One drawback of the Dutch sector is the relatively high cost price of milk. Production materials and labor costs are high, and continual production increases make cost savings a challenge. Costs and profits from milk are often closely tied; in times of dropping prices this can lead to low or even negative margins for dairy farms. The influence of price volatility will gradually push the sector to consolidate smaller companies and companies whose operations are not as strong will stop, the larger and stronger companies will succeed. Margins will be a deciding factor. In the future, Dutch companies must be cost efficient but above all offer high added value: excellent milk from which high quality, reliable and delicious dairy products can be made in a sustainable and efficient way.

**GOOD BUSINESS**

**Export product mix [share of export value]**

- Milk, cream and pasteurized milk products
- Condensed milk
- Butter
- Whey and ingredients*
- Cheese
- Whole milk powder
- Low-fat milk powder

*95% of US-produced whey is exported
Pillars of Dutch Competitiveness

Location
- Climate and soil extremely suited for dairy farming
- A large and stable market in Europe
- Strong logistic infrastructure with global access

Innovative entrepreneurship
- Internationally focused, long-standing expert experience
- Readiness to invest and innovate
- Good access to capital
- Unique knowledge base and application
- International recognition for high productivity, quality and safety

Cooperation
- Readiness to cooperate among sector, cluster, and "golden triangle" players
- Strong self-organizing capacity
- Cooperative model
- Education and research developed in the "golden triangle"

Room for Growth

Milk production expansions

Production by quota year (m tons)

- 11.6
- 11.7
- 11.7
- 12.3

Milk processing expansions

Dairy farm density

- Low
- High

New factories/expansions

EUR 2 billion in investments in new factories and new capacity in 2013-2015, including:
- CONO in Beemster
- Vreugdenhil in Gorinchem
- A-waes and Fonterra in Heerenveen
- FrieslandCampina, various projects
- Ausnutria Hyproca in Heerenveen
- Bat Leenhammer in Dalfsen
- DOC Kaas, CZ Rouveen, Hochwald, Henri Willig and De Graafstrom
- Extensions of existing locations

R&D growth

- FrieslandCampina center for innovation at WUR campus
- Danone center for innovation at Utrecht Science Park
- R&D center of Chinese dairy company Yili at Food Valley

Driven by entrepreneurship and innovation

The Dutch dairy sector is in a unique position to seize the international opportunities and to face the challenges of a free market. The Dutch dairy sector has a natural edge thanks to the country's climate, soil, strategic position in Europe, logistic infrastructure and the knowledge and education available. And Europe, where people love dairy, is a stable home market. International entrepreneurship is in the country’s genes. As early as the 1920s, Sietze Hepkema, director of the Coöperatieve Condensfabriek Friesland, traveled to North Africa and Asia with cans of "Babé Hollandais" and "Frisian Flag", which he used to open new markets and lay the groundwork for FrieslandCampina's strong international position today. Above all, the Netherlands is known internationally for its quality and safety – an enormous competitive advantage in serving the new middleclass in emerging countries.

Good access to capital means room for investment. With Rabobank, the Dutch dairy chain has a bank with a wealth of sector knowledge, a bank which loaned almost EUR 12 billion to Dutch dairy farms in 2013, almost EUR 600 million more than the previous year. Rabobank is an integral part of the chain, and participates in initiatives to strengthen the chain's sustainability and more. Other financial players like ABN AMRO and ING are also partners in the dairy chain. Cooperation lies at the foundations of the Netherlands' competitive power. The country’s strengths have been coming together in the cooperative model for a hundred years. Cooperation in the golden triangle of business, research institutes and government has realized the main conditions for success, which include a strong foundation of knowledge and excellent education; it is a continual challenge to keep this triangle in motion.

RoboVit uses the quota in the EU to produce milk. In April 2015, this milk quota will be eliminated, leaving the Dutch dairy sector a natural edge. The Dutch dairy sector has the room to grow, and it also offers the Netherlands opportunities to seize the international opportunities and to face the challenges of a free market. The Dutch dairy sector has a natural edge thanks to the country’s climate, soil, strategic position in Europe, logistic infrastructure and the knowledge and education available. And Europe, where people love dairy, is a stable home market. International entrepreneurship is in the country’s genes. As early as the 1920s, Sietze Hepkema, director of the Coöperatieve Condensfabriek Friesland, traveled to North Africa and Asia with cans of "Babé Hollandais" and "Frisian Flag", which he used to open new markets and lay the groundwork for FrieslandCampina's strong international position today. Above all, the Netherlands is known internationally for its quality and safety – an enormous competitive advantage in serving the new middleclass in emerging countries.

The Dutch dairy sector is in an excellent position to seize the international opportunities and to face the challenges of a free market. The Dutch dairy sector has a natural edge thanks to the country’s climate, soil, strategic position in Europe, logistic infrastructure and the knowledge and education available. And Europe, where people love dairy, is a stable home market. International entrepreneurship is in the country’s genes. As early as the 1920s, Sietze Hepkema, director of the Coöperatieve Condensfabriek Friesland, traveled to North Africa and Asia with cans of "Babé Hollandais" and "Frisian Flag", which he used to open new markets and lay the groundwork for FrieslandCampina's strong international position today. Above all, the Netherlands is known internationally for its quality and safety – an enormous competitive advantage in serving the new middleclass in emerging countries.

Good access to capital means room for investment. With Rabobank, the Dutch dairy chain has a bank with a wealth of sector knowledge, a bank which loaned almost EUR 12 billion to Dutch dairy farms in 2013, almost EUR 600 million more than the previous year. Rabobank is an integral part of the chain, and participates in initiatives to strengthen the chain’s sustainability and more. Other financial players like ABN AMRO and ING are also partners in the dairy chain. Cooperation lies at the foundations of the Netherlands’ competitive power. The country’s strengths have been coming together in the cooperative model for a hundred years. Cooperation in the golden triangle of business, research institutes and government has realized the main conditions for success, which include a strong foundation of knowledge and excellent education; it is a continual challenge to keep this triangle in motion.

Driven by innovation

The future of the dairy sector stands or falls on innovation. Innovation to stay internationally competitive, to improve production processes, to meet growing demand, to make dairy cheaper, to ensure quality, to increase sustainability, and to capitalize on consumer health, safety, diet and convenience preferences.

The Dutch dairy sector and the dairy cluster as a whole are innovating and making progress. In innovative barn concepts like the koolstroom (literally: "garden for cows"), the well-being of the cow, the farmer, and the environment are central. The well-being and the milk yield of individual cows are measured and improved by using ICT, sensors and "big data". And Dutch companies are developing new varieties of dairy products specifically aimed at the demands of foreign consumers.

The Dutch dairy sector can build on a strong foundation of knowledge. With Wageningen University and Research Centre (WUR), it has a world leader in dairy expertise right here at home, along with strong players like Utrecht University and NZO Food research. The cooperation between research institutes and companies in the sector is also unique. On campuses like the Wageningen Business and Science Park, the Utrecht Science Park and the Dairy Campus in Leeuwarden, R&D talent from companies and research institutes comes into contact on a daily basis; this also happens at the national public-private research initiatives like Top Institute Food & Nutrition. Near Leeuwarden, a new campus is being build just for the dairy sector: the Dairy Campus. Companies and research institutes are participating in national research initiatives like the Top Institute Food & Nutrition, which for more than 10 years has organized public-private research partnerships. The Dutch dairy sector invests heavily in R&D. In 2013, FrieslandCampina opened a new center for innovation in Wageningen where 350 researchers work in state-of-the-art labs with the latest equipment. In that same year, Danone opened a center for innovation at the Utrecht Science Park, where it concentrated a large portion of its international R&D. The dairy sector also invests in attracting and educating talent, talent which will develop the innovations in the future. For example, the Dairy Academy was recently launched. This initiative, a cooperation of dozens of companies and educational institutes, offers courses on dairy to vocational (MBO) students and employees of Dutch dairy companies.

World’s top 10 research institutes in terms of publications on dairy (# of publications between 2009 and 2013)

- French National Institute for Agricultural Research
- Wageningen University and Research Centre
- Teagasc
- Cornell University
- University of Guelph
- University of Wisconsin-Madison
- Swedish University of Agricultural Sciences
- University College Dublin
- University of Sao Paulo
- Utrecht University (16th place)
3. PRESERVATION OF GRAZING

Goal: protected grazing

Target level (% of dairy farms)

- Grazing: Min. 120 days for 6 hours
- Grazing: Other type
- No grazing

Example goal: Using responsible soy

(% of use)

- Regular
- Responsible

4. PROTECTING BIODIVERSITY AND THE ENVIRONMENT

Example goal: responsible antibiotic use

(Animal defined daily dose by year (2011, 2012)) (Animal defined daily dose national average (2013)) (comparable)

2005 2012 2013 2020 sector target

2.6 2.5 2.4 1.9

2011 2012 2013

6.0 4.2 4.1

-30%

29% 26% 29% 100%

2011 2012 2013 2015

COMPETITIVE – AND SUSTAINABLE

COMPETITIVENESS COMES FROM BEING RESPONSIBLE

Dairy production takes up space and energy. It produces milk, but it also produces greenhouse gases, phosphate and ammonia. The Dutch dairy sector is proactive in its commitment to reducing its impact on livestock, nature and the environment. Dairy farmers are largely family companies with close ties to animals and nature. They want to pass their farms on to their children, so they are deeply motivated to conserve resources. In a small country, doing more with less is also a prerequisite to seizing international market opportunities, and it helps maintain public support for the sector and for its growth. Dairy companies also reward farmers for their achievements towards sustainability via a surcharge on the price of milk. The sector initiative Sustainable Dairy Chain (Duurzame Zuivelketen) brings dairy farming and industry together to address concrete goals for sustainability. The research institute LEI monitors the initiative and reports yearly on its progress - so far, its work has produced a baseline and two annual reports. The dairy sector is thus transparent about and accountable for its sustainability. This not only makes the sector’s successes visible, but it also shows where the sector should intensify its efforts. The Sustainable Dairy Chain initiative focuses on four themes:

1. DEVELOPMENT TOWARDS CLIMATE NEUTRALITY

Through efficient production processes, the dairy industry had reduced its energy-use in the dairy chain in 2013 by 5% compared to 2012. The sector aims for an average 2% reduction per year between 2005 and 2020. The sector is also committed to generating its own sustainable energy - 16% of the energy it needs by 2020 - and is making progress here. In 2013, 28% of dairy farms had an installation to recover heat from the milk cooling process, compared to 16% in 2010. Between 1990 and 2011, the entire dairy chain reduced its greenhouse gas emissions by around 20%. The target for 2020 is climate neutral growth relative to 2011. Due to production increases, however, greenhouse gas emissions in 2013 were 6% higher than they were in 2011. Improvement in this area remains a struggle. In the coming years, the sector will be working hard to reach its goals.

2. CONTINUOUS IMPROVEMENTS IN LIVESTOCK HEALTH AND WELL-BEING

The ethical treatment of animals is imperative. The sector has extensively - and successfully - pushed for more responsible antibiotic use in dairy farming in order to fight the build-up of resistance: veterinarians and dairy farmers make a company treatment plan together, and the dairy industry only accepts milk from companies with such a plan. Thanks to this, a sharp decrease in antibiotic use was realized in 2012. In 2013, the use of medicines crucial for human health was brought down to nearly zero. Another goal is to extend the average lifetime of cows. However, cow lifetime has stabilized in recent years, presenting a challenge for the future.

3. PRESERVATION OF GRAZING

Cattle grazing typifies the Dutch landscape and is vital for a cow’s well-being, but it is a practice that has declined gradually over the years. In the Grazing Agreement, 65 parties have committed to keeping grazing at least as it was in 2012 levels: grazing at 81.2% of companies. However, the number of companies employing grazing in 2014 was 77.8%. The Dutch dairy sector is taking extra measures to achieve this target. As of 2015 a number of dairy companies have increased financial support to dairy farms which employ grazing. The sector is also, for example, conducting research into the application of grazing in combination with systems like robotic milking.

4. PROTECTING BIODIVERSITY AND THE ENVIRONMENT

The sector is committed to development according to environmental standards. To maintain and improve soil and water quality, the sector aims to keep phosphate emissions at dairy farms under the 2002 levels. In 2013, levels were 5% below, but had increased compared to 2012. Improving phosphate efficiency is a condition for the sector’s continued growth. Cows also emit ammonia, which causes the acidification of soil. Over the past 20 years, ammonia emissions from dairy farming have been lowered by a factor of three. The sector is working towards further reductions of 5 million kg by 2020 compared to 2011. In 2013, ammonia emissions were 0.9 million kg lower than they were in 2011.

Dairy farming takes up 60% of the country’s farmland. The sector is employing land conservation to strengthen biodiversity. 53% of dairy farmers are actively dedicated to the protection of nature and the landscape, 37% engage in species management, for example to protect the nests of grassland birds, and 28% look after landscape features such as tree lines and dikes. The sector is also committed to sustainability outside of the Netherlands. By purchasing sustainable soy from developing countries for animal feed, the sector is combating deforestation, environmental problems, poor working conditions and hunger. On January 1, 2015, it had reached its goal: all soy used by Dutch dairy farms is now produced in a responsible way.
GUARANTEEING QUALITY AND SAFETY

Safeguards concerning the cow, including antibiotics, animal feed and cleaning supplies.
Dutch dairy farmers are innovative entrepreneurs. History proves this. They will find their way in the quota-less age #milk2030

Joost van der Hoogte, Bel Leerdammer
In 20 years, energy-neutral cheese production will no longer be a question – it will be a sine qua non #milk2030

Bas Padberg, Arla Foods Netherlands
Together we can reduce milk wastage with next-generation fresh milk that is still good a week after opening #milk2030

Eric Hulst, CONO Kaasmakers
We should be more proud of what we have done in the field of dairy in the Netherlands! #milk2030

Atze Schaap, FrieslandCampina
For China, grazing in the Netherlands is like the star on a Mercedes. It drives fine without, but it’s not real #milk2030

Bart van der Meer, Ausnutria Hyproca
A passion for dairy is at the heart of our entrepreneurship, and the same is true for the Dutch economy #milk2030

Henk van Bochove, De Graafstroom
Working in the dairy field is never boring #milk2030

Arnold van den Breemer, dairy farmer from Soest
Dutch dairy farmers are innovative entrepreneurs. History proves this. They will find their way in the quota-less age #milk2030

BIBLIOGRAPHY

Engine of the economy
Dutch House of Representatives Proceedings, 2014-2015, 23 [State Secretary Dijksma quote]

Strong economic sector
DairyNL, [production; production value (dairy farming based on milk production and price); industry employment; ranking by company size]
CBS agricultural census, edited by LEI [dairy farming employment]
EUROSTAT, DairyNL [international benchmark of sector size]

Countless exports, countless future opportunities
DairyNL, [trade data; EU, US and Israel productivity, milk powder production in the Netherlands]
IDF, World Dairy Situation Report 2014 [Russia, India and China productivity]
United Nations [global population]
FAOSTAT [milk consumption]
IMF [gross domestic product]
OECD-FAO Agricultural Outlook database [gap between demand and production over time]

Managing volatility
LTO [milk prices]
FAOSTAT [product mix, 2011]

Driven by entrepreneurship and innovation
Company websites [examples of and investments in innovation]
Rabobank [industry loans]
Thomson Reuters Web of Science, topic search on “dairy” [research institute rankings]

Competitive - and sustainable
Sustainable Dairy Chain: LEI sector reports

Quality product in a sustainable and healthy diet
RIVM, Dutch food consumption survey 2007-2010 [share of dairy; consumption of milk and milk products]
Dutch Nutrition Center [recommended daily intake; product nutritional data]
Supermarket websites [product prices - raw estimates]
LiveWell for LIFE, A balance of healthy and sustainable food choices for France, Spain and Sweden [sustainable diet and impact on food production]
Dutch Dairy Association [quality]

All 2014 figures are estimates