Sustainable growth together

CONO CSR REPORT 2023-2024

CONO Kaasmakers is a cooperative of dairy farmers and cheese makers. We have been producing cheese in a traditional fashion for over 120 years. We produce cheese with consideration and respect for people, animals and the environment. That is why we pay our members a fair milk price, which gives them the opportunity for sustainable dairy farming.

Our Caring Dairy sustainability program focuses on making dairy farming more sustainable; from biodiversity and animal welfare to farm shops and (care) farms. Through Caring Dairy, we encourage and reward our dairy farmers to collaborate throughout the chain to reduce the CO_2 footprint of cheese.

CONO is a leader in corporate social responsibility and our goal is to remain so. CONO carefully anticipates the European regulations for sustainability reporting: the CSRD (Corporate Sustainability Reporting Directive).

One important part of the CSRD is the so-called ‘double materiality’. This requires companies to identify how their CO_2 emissions contribute to climate change — the 'impact materiality' — and what they are doing to reduce it. In addition, they are required to determine the financial materiality of climate change: what is the potential impact of stricter environmental measures on their costs?

In late 2023, CONO Kaasmakers requested a consulting firm to conduct such a materiality analysis based on interviews with stakeholders inside and outside CONO. Such a materiality analysis makes it clear where potential risks lie — and thus opportunities. This insight will increase support among stakeholders in the chain for collaboration and transparency.

Collaboration will be essential to meet our sustainability goals. Becoming and remaining a leader is something we do together; within our cooperative and with our dairy farmers, suppliers and customers. Together we can achieve more than on our own.

Jerry Griep
Managing Director

Gerben van Diepen
Chairman

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Our CSR pillars

The pillars of our CSR policy are sustainable business, animal welfare, working environment, biodiversity, climate and circularity. These pillars are directly linked to the United Nations' Sustainable Development Goals (SDGs).

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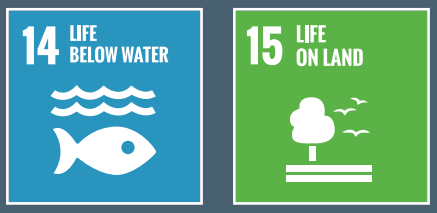

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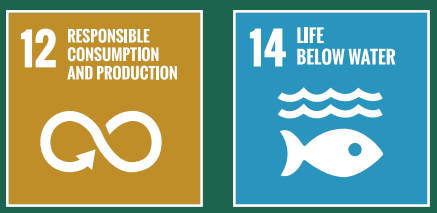

Double materiality matrix

In corporate social responsibility, all themes can be classified under environment, society and governance (ESG). In 2023, CONO Kaasmakers asked stakeholders which themes they believe will be important for the cooperative and which of those could have financial implications. Such a materiality analysis is a mandatory part of future European accounting rules.

1. Climate adaptation
2. Climate mitigation
3. Energy
4. Air pollution
5. Water pollution
6. Soil pollution
7. Living organisms and food sources pollution
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21. Working conditions and living environment for dairy farmers
22. Working conditions of employees in the value chain
23. Economic, social and cultural rights of communities
24. Civil and political rights of communities
25. Rights of indigenous communities
26. Information-related effects for consumers and/or end-users
27. Personal safety of consumers and/or end-users
28. Business culture
29. Protection of whistleblowers
30. Animal welfare
31. Political engagement and lobbying activities
32. Management of relationships with suppliers, including payment practices
33. Corruption and bribery

Sustainable business practices

FOR CONO, sustainable business — or corporate social responsibility (CSR) — means that we take into account the impact of our activities on the environment and society.

Our goal is to create long-term value for both the cooperative and society. We do this by balancing growth, social responsibility and environmental protection. Our sustainability policy hinges on a fair milk price. For example, dairy farmers want to contribute to resolving the climate problem, but the milk price has to allow for this. CONO Kaasmakers' mission is to ensure a good income, so that dairy farmers can continue to make their operations more sustainable.

To this end, we closely collaborate with service providers, chain partners and the dairy farmers themselves. We believe that mutual trust and strong working relationships are the cradle of new developments and innovations. One example is our collaboration with Ben & Jerry's in the Caring Dairy program. Caring Dairy is now the longest-running dairy sustainability initiative in the world. The program covers the whole process from soil through grass and milk to manure and aims to close that cycle with a focus on animal welfare. In doing so, Caring Dairy rewards efforts with regard to four themes: happy cows, more grass and biodiversity, a better environment and climate and community involvement.

Caring Dairy covers the whole process from soil through grass and milk to manure and aims to close the cycle with a focus on animal welfare.

Dairy farmers

Through Caring Dairy, our dairy farmers can earn a bonus on the milk price by making their farms more sustainable. There are 18 indicators, such as grazing (at least 180 days a year at pasture), the proportion of fresh grass in the ration (more than 60 percent including grass silage), and the origin of the power used (100 percent green). Each participating farmer receives a fixed premium of 75 cents per 100 kg of milk. In addition, they may receive additional annual rewards for above-average performance. Per indicator, the bonus is 5 cents per 100 kg of milk, with a maximum of 75 cents per 100 kg of milk. The reward-for-performance scheme runs until 2025, so this year we are defining the strategy for the next five years. In doing so, we will be talking extensively with our dairy farmers, among others, to find out what works and what doesn't.

Caring Dairy stands out internationally as one of the most effective sustainability programs. Wageningen UR and Ireland's Teagasc compared 19 international sustainability programs in 2023. In this comparison, Caring Dairy came third on the criteria of 'continuous improvement' and 'overall performance'.* Because we value transparency, Caring Dairy's goals and results are available for all to see.

** Source: McGarr-O'Brien, K., Herron, J., Shalloo, L., Farmer, I.J.M. De, & Olde, E.M. De (2023). Characterising sustainability certification standards in dairy production. Animal 17 (7).*

Market

We are able to pay the milk price and premiums because we are constantly building strong and sustainable cheese brands. Beemster cheese, the biggest among supermarket cheeses, is the most well-known of these. Beemster cheese is a sustainable cheese, artisanally produced from high-quality milk from cows that graze outdoors as much as possible. Consumers are satisfied too: according to the Sustainable Brand Index 2024, Beemster has been named the most sustainable cheese brand by Dutch consumers for the sixth year in a row. At the same time, the taste of the cheese is just as important.
CONO Kaasmakers is excelling globally in this regard too. At the The World Cheese Awards, held in 2023 in Trondheim, several Beemster cheeses won awards. For example, the Beemster Oud 30+ won a gold medal. 4,500 cheeses from 28 countries were judged by 264 judges. The cheeses were tasted blind by category and judged on aspects such as aroma, texture, taste and mouthfeel. The three best cheeses per category were awarded gold, silver or bronze medals.

Society

Through its dairy farmers, CONO wants to keep in touch with what is going on in society and among consumers. A key Caring Dairy indicator (indicator 18) is therefore the social commitment of the dairy farmer. This concerns opening up the business for public and/or socially relevant work. The target is more than 100 unique visitors a year. The average of participating dairy farms has been rising since 2020 and now sits at 420 unique visitors per year. The percentage of businesses that include socially relevant work (such as running a care farm) increased from 10 percent in 2019 to almost 30 percent in 2023.
Furthermore, more and more CONO farmers — now 28 — have a shop in which they sell their own and other local products in addition to Beemster cheese. For many dairy farmers, the farm shop is the preferred place to meet consumers, sell local produce and be part of the community.

INTERVIEW

Astrid Konijn

BUSINESS OFFICE COORDINATOR

”This kind of monofilm is not far away”

Sustainable business is impossible without involving both suppliers and buyers. CONO aims to reduce the footprint of cheese by 30 percent by 2030. In realising this, it is essential to identify where greenhouse gasses are emitted in the chain. Subsequently, you have to determine whether those emissions are of a 'material' nature. In other words, whether they are big enough to discuss with the ‘chain partner’. Astrid Konijn is external business office coordinator at CONO and regularly speaks to cheese maturing and packaging companies. During those meetings, she also addresses sustainability. What are the partners working on and what are their plans? ‘We are very like-minded when it comes to sustainability. We all intend to meet the Paris targets.'

By making the packaging of Beemster cheese more sustainable, CONO has already gone a long way towards meeting its climate targets. For example, the sheets between the slices of cheese are no longer made of plastic, but of paper. Furthermore, the tray in which the cheese is positioned is made entirely of paper too, rather than paper featuring a thin layer of plastic on top. We conducted many experiments in searching for a material that does not absorb fat, but also does not contain plastic.

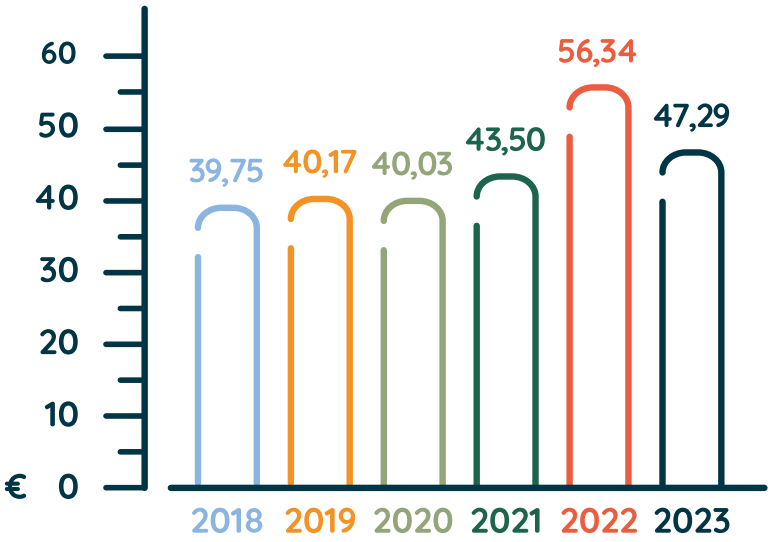
The next step is the packaging of the cheese. The search is for suitable material in a so-called monofilm. This material is almost entirely reusable. 'This kind of monofilm is not far away, I believe. Currently we're still in the testing phase, however. Most importantly, we have to guarantee the best-by date, so that the product doesn't go mouldy.’

Even with regard to the transport of cheese (from CONO to the ripening locations, from there to the packaging company and then to the supermarkets), everyone is working on making the process more sustainable, explains Astrid. ‘We exchanged a lay-up location in Gemert for one in Almere. Almere is located more centrally and saves a lot of transport kilometres.’

‘The transporter that collects our cheese experimented with a hybrid truck. Unfortunately he wasn't quite successful. Because he makes long trips, he does not brake much and therefore lacked the power that braking generates. As a result, he consumed as much diesel as before, but with a much more expensive car. This example shows how together we are constantly exploring ways of making our processes more sustainable. We had previously put him in touch with our milk transporter Danmel Transport, which has been driving an electric RMO (Rijdende Melk Ontvangst, ed.) since 2023. This is how we work towards making our transport more sustainable. As for those electric vehicles, there's no doubt they'll eventually be deployed.'

Sustainable business practices in brief

- **Milk price development.**



- **96% of our dairy farmers participate in our Caring Dairy sustainability program.**
- **Caring Dairy dairy farmers supply 98% of the milk delivered.**
- **Beemster cheese was voted the most sustainable cheese brand by Dutch consumers in 2023 and 2024, for the fifth and sixth year in a row.***
- **CONO won the 2023 Industributie-trofee in the Merk-Vers category.**

**www.sb-insight.com/sbi-netherlands.*

Animal welfare

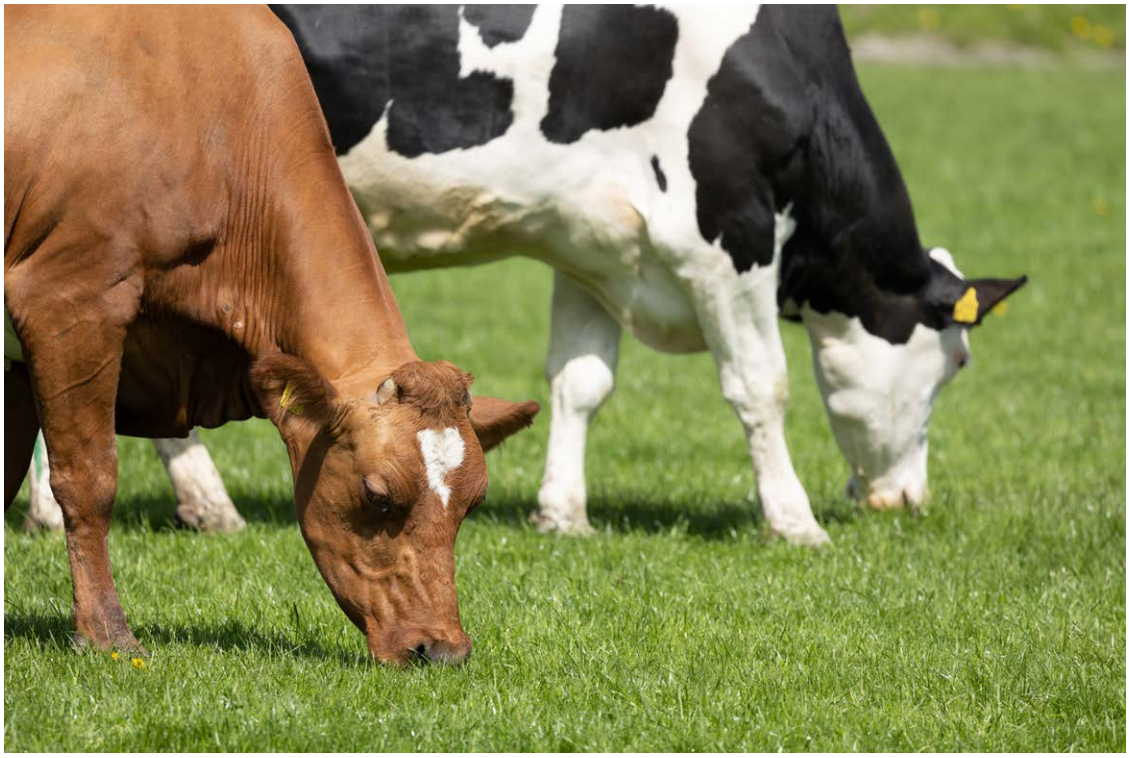
'Outside for six hours a day? That's not grazing, that's getting some fresh air!,' a CONO farmer once said. This perfectly reflects our goals: CONO cows walk and graze in pastures as much as possible. In 2023, this was an average of 176 days of over 10 hours.

Walking outside and eating fresh grass is good for the animals as well as for the milk — and thus for the cheese. 'Happy cows' is therefore the main theme within Caring Dairy and includes several indicators such as dairy cattle grazing and longevity. The focus on animal welfare is clearly paying off. In recent years, the proportion of healthy calves is rising and antibiotic use is falling. CONO cows are also growing older. Socially there is much more of a focus on animal welfare. Consumers expect that cows are put out to pasture, and that cheese is made from pasture milk. All CONO cheeses feature the Weidemelk hallmark. The associated conditions are laid down by Stichting Weidegang in the Convenant Weidegang.

Grazing and a grass ration reduce emissions of methane, a major greenhouse gas

Grassland

Grazing is good for cows, but grassland is also one of the most important carbon sinks. Moreover, recent research shows that high grazing and a grass ration reduce emissions of methane, a major greenhouse gas. Not surprisingly, our stakeholders also value animal welfare. This emerged from the so-called materiality analysis commissioned by CONO (in anticipation of European reporting regulations). Incidentally, CONO Kaasmakers already sets animal welfare requirements in its terms of delivery. These include housing (featuring a rotary cow brush and a soft lying area for each cow), hygiene, clean space for all animals and healthy calves. And last but not least: grazing.



KoeKompas

The welfare of cows and calves is tracked by the farmer and their veterinarian in the so-called KoeKompas — a measurement tool developed within CONO. This allows the farmer to track their own performance, compare it with the CONO average, and make improvements where necessary. The latter is done on the advice of the vet or CONO. In addition, there is also the KoeMonitor, an initiative of interest groups of dairy companies (NZO), dairy farmers (LTO, NMV) and veterinarians (KNMvD, CPD). This program combines veterinarian visits (KoeKompas) and herd health data (KoeData) with even better farmer knowledge to identify sick animals (KoeAlert).

INTERVIEW

Peter Konijn and Lieneke Bark

CONO DAIRY FARMERS

”Grazing is not easy”

Peter Konijn and Lieneke Bark, born and raised in the Beemster, run their closed dairy farm (without supply of dairy cattle) from the Arenberg farm (built in 1800) in the Beemsterpolder. Their farm scores above average on the Caring Dairy criteria for animal health. Peter and Lieneke own 125 Friesian-Dutch cattle, a dual-purpose breed, which produce a bit less milk and have slightly more meat on the bones. However, the composition of the milk is of high quality. ‘With the fat and protein content, we average just over three cents a year above the factory price,’ says Peter. 'We've really grown. We started small, during the milk quota. At the time, you had to earn your money at the bottom. Gradually, we started expanding. These days our bulls go abroad. To Ireland, for example, where they also have a lot of grassland.’

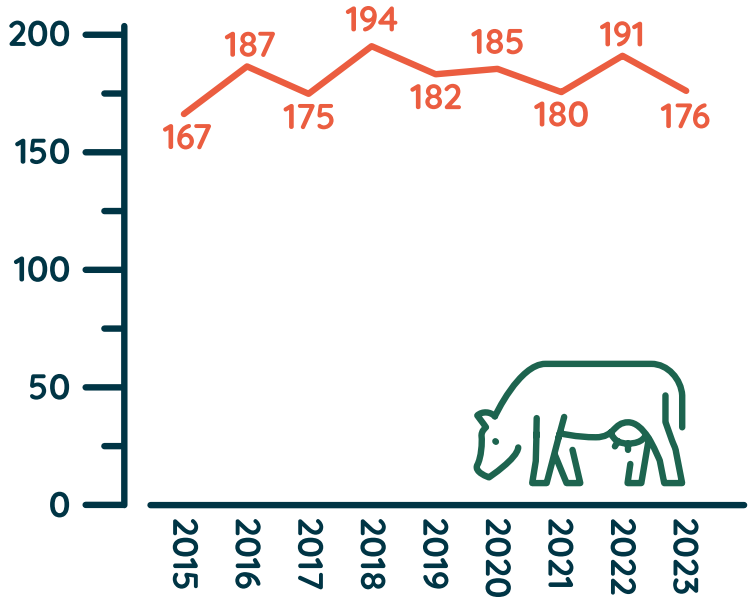
We are a ‘completely closed dairy farm’. ‘We sometimes use semen from bulls from grass farms, to see if we can do even better — but that's more or less all. We have enough land to deposit our own manure. ‘But the most important thing for us is that the cows are very healthy on a grass ration.’ For this grass ration, the animals have to go out to pasture. Peter: ‘In spring, the dairy cows go outside during the day and, when possible, at night too. They are perfectly capable of this. And outside truly means outside." ‘They don't go right back inside on a day of bad weather, for example. We achieve 180 to 190 grazing days. During rainy months, they go back inside depending on the weather and the capacity of the land. And they know: there is no food readily available inside. Yesterday I went to get them at about four o'clock, and they were still at the very back.’

‘We also enjoy seeing the animals happy,’ says Lieneke. Grazing behaviour ‘is in the breeding’, but the animals also have to learn how to graze. Lieneke: ‘When they are three and a half months, the youngest calves already go outside. They'll stay within the fences, without any cows or yearlings." Grazing comes naturally because fresh grass is delicious. They don't get anything else when they're in the pasture. ‘You have to keep things interesting for them,’ says Lieneke, ’For example, you let them graze on plot A during the day and on plot B at night. We allow our cows to graze, whereas many others let them walk outside.’ ‘Grazing is not easy.’ Peter repeats this multiple times during our conversation. But it becomes immediately apparent: Lieneke and Peter prefer nothing else. ‘The most important thing for us is that our cows are very healthy on a grass ration.’

In addition to the dairy cattle, Peter and Lieneke also keep a herd of approx. 140 sheep (recently depleted by blue-tongue) in order to keep the 50 hectares of their own old grassland in shape during autumn and winter. ‘Sheep have ‘golden hoofs’, they say, but your land has to allow for it. In February, they go back inside and in spring all the grass is new.’

Animal welfare in brief

- **As long as nature allows, CONO cows are outside as much as possible. Development of grazing in average number of days per year.**



- **In 2023, dairy cows grew 6 years and 4 months old on average.**
- **By 2025, antibiotic use on dairy farms will be less than or equal to 2 animal-day doses.**
- **Calf mortality is falling.**
- **By 2025, all calves and/or yearlings will graze for at least 120 days before becoming dairy cows.**

Working environment

Good health, well-being and education are among our goals and are also the Sustainable Development Goals (SDGs) that CONO subscribes to. We strive to create a safe, challenging and healthy working environment.

In view of the continuing tightening labour market and increasing staff turnover, it is important that employees remain happy and healthy. We therefore conducted a Periodic Medical Examination at the end of 2023. CONO periodically provides for such an examination. This physical and mental health check focuses on work pressure, job satisfaction and safety. It also includes eye measurements and hearing tests. The results of the examination are now in and have been compared to benchmarks from Arboned, which has access to data on thousands of workers in similar situations. CONO is almost 'in the green' across the board.

Professional development

CONO helps employees — and dairy farmers — in their personal and professional development whenever possible. These include a training site for production workers, the Caring Dairy workshop program for dairy farmers, and in-house dairy training for future cheese makers.
CONO Kaasmakers invests in its people, which is reflected in terms of quality, productivity and loyalty. This has resulted in long employment tenures, which in turn has led to a relatively high average age of employees. Employee safety and health are paramount at CONO. All new employees receive a 'Prevention and FAFS at CONO' introduction. Production staff, and anyone who comes into contact with the operation, attend certified training courses focused on safe and healthy working.

Safety

Within CONO, we have an established procedure for reporting and recording (near) accidents and dangerous situations. This is also strongly encouraged, which has increased general safety awareness in recent years. Our concern for a safe and inspiring working environment does not stop at the gate of the cheese factory. Workshops for our dairy farmers are part of our Caring Dairy sustainability program. For example, dairy farmers attend three workshops on sustainable dairy farming every year. Themes include grazing, protein from the land, animal health, farm economics, climate, farming with nature, soil, circular farming and communication.

Dairy farmers annually attend three workshops focused on sustainable dairy farming, for example on circular farming and animal health

Risk inventory

Livestock farmers — who are often also employers — want everyone on their farms to work safely and healthily. The legally required risk inventory and evaluation (RIE) is therefore essential. In short, such an inventory revolves around the following questions. What (potential) risks are there? Can I remove them? If not, what protection can I provide? CONO dairy farmer Velshoeve in Witharen in Overijssel has fully completed the risk inventory and evaluation (RIE) for their farm, therefore becoming winner of the 'RIE Week'. The RIE Week is an initiative of Stigas, an organisation that helps entrepreneurs in the agricultural sector work healthily, sustainably and safely. By means of this special week, Stigas wants to draw attention to the RIE. And not without reason; because while most dairy farmers are generally well prepared, there is still room for improvement.

Works council

The works council consists of six members, with all departments represented (technical service/shop, powder mill, pre-factory and laboratory, office and the cheese factory). In 2023, CONO's works council had an exchange with another works council where various topics were addressed such as age structure of the organisation, entry of new employees into the company, but also dealing with management and how to make the works council be ‘accepted’ within the organisation.

INTERVIEW

Kee van Doorn

HR MANAGER

”There is always room for improvement”

Corporate social responsibility is the act of conducting business with consideration for people, animals, the environment and society. Being a good employer is inextricably linked to this, explains Kee van Doorn, HR manager at CONO Kaasmakers. Being a good employer is also part of the United Nations' sustainability goals to which CONO subscribes (SDG3 and SDG4). Van Doorn: ‘We want to ensure that our employees entering and exiting our gate feel good.’ Employee vitality and safety are essential.

A Preventive Medical Examination was conducted among CONO staff at the end of 2023. A PMO is a physical and mental health check, says Van Doorn, and consists of a digital questionnaire (on issues such as work happiness, stress and physical and mental safety) and blood pressure measurements, eye measurements and hearing tests. 'We are very much focused on physical safety, because we work with large machines and harmful substances such as lye.'

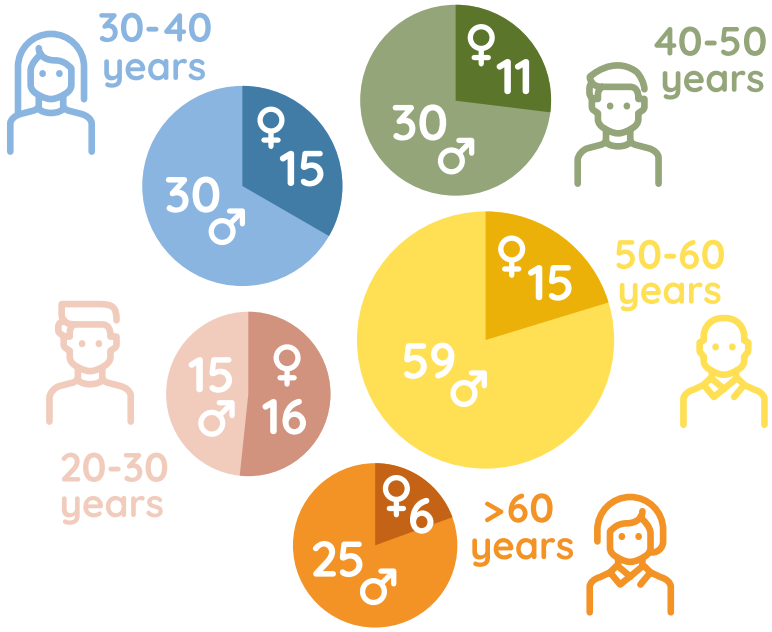
CONO aims for zero accidents, but Van Doorn knows that in practice this is a challenge, because an accident can happen at any time. Fortunately, safety awareness has increased in recent years. And more safety awareness means fewer accidents.

The results of the examination are now in and have been compared to benchmarks from Arboned, which has access to data on thousands of workers in similar situations. ‘We're 'in the green' almost everywhere,’ says Van Doorn, ’but there is always room for improvement. And you receive signals from employees too, of course. Often those reiterate the importance of changes you have already initiated.’ She mentions the canteen menu. ‘Because we work in shifts, our canteen menu includes evening dinners. Previously these were always microwave meals, but people started to grow tired of them. That is why there will now also be the option of ordering fresh meals. Furthermore, we ensure there's fruit and dairy, because we know it's healthier not to eat too much at night.’

Sustainability of one's physical body, mind and skills is actually, by definition, about safeguarding something for the longer term, Van Doorn believes. ‘This could be a process essential to the quality of herb cheese, or a particular skill or competence, training opportunities, as well as the menu in the canteen.’

Working environment in brief

- **Staff composition.**



- **Fruit, dairy products and healthy meals for employees.**

- **The number of accidents resulting in absenteeism must be further reduced: our target is zero accidents.**

- **Safety awareness at CONO has increased.**

Biodiversity

Living on the land (SDG 15) is livestock farmers' way of life. Farmers exist by the grace of soil and animals. Livestock farmers realise that they benefit from more biodiversity. CONO is eager to support them in this regard.

CONO livestock farmers are prohibited from using plant protection products containing glyphosate (such as Roundup). This contributes to more biodiversity, especially when combined with 'agricultural nature management' (room for herbs, flowers, trees, hedges, shrubs), which forms an important part of Caring Dairy. Half of our current livestock farmers have set aside more than five percent of their land for agricultural nature, which percentage has been rising since 2017. The same applies to the percentage of livestock farmers using more than 50 percent of their land as permanent pasture (61% in 2023). The benefit is that carbon is sequestered in the soil.

Livestock farmers find that on grassland with clover and herbs, less fertilizer is required, as a result of which the quality of the soil improves and biodiversity increases

The Beemster Bijenlint ('Bee Strip') has grown to 51,000 square metres. Together with the municipality of Purmerend and the De Beemsterling foundation, CONO is encouraging all farmers in the Beemster to plant bee strips. For example, a crowdfunding campaign has been launched to engage citizens through partial financing of the seeds. Incidentally, some pilot projects aimed at climate improvements are — perhaps unsurprisingly — also benefiting overall biodiversity. For example, one CONO livestock farmer in De Rijp is experimenting with applying clay to peat soil. Clay particles sinking into the peat soil adhere to peat particles. This should limit CO_2 emissions. The Louis Bolk Institute monitors greenhouse gas emissions, soil quality and biodiversity.

Clover and herb mixtures

Last year, over 70 CONO farmers sowed plots of land using clover and herb mixtures. Altogether, this involved over two hundred hectares of clover mix and more than a hundred hectares of herb mix. Herbs include narrow plantain, alfalfa, chicory, clovers and caraway. Livestock farmers find that on grassland with clover and herbs, less fertilizer is required, as a result of which the quality of the soil improves and biodiversity increases. However, according to the farmers, it is quite a challenging process. For example, they have to actively avoid the herbs and mow higher, because otherwise the clover and herbs will whither.

One livestock farmer who has been working with clover and herb mixtures for some time is noticing ‘an increase in life’; butterflies he did not see before, swarms of swallows and worms that improve soil permeability and fertility. At the same time — and not insignificantly — greenhouse gas emissions are also decreasing. Through grass-clover cultivation, the emissions of these livestock farmers combined (based on general calculations) can decrease by over 430 tonnes of CO_2 equivalents per year.

INTERVIEW

Vincent and Roos Smit

CONO DAIRY FARMERS

”You have to adjust to the use of herbs.”

Dairy farmer Vincent Smit's milk has a high fat and protein content. Along the Noordervaart in Stompetoren, Vincent and his wife Roos also manage the farm shop Smit's Boer & Goed, where they sell local products in addition to milk and meat from their own cows. The quality of the milk is not only in the genes of the MRIJ (Maas-Rijn-IJsselvee) cows (a so-called ‘dual-purpose breed’), but also in the herb-rich grassland on which the cows graze.

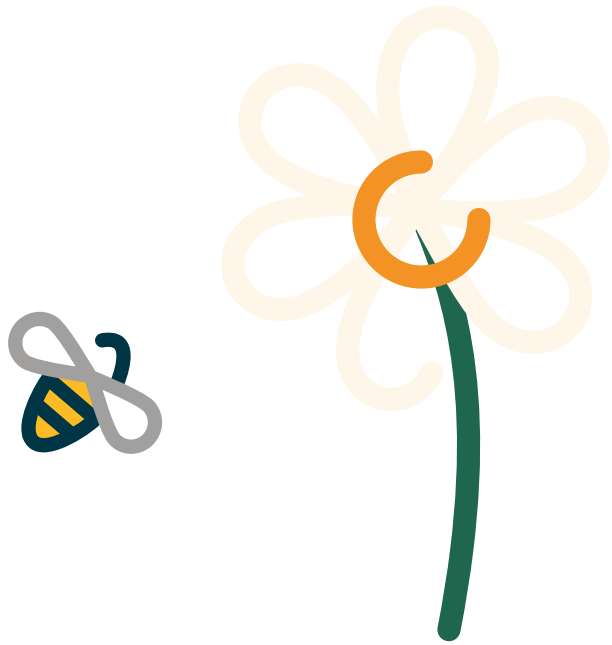
‘The herbs include narrow plantain, alfalfa, chicory, clovers and caraway. It is a varied diet and the animals are certainly benefitting. It also seems to have medicinal effects; there's much less need to include minerals in the feed.’ Moreover, herb-rich grassland benefits biodiversity, Vincent says. ‘I went into the field early in the morning the other day to fetch the cows and saw a very large swarm of swallows hunting for midges and flies above the field. I hadn't seen anything like it before. I've also noticed a lot more butterflies. You really see life increasing.”

Vincent started about four years ago and hopes to be using just herbs in about six years. Of his four plots, one and a half are now full, herb-rich grassland. ‘Three and a half hectares are added to this every year. I try different mixtures of herbs and reed canary fescue, which roots itself as much as ninety centimetres deep.’ Soil quality is also improving noticeably. ‘There's now a lot more worms that travel up and down from the surface to the bottom water, taking plant debris down with them.’ This benefits soil permeability and fertility.

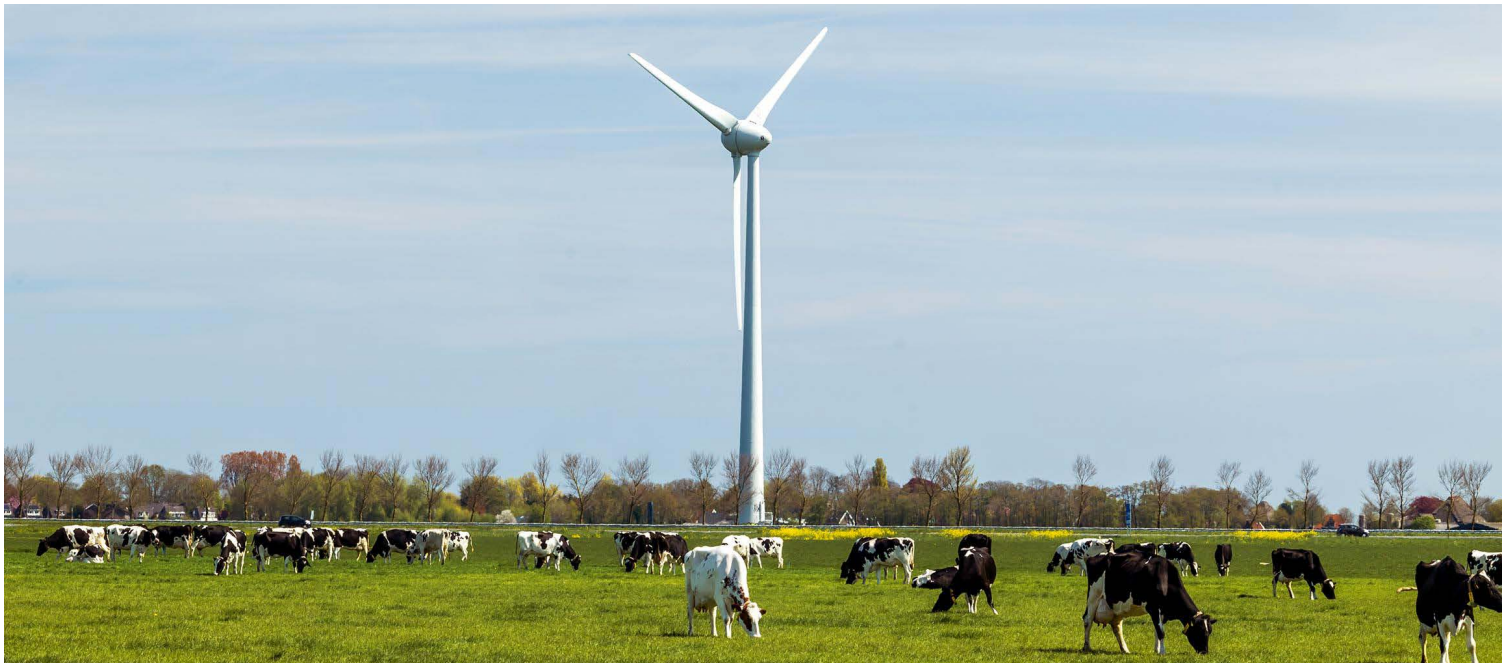
Then there's also CO_2 emissions, which are decreasing because Vincent is using less fertilizer. ‘Soon I will have an advisory meeting organised by CONO (part of Caring Dairy) on what other possibilities there are to reduce the footprint of milk. We do want to do a lot more." If herb-rich grassland is so good for animals, milk and biodiversity, why don't many more farmers switch to a herb mix? “In the beginning you're afraid you will grow less grass, but I soon noticed that I could use less fertilizer. You have to get used to it too, because your land will look a bit rougher. But fortunately it doesn't bother the animals. You also have to adjust to the use of herbs. For example, you have to mow a bit higher, which is better for regrowth and you avoid cutting the herbs."

Biodiversity in brief

- **5.1 hectares of bee strip by 2023 on CONO livestock farms.**



- **By 2025, the share of agricultural nature on dairy farms will be 5% or higher.**
- **By 2025, the area of permanent pasture on dairy farms will be 50% or more.**
- **By 2025, nitrogen soil surplus will be a maximum of 150 kilograms N per hectare.**
- **By 2025, ammonia emissions will not exceed 75 kilograms NH3 per hectare.**



Climate

Our next challenge is to become independent from gas and run entirely on ‘farm power’. Our livestock farmers are also doing everything they can to reduce greenhouse gas emissions.

The energy efficiency of the cheese factory is something we are proud of. The use of gas and electricity per container (batch) of cheese produced has been decreasing since 2019. Since 2023, we have been using a monitoring system that tracks energy consumption at all stages of the process. In this way, our aim is to save two percent of energy every year, regardless of the production run. For example, by shortening cleaning times. We recently reduced the pressure in compressed air, which saved five percent on compressed air electricity consumption. Moreover, we no longer need to treat our wastewater, which saves a lot of electricity (the wastewater treatment plant has since been removed).

Independence from gas

But all that is not enough to meet our 2030 climate goals: an energy-neutral cheese factory running on ‘farm power’ and a 30 percent lower footprint of cheese in 2030 compared to 2020. In order to realise this, we will need to become gas-independent. Fortunately, all signs point towards this working out. The steam boiler that currently heats the milk runs on gas. CONO is able to install a new power connection with enough capacity for two electric heat pumps and e-boilers. These will then replace the gas.

About half of the electricity consumed by the cheese factory already comes from livestock farmers

Renewable electricity

Over the next decade, the cheese factory will continue to become more sustainable. Just like our milk transport. From 2023, our transporter Danmel Transport has been driving an electric RMO, the first in the Netherlands. It goes without saying, but our livestock farmers also also making important contributions to our climate goals. Of all our livestock farmers, almost half generate renewable electricity, a share that has been rising for years. Any excess of produce is acquired by CONO. About half of the electricity consumed by the cheese factory already comes from livestock farmers. By 2030, we want this to be 100 percent. Generating our own energy is rewarded through our Caring Dairy sustainability program. Electricity consumption per 100 kilograms of milk has been below the limit of 6 kWh per 100 kilograms of milk for years.

Methane gas

When manure and urine come together — when cows are stabled — methane gas and ammonia (nitrogen) are produced. While ruminating, cows also produce methane by fermenting food in the rumen. This is the largest source of methane emissions and difficult to tackle because those emissions are directly linked to the animals' diet.
A pilot by CONO Kaasmakers and DSM incorporating the feed additive Bovaer demonstrated that its use has no adverse effects on milk quality and the taste and quality aspects of the cheese. This feed additive can reduce cows' methane emissions by an average of 30 percent. Furthermore, separating manure and urine in the barn also helps, as do mono digesters that capture gases and use them to generate energy. Grazing is also beneficial, as cows do not urinate and defecate in the same place outside. Some dairy farmers rely on one solution, while others use a combination of methods. This allows them to earn premiums on the milk price; greenhouse gas emissions (less than 120 kg CO_2 equivalents per 100 kg of milk) and ammonia emissions (less than 150 kg nitrogen per hectare) are key indicators within Caring Dairy.

Milk footprint

There are many ongoing studies about the ways to reduce farm greenhouse gas emissions. For example, CONO is running the 'Low Carbon Dairy' pilot project together with Ben & Jerry's (Unilever). The 10 dairy farms participating in the pilot, should halve their footprint of milk by the end of 2025 compared to 2015. Adjustments include slurry additions, young livestock density, forage harvesting, grass/clover sowing and energy generation and consumption.
The lowest footprint of the pilot group in 2023 was 74.2 kilograms of CO_2-eq. per 100 kilograms of milk. (CONO dairy farmer Marcel Veurink, see the interview accompanying this chapter). By comparison, CONO's 2025 target is 120 kilograms or less per 100 kilograms of milk. For individual cattle farmers, the supplement in Caring Dairy started at 94.6 kilograms per 100 kilograms of milk in 2023.

INTERVIEW

Marcel and Henrike Veurink

CONO DAIRY FARMERS

"A lot is possible"

Marcel and Henrike Veurink run their Agrarisch Bedrijf Veurink Vof on sandy soil in Arriën, a hamlet in the Overijssel Vecht valley. They do so with 115 cows and 40 head of young stock, a mix of Brown Swiss, Swedish Red and Holstein. Marcel and Henrike are taking part in a pilot project by CONO Kaasmakers and Unilever. Their goal is to halve the footprint on the farmyard by the end of 2025 compared to 2015. Aspects they will focus on include: slurry additives, young livestock density, forage harvesting, grass/clover sowing, energy generation and consumption.

In 2023, Marcel and Henrike's dairy farm had the lowest footprint of the pilot group: 74.2 kilograms of CO_2-eq. per 100 kilograms of milk. By comparison, CONO's 2025 target is 120 kilograms of CO_2-eq. or less per 100 kilograms of milk. 'The high longevity of our cows makes a huge difference,' explains Marcel. 'This means you require fewer cattle for your milk production. Moreover, the above-average production per cow also results in a lower footprint per kilogram of milk. In other words, we had an excellent starting position.' Marcel and Henrike did not want to stop there, however. Henrike: 'Carbon footprint is becoming increasingly important if you want to be able to sell your products in the future, so you want to learn about the possibilities of reducing greenhouse gas emissions. After an information session held by CONO about the project, we decided to join.'

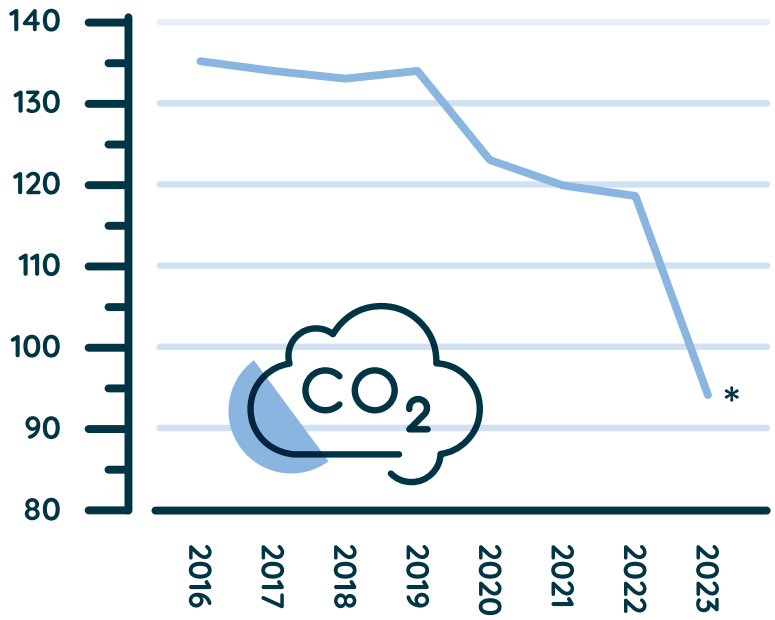
Marcel: 'In a project like this, you start with the easy-to-fit measures. For our farm, this included sowing a grass/clover mixture to reduce fertilizer use. We also added Vizura to cow manure when applying it. This allows for better use of nitrogen in manure. Feeding residues from the food industry also have a beneficial effect. We were already doing this with beet press pulp, but we now use brewer's grains. We're also looking at how we can optimally replace compound feed (chunks) with residual streams when formulating a ration. Making the right decision is much easier these days, because producers have to be transparent about emission values.' Marcel: 'We are now working with our supplier, ABZ Diervoeding, to determine whether, by choosing different raw materials, we can modify the pellets we currently feed, so that the footprint becomes lower at the same feed value.'

That there are many possibilities of adapting the feed has been proved by large trials by DSM with the feed additive Bovaer. CONO Kaasmakers has spent some time researching the effects of milk from Bovaer-fed cows on cheese quality. It did not reveal any effects. This feed additive can reduce cows' methane emissions by an average of 30 percent. 'It stops methane production in the cow's rumen and does not seem to have any adverse effects on the animal. We have been offering this feed for almost a year now and see no effect on production or health. Besides, it is relatively simple to use.' Bovaer, size chunks or manure additions are currently reimbursed by the project, but how should they be reimbursed in the future? Will consumers pay more? 'The project was intended to discover the possibilities,' says Marcel, 'and it turns out quite a lot is possible.'

Marcel and Henrike want to reduce the milk footprint even further and, to that end, are seriously considering plans for a manure digester, which will further reduce greenhouse gas emissions. Marcel: 'On the back of a box it looked good, but now the permit is in and we can start applying for SDE subsidy and make a business plan.' Henrike: 'This too is an investment that has to be recouped.'

Climate in brief

- **CO_2-equivalents per 100 kilograms of milk.**
  * The sharp decline compared to 2022 is partly due to a change in calculation regulations in the KLW.



- **By 2030, 75% CO_2 reduction in milk and cheese transport compared to 2020.**
- **By 2030, 50% CO_2 reduction within CONO (including mobility employees) compared to 2020.**
- **By 2030, 30% lower CO_2 equivalents per kilogram of cheese compared to 2020.**
- **By 2030, equivalent of farm power generated as used in the chain.**

Circularity

In our cheese factory, circularity is important: can we put residual products back into the cycle? We process whey into by-products and use the residual water for cooling. In the field, everything is aimed at closing the plant-soil-animal-manure cycle.

'Responsible consumption and production' is one of the Sustainable Development Goals (SDG 12) to which CONO subscribes. Circularity is an important part of this. For a start, we don't produce more cheese than the market demands — this prevents waste — and we do it as sustainably as possible. Furthermore, we've managed to reduce energy consumption per container (batch) of cheese for several years in a row.
The cheese factory uses about as much drinking water per year as all households in the Beemster combined. We use that water as optimally as possible for washing the curd and steam production, among other things. At the same time, a lot of water is reused. Milk comprises 87 percent water and 95 percent whey. We constantly try to avoid waste. Before producing cheese, the milk is 'bactofugeed', meaning that bacteria (spores) are removed via a centrifuge. Whey processing has improved, with now less water lost to wastewater. From the whey, over 330 thousand cubic metres of water are eventually recovered after filtering and evaporation.

The wastewater that remains is of such quality that it goes directly to the water board via a buffer tank and a pressure pipeline.

Waste water

We are also making better use of waste water. For example, we deploy the permeate (residual water from whey) as counterflow to use its residual heat in cooling the skimmed milk concentrate. And we use this so-called ‘process water’ to post-rinse our factory plants. Because we have also fine-tuned our steam system, we save a combined 20 million litres of drinking water a year.
Finally, the waste water that remains is now of such quality that we transport it directly to the water board via a buffer tank and a pressure pipeline. This water eventually returns to the surface water and can become drinking water again. This closes the circle.

Less fertilizer

Even on farms, our livestock farmers are trying to close the circle. And we are all too happy to help. Closed-loop farming refers to the closing of the plant-soil-animal cycle. We currently still interrupt that circularity with fertilizers and concentrates. It is essential to reduce their use as much as possible. Circular farming is therefore an important part of our Caring Dairy sustainability program. Indicators include ‘protein from land’ and ‘kilograms of concentrate per 100 kilograms of milk’ — the latter indicator which improved from 28.5 in 2017 to 22.5 in 2023.
CONO is constantly researching how to reduce the consumption of concentrate feed. In 2022, we launched the ‘Concentrate feed, by-products and residues’ trial together with nine livestock farmers to determine whether the farmers can do without (or with less) concentrate feed. The farmers supplement the animals' grass rations with by-products and local residues, such as turnip meal, potato press fibre, maize and beet pulp. CONO is conducting this trial together with Duynie Feed (sustainable animal feed), compound feed supplier Koenis (compound feed), PPP-Agro advies and Ben & Jerry's.

Sustainable packaging

Making Beemster cheese packaging more sustainable is an ongoing process. It mainly revolves around replacing plastic with reusable material, such as paper or monofilm. The sheets between the cheese slices and the tray have been made of paper for a few years now. They are therefore recyclable.
In the not too distant future, the packaging of cheese — crucial for shelf life — will be replaced by monofilm. We are in the midst of research and testing. A monofilm consists of only one type of plastic and is easily and almost entirely recyclable. With multi-foil, consisting of multiple plastics, this is much more difficult, because the different plastics have to be separated first. At the start of the decade, we already switched from plastic crates to boxes made of three-quarters recycled paper during the transport of cheese.

INTERVIEW

Tijs Roeland

ENGINEERING & PROJECTS MANAGER

”We need to become independent from gas”

Tijs Roeland, technology & projects manager at CONO Kaasmakers, has to ensure there is enough electricity and gas every day to process the supplied milk. He also supervises the ‘Rijperweg 20’ sustainability team. This team, which includes energy buyers, technical project managers and process technologists, is working day in and day out to reduce the energy that goes into a kilo of cheese by two percent a year.

To this end, the past few years they have been working on an energy dashboard, which was completed in 2023. "Now we can truly get started", says Tijs. 'We have a readout of all the meters. Every location where energy is consumed, we can monitor directly. If we know how much cheese we produce, we also know how much energy we consume. It is now a matter of learning to identify the right connections, so that we can intervene in case of abnormalities. For example, if you lose milk due to leakage, you will see this reflected in the energy consumption per kilo of cheese. In doing so, it helps you identify energy savings. For example, what happens if we heat a certain tank a little later?’

In the sustainability team, all potential plans to save energy are discussed. ‘In doing so, we distinguish three types of interventions. Ideas that cost little and have lots of benefits; these are implemented immediately. If the energy savings cost money and time, we deploy a small team that brings in the savings between companies. Then there are the big projects, such as coming up with an alternative to the gas the steam boiler runs on.' According to Tijs, these are the projects needed if CONO is to meet its climate targets. Because these require the cheese factory to become independent from gas. ‘We are on the eve of a major change in electricity supply.’

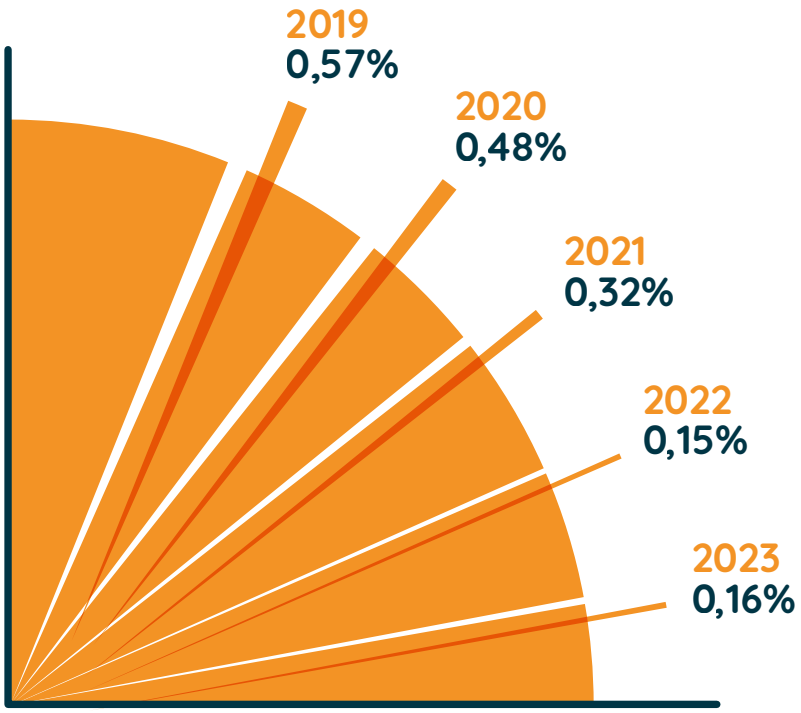
CONO is able to install a new power connection with six times the size of the current one. This is a big investment for our small cooperative, but it also gives us a chance to free up the steam boiler and thus achieve our CO_2 reduction for 2030. ‘With the new cable, two heat pumps and e-boilers, we can replace the steam boiler. And then we'll also be able to get rid of the current outages on the grid, which occasionally shut down production. All the electricity needed to keep the cheese factory running can then be generated by our own livestock farmers. Then we'll be truly circular.”

When it comes to CONO's water consumption, Tijs also mentions circularity. ‘During cheese production, we take in water and release whey. From that, we extract water again, which we call permeate, which is used to clean our factory plants. We used to treat the remaining wastewater ourselves, but it is now of such high quality that we discharge it directly to the water board via a buffer tank and a pressure pipeline. They eventually turn it back into clean water than can be discharged into surface water.”

Circularity in brief

- **97.5 % first time right: the proportion of cheese trays right the first time.**

- **The percentage of internal defects during cheese production fell sharply in recent years.**



- **Water savings of 30% per tonne of milk taken in 2030 compared to 2017.**

- **Per kg of cheese delivered, reduction in plastic cheese packaging consumption of 20% by 2025 compared to 2017.**

- Fully circular packaging (recycled/biobased) by 2030.

View this CSR report online at
mvo.cono.nl

Colophon

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