BOORTMALT SUSTAINABILITY REPORT

2023

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mt = Metric Ton

ABOUT THIS REPORT

The Boortmalt Sustainability Report covers our sustainability commitments, actions and ambitions, and our progress, for the financial year 2022-2023 which ended on 30 June 2023.

This annual report shows how sustainable development is being adopted by our people in our malting plants as well as with our partners throughout the upstream and downstream processes.

The more we learn about how to deliver malt sustainably, the more we realise we are on a steep learning curve with a long way still to go and not a lot of time left. This report is therefore also intended to encourage you to reflect on your approach to sustainability and motivate you to reach out if you think that together we can make a bigger difference.

Boortmalt's sustainability reporting is guided by our commitment to the Sustainable Development Goals, and the Science Based Targets initiative through which we have pledged to do our bit to keep warming below 1.5°C. This report has been prepared in accordance with the GRI-referenced claim.

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

SUSTAINABLE DEVELOPMENT GOALS

A WORD FROM OUR CEO

Dear readers,

Here at Boortmalt, we are progressing well with all our sustainability initiatives. I am pretty satisfied with our progress, but I want to see more impact and more pace. According to the latest science-based measurements and calculations, our planet is unfortunately not on the +1.5°C trajectory (Paris Agreement target). We are doing far worse, and so we will see the climate respond with weather events becoming more and more destructive for all living things on Earth.

There is much concern about this situation. Companies like ours must adjust, accelerate the energy transition and beat the Paris Agreement target to compensate for the current off-track trajectory. Boortmalt has committed to the 2030 SBTi targets and will reach CO_2 neutrality for scopes 1 and 2 by 2035. Not 2050.

This considerable effort represents investments of nearly €400 million (all-in). We started using renewables many years ago and have had numerous successes. To reach neutrality by 2035, we need to drive approximately 60 projects across our 27 malting plants worldwide. Our most significant and impactful project is the heat loop in Antwerp, which will capture waste heat from our neighbour Indaver's plant, 12km away. It will save 30,000 metric tons of CO_2 from January 2024. From 2024, Antwerp, the largest malting plant in the world, will run on 70% renewables. We are very proud to be able to remove so much CO_2 from the atmosphere and offer our customers low-carbon malt.

As I wrote in the introduction to the Boortmalt 2022 Sustainability Report, we need to accelerate our pace for more impact. To achieve this, work must be done internally and externally, including getting involved in partnerships. Internally, I have created a new division called Energy & Technologies alongside the Sustainability division, to focus purely on the high-pace implementation of our 60 projects, and equipped it with more resources such as engineers. Like the leader of the Sustainability division, its leader will sit on the ExCom. With this new division, I know we will achieve carbon neutrality by 2035.

Externally, we need to enter into more partnerships globally with all the players in the barley/malt/beer and whisky value chains. This is a necessary step in addressing scope 3 (suppliers and customers), which represents 70% of our emissions and is, in my view, the most difficult scope to tackle. Here at Boortmalt, we have put much thought into crafting an effective strategy to address this challenge. It is difficult, and many companies are still searching for a way out of the jungle. For those who have found a path, collaboration and partnership are vital to helping everyone progress through the transition. I intend to play a far more active role in this area in 2024 and beyond, because it offers even more potential for a positive impact. I have always considered agriculture as a vital part of the solution (and not systematically as the problem). Thanks to its power to sequester carbon, agriculture can also offer solutions to others. The consortiums that are formed need to address the money question. This is the stumbling block that is holding up all our efforts to adjust to regenerative practices – even though we know what the answers are and can see a pipeline of agri-related innovations, thanks to data, AI, robotics, life sciences and more.

> The future will be bright, but we need to stop excess emissions, become more conscious of biodiversity, and respect the balance of nature to keep our planet alive.

Boortmalt has engaged in many small-scale agri (scope 3) projects with blue-chip companies. We have even created our own Pure Local carbon-neutral barley sourcing initiative in Belgium thanks to highly motivated colleagues, start-ups, farmers and customers. These show that regenerative agriculture works and that strategies exist. They also tell us that each "terroir" requires a different set of custom-made solutions. This is what makes the regenerative agriculture debate so complex – there is no panacea. Our main shareholder, Axereal, has embarked on a bold transition, which we applaud.

Through our Singaporean shareholder Temasek, we have an inside view of what regenerative agriculture means for Asia, challenging us and forcing us to stay humble. Our third investor, Unigrains, has in-depth knowledge of the European regenerative agriculture landscape. The many small-scale initiatives are significant and promising, but the "big bang" has yet to happen. We must involve at least two thirds of our sourcing partners in carbon sequestration practices and help them become solution providers. And we can.

The water conservation challenge is well addressed as solutions exist. We adapted the Optisteep solution to the malting industry a couple of years ago, driving a 40% reduction in water consumption. We never sought, through patents, to keep the technology as tailored to malting just for Boortmalt; we promoted adoption by competitors and customers. There are more solutions available through which we can actively pursue an ambitious water conservation agenda. We are lucky to have very talented people in this field of expertise.

We have made tremendous strides in safety in the past few years. 2023 was no different. I am delighted to see that it is becoming less and less dangerous for our colleagues in production to produce malt. This is the way it should be. Zero accidents must be the norm, but we are not there yet. So our ongoing focus is critical, especially now that we are tackling the last few percentage points to take us to zero.

Our safety team is passionate about what they do and about keeping everyone safe: there is no injury worth sustaining to produce and sell malt.

There are many labels in the landscape, and Boortmalt, like many others, holds certifications from Ecovadis, CDP and more. I believe that some labels have more value than others. I particularly like the B Corp label as it is inclusive and means something to people, too.

In Europe, the CSRD (Corporate Sustainability Reporting Directive) is on its way. It will require us to report all our sustainability efforts according to a well-defined standard, alongside our financial statements. I welcome this initiative from the EU and hope there will not be too much administrative work cannibalising the bandwidth of colleagues driving the transition. That, after all, is the most important thing.

The future will be bright, but we need to stop excess emissions, become more conscious of biodiversity, and respect the balance of nature to keep our planet alive. We need to restore the fertility of our soils. I believe this can go hand in hand with yield and productivity, both of which are required to feed the world. In some countries, the regulatory environment may impede the acceleration of the transition. This is where a well-built consortium could get its voice heard and make a difference.

Watch this space!

Yvan Schaepman
Boortmalt CEO

“At its essence, sustainability means ensuring prosperity and environmental protection without compromising the ability of future generations to meet their needs.

A sustainable world is one where people can escape poverty and enjoy decent work without harming the earth’s essential ecosystems and resources; where people can stay healthy and get the food and water they need; where everyone can access clean energy that doesn’t contribute to climate change; where women and girls are afforded equal rights and equal opportunities.”

Ban Ki-moon
Former UN Secretary-General

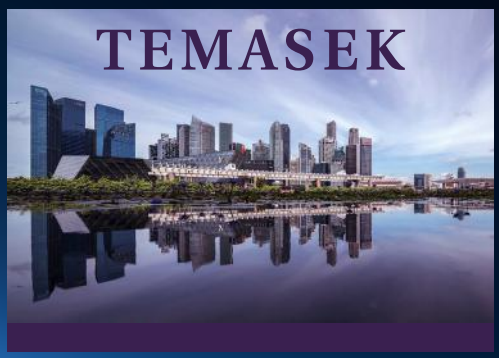
OUR SHAREHOLDERS

Axereal *is a cooperative group that unites 11,000 farming members around a common vision: to enhance and sustain agricultural production which contributes to improving food supply quality.*

Axereal collects and sells grain as well as oilseed both domestically and internationally. A percentage of the grain is processed through its industrial plants into flour, malt and animal feed.

> The malt business of our cooperative group, led by Boortmalt, sets an example in terms of sustainable development. It fits perfectly with the values of our cooperative group, anchored in a long-term trajectory, and co-constructed with the farmer members. This culture of proximity and collective spirit is a strength that we put at the service of our customers.
>
> ***Jean-François Loiseau, Axereal President***

> Boortmalt, like the entire Axereal group, is fully committed to the agricultural and food transition. We aim to increase our profitability by structuring our activities, from the field to the customers now moving towards regenerative agriculture. Each step towards more sustainable production and processes is an additional step to serve the expectations of our customers, and ultimately consumers.
>
> ***Paul-Yves L'Anthoën, Axereal CEO***



Temasek *is a global investment company headquartered in Singapore. Temasek's portfolio value is about €265 billion. It spans a broad spectrum of industries: financial services; telecommunications, media & technology; consumer & real estate; transportation & industrials; life sciences & agribusiness.*

> Temasek is a generational investor. We invest today with tomorrow in mind which implies that sustainability is at the core of our mandate. We are proud to have supported Boortmalt over the years, one of the world's largest malt producers, operating at the leading edge of sustainable values in the malting industry.
>
> ***Deputy Head EMEA, Global Head of Private Equity Fund Investments and Impact Investing, Temasek***

Unigrains *is a reference partner for agri-food and agro-industry companies in France and abroad. An independent investor, Unigrains has been majority-owned by French grain farmers' associations since it was created on their initiative nearly 60 years ago.*

> Unigrains fully supports Boortmalt in its pursuit of ambitious CSR objectives that serve to structure a sustainable and long-term vision. Serving on the Board of Directors, we intend to accompany these important and demanding initiatives and be a driving force for continuing to transform ambitions into concrete actions.
>
> ***Didier Bosc, Director of Strategy***

BOORTMALT TODAY

1,200
MASTERS OF MALT

3M mt
PRODUCTION CAPACITY

5
CONTINENTS

27
MALTING PLANTS

Leading by example, Boortmalt stands out in the malt industry with annual production capacity of 3 million metric tons. We have been working for years to become the go-to partner for brewers and distillers, by supplying them with top-quality barley malt and supporting them thanks to the expertise of our Masters of Malt worldwide.

Distillers

Our distillers' spirits are the result of centuries of expertise and knowhow. We ensure we provide them with authentic distilling malts customised to achieve optimum distillery performance and preserve the roots and identity of their products.

Brewers

Our brewer customers, whether large-scale global players or midsized local champions, always expect the very best products and service quality from us. Each brewer has different needs, recipes and ambitions, and that is why Boortmalt cares.

Food Sector

Food manufacturers are interested in using our malt in supplements, flours and other malt-derived products, as it is a highly functional ingredient offering consistent quality and availability. Working hand in hand with our food sector customers, we aim to promote malt's potential in innovative food products and use it as a game-changer to disrupt this constantly evolving sector.

CUSTOMERS

AGRICULTURE

Our ability to optimise each step of Boortmalt's supply chain, from seed to malt, is a key competitive advantage as it enables us to reach our quality standards. Our worldwide network of growers produces some of the best-quality malting barley by following the highest environmental and food safety regulations.

We work closely with them to employ state-of-the-art technologies such as satellite monitoring and precision farming techniques to optimise seeding rate, fertiliser application and crop protection. We also collaborate with barley breeders to continuously develop new varieties of malting barley, and perfect existing ones by improving their agronomic sustainability and resilience.

MALT QUALITY

Malt is not only a commodity but a food ingredient that must be carefully crafted, from the barley selection stage through to the recipe, water and use of heat.

A high-quality malt results from the expertise of a skilled maltster who knows how to manage the natural germination process and ensure optimal conditions to meet the expected requirements.

From the field to the customer, we analyse samples to make sure we deliver high-quality malt at all times. Our laboratory network is constantly striving to offer new services and ever more accurate analyses.

OUR FAMILY OF LOCAL MALT HOUSES

MALT OFFERING DEDICATED TO CRAFT BREWERS

BADASS BARLEY Malt

JOE WHITE MALTINGS

LA FABRIQUE DEPUIS MALTIERS CONTEMPORAINE 1893

PAULS MALT

MINCH MALT 1847

BELGOMALT

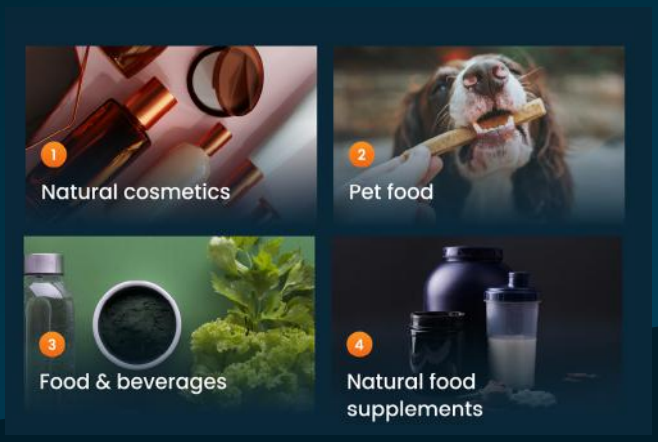
UMA MALTA

PRAIRIE MALT

The craft brewers and distillers we work with are passionate about what they do and the enjoyment they share among their communities. They are all deeply anchored in their local areas and very much driven by their own values. They choose to partner with our family of local malt houses all around the world because we genuinely care about their long-term success and growth. Our dedicated teams strive to support them and explore new territories every day. Our daily collaboration is a source of inspiration for the whole industry.

INNOVATION

One of Boortmalt's main ambitions is to revolutionise the malting industry. Through our Innovation Centers in Belgium and Argentina we support different avenues of innovation, from collaborating with universities, start-ups and research centres to developing projects and products.



BOORTMALTX

Our acceleration programme, BoortmaltX, is dedicated to fully supporting early-stage ventures aligned with our core business lines. BoortmaltX aims to nurture innovation, foster inclusivity and drive sustainability, with the ultimate goal of revolutionising the use of malt-related ingredients within the food & beverage, pet food, natural supplements and cosmetics industries.

CREATIVE SERIES - INFUSION MALT

Infusion Malt takes malt as a raw material to the next level. By combining spices, herbs, botanicals, fruits and more into the malting process, aromatic and flavourful compounds are inherently infused into the starchy endosperm matrix of the malt during endosperm modification. The result? An unparalleled, complex malt that brewers and distillers alike can integrate into their recipes to create a whole new generation of unique and inspiring beverages.

ATLANTIS SERIES

Boortmalt, in collaboration with bio-tech company Vivagran, has uncovered the hidden potential of a little-known, naturally bred cereal: tritordeum. Tritordeum was created in Spain and has been thriving around the Mediterranean down the centuries. It is stronger and healthier than other cereals, and we set out to unveil its time-honoured potential through a range of tritordeum-based malts, supporting the needs of different target groups.

MALTX - STICKS

The malting process has always been a natural way to enhance flavours and increase bio-accessibility of vitamins and minerals. Conscious of this mechanism, we resolved to shake up the snacking world by developing four tasty, healthy and nutritional snack concepts each using, as a core ingredient, a malted cereal: lentil, tritordeum, barley or wheat.

OUR STRATEGY

We have positioned ourselves as an inspiring leader in malt production not because it was our goal, but because of our drive to become the best at what we do and our vision of being Masters of Malt. Our stakeholders support our belief that sustainability comes from within. Many Boortmalt employees are brewers themselves by education or by passion and therefore fully understand our products and what we stand for. Our mission is to contribute to the enjoyment of communities by passionately making natural malts. We aim to excel and constantly improve in our seven key strategic dimensions.

7 STRATEGIC DIMENSIONS

MASTERS OF INNOVATION

We believe that craftsmanship and innovation work in symbiosis. Also, we aim to share our innovations and best practices with others in the industry, to help and inspire them.

MASTERS OF FINANCIAL PERFORMANCE

Our company's performance reflects the efforts made by our employees to reach their full potential. We understand that growth can only be achieved by running our business in a sustainable way.

MASTERS OF SUSTAINABILITY

We commit to sustainability not only for our customers but as part of our DNA, simply because it is the right thing to do. We make sustainability tangible. We have already achieved a great deal but know that we still have a long way to go to reach our goals.

MASTERS OF DEVELOPMENT STRATEGY

Continuous development is a key focus within our strategy thanks to our constant commitment to challenging ourselves and our wish to embrace pioneering ideas.

MASTERS OF OPERATIONAL EXCELLENCE

Our company culture empowers and motivates employees not only to produce high-quality malting barley but also to achieve long-term sustainable growth. We do so by focusing on adding value throughout our value chain, from farmer to brewer to end consumer.

MASTERS OF WELL-BEING

Our employees are our most important assets. Their energy, creativity and expertise contribute to building a more competitive and sustainable malting business. That is why their well-being is one of our top priorities. We welcome diversity by recognising that all individuals with a wide range of backgrounds and experience can contribute towards achieving our objectives.

MASTERS OF COMMERCIAL SOLUTIONS

Being the best for our customers within a global competitive market means that we need to keep actively communicating and collaborating with them to meet their ever-changing needs.

BOORTMALT HIGHLIGHTS 2022-2023

September 2022

DRINKTEC

From 12 to 16 September, Boortmalt was present at Drinktec in Munich, the world's leading exhibition for the beverage industry.

Attendees were able to taste our "Infusion Malts" and our maltshake, and discover our full range of malts.

September 2022

BOORTMALTX EDITION 2

BoortmaltX aims to support early-stage ventures to nurture innovation, foster inclusivity and drive sustainability.

The programme's main mission is to revolutionise the use of malt-related ingredients within the food & beverage, pet food, natural supplements and cosmetics industries.

With a focus on valuable support, mentorship and access to cutting-edge facilities, BoortmaltX empowers start-ups and entrepreneurs to create meaningful, sustainable and impactful malting innovations.

Join BoortmaltX on this transformative journey, and let's shape the future of malt together!

December 2022

FIRST PIPELINE LAID FOR THE ANTWERP NORTH HEAT NETWORK

On 20 December 2022, Yvan Schaepman, Boortmalt CEO, symbolically laid the first pipeline of the Antwerp North Heat Network with the project partners.

Thanks to this large-scale heat network, from 2024 we will produce malt using residual heat from the Indaver plant instead of fossil fuel, bringing us closer to our Horizon Net-Zero Carbon goal.

This transition from fossil fuel to waste heat will cut CO_2 emissions by 80,000 metric tons per year.

January 2023

NEW HERENT STEEP HOUSE OPERATIONAL

After a year-long construction project, the Boortmalt site in Herent inaugurated a new steep house.

The goal of this ambitious project was to replace the site's previous steep house, which was 55 years old.

The new facility was designed in-house and built with state-of-the art materials. It has steeping capacity of 47,500 metric tons of malt per year and includes a CO_2 heat recovery system.

April 2023

WORLDWIDE DISTILLED SPIRITS CONFERENCE - ATLANTIS SERIES

Boortmalt attended the WDSC 2023 - Worldwide Distilled Spirits Conference in Edinburgh to introduce the Atlantis Series, the result of years of agronomic and malting research.

Together with our partner, the biotech company Vivagran, our team was proud to unveil the hidden potential of a little-known, naturally bred cereal: tritordeum. They also introduced a full range of products made from this high-performing cereal: the Atlantis Malt Series.

June 2023

MALTING COURSE 2023

Our Malting Course is a one-week event structured around presentations, site tours and hands-on sessions.

During the week, we covered several topics, from barley and malt all the way to beer and whisky.

Beyond understanding the malting process, participants also gained insights into regenerative farming, the supply chain and the barley market, sustainability and innovations in the malting industry.

We would like to thank our highly motivated and committed attendees for their enthusiastic participation in the 2023 Malting Course. We're already looking forward to the 2024 edition!

August 2023

ATHY HEAT PUMP KICKOFF

The Athy heat pump is a flagship project for Boortmalt, because using electrically powered heat pumps to supply our plants is one of the key ways we can cut our carbon emissions from energy consumption.

This is the first large-scale heat pump project in the malting industry to recycle waste heat from the malting process. It will be operational in 2024.

BOORTMALT EMISSIONS
From Barley to Beer & Whisky

Boortmalt Malt **Cradle to Gate Footprint**

Boortmalt Sphere of influence = its **Scopes 1-2-3**

End-to-end Value Chain of Beer/Whisky

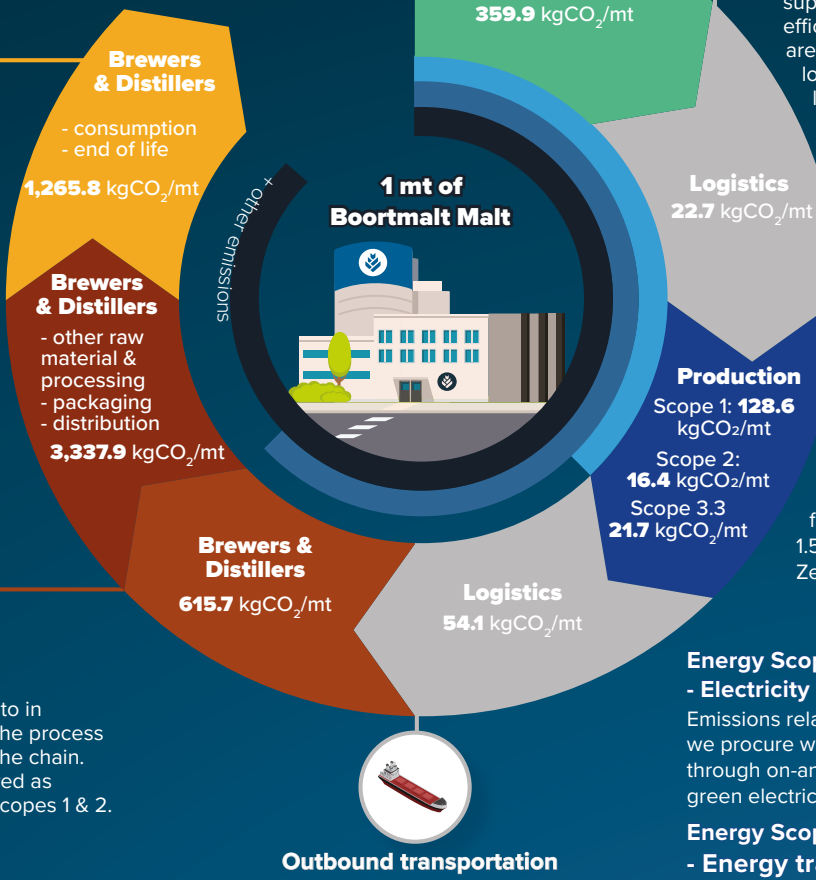
Farming
purchased goods & services

Main contributor to scope 3 upstream. Our objective is to engage with more than 2/3 of farmers/ coops/dealers, to drive sustainable practices and reduce CO_2 emissions. We use CFT for data capturing and reporting.

Inbound transportation

Where possible we source barley locally to make the supply chain as short and efficient as possible. We are partnering with our logistics providers to look for electric and in the future hydrogen solutions.

These are emissions from brewers and distillers that come from other raw materials processing, packaging and product distribution logistics.



Energy Scope 1
- Heat production

The malting process is currently fuelled primarily by burning gas. We have a fully worked-out strategy for 1.5°C by 2030 as well as a Net Zero Strategy in place.

Brewing & Distilling

This process is referred to in Boortmalt's scope 3 as the process of sold products within the chain. This process is considered as brewers' and distillers' scopes 1 & 2.

Energy Scope 2
- Electricity purchased

Emissions related to the electricity we procure will be reduced to zero through on-and off-site PPAs and green electricity with certificates.

Energy Scope 3.3
- Energy transmission

Emissions related to the transportation of energy.
As we reduce the need for gas, our scope 3 emissions relating to the transport of gas will decrease, and those relating to the transport of electricity will increase.

Outbound transportation

A large part of downstream transport is handled (and paid for) by our customers hence our potential direct impact is limited. We are partnering with customers to use CNG/LNG, test out electric solutions, and in the future go to hydrogen.

1.3 mt of Barley
=
1 mt of Malt

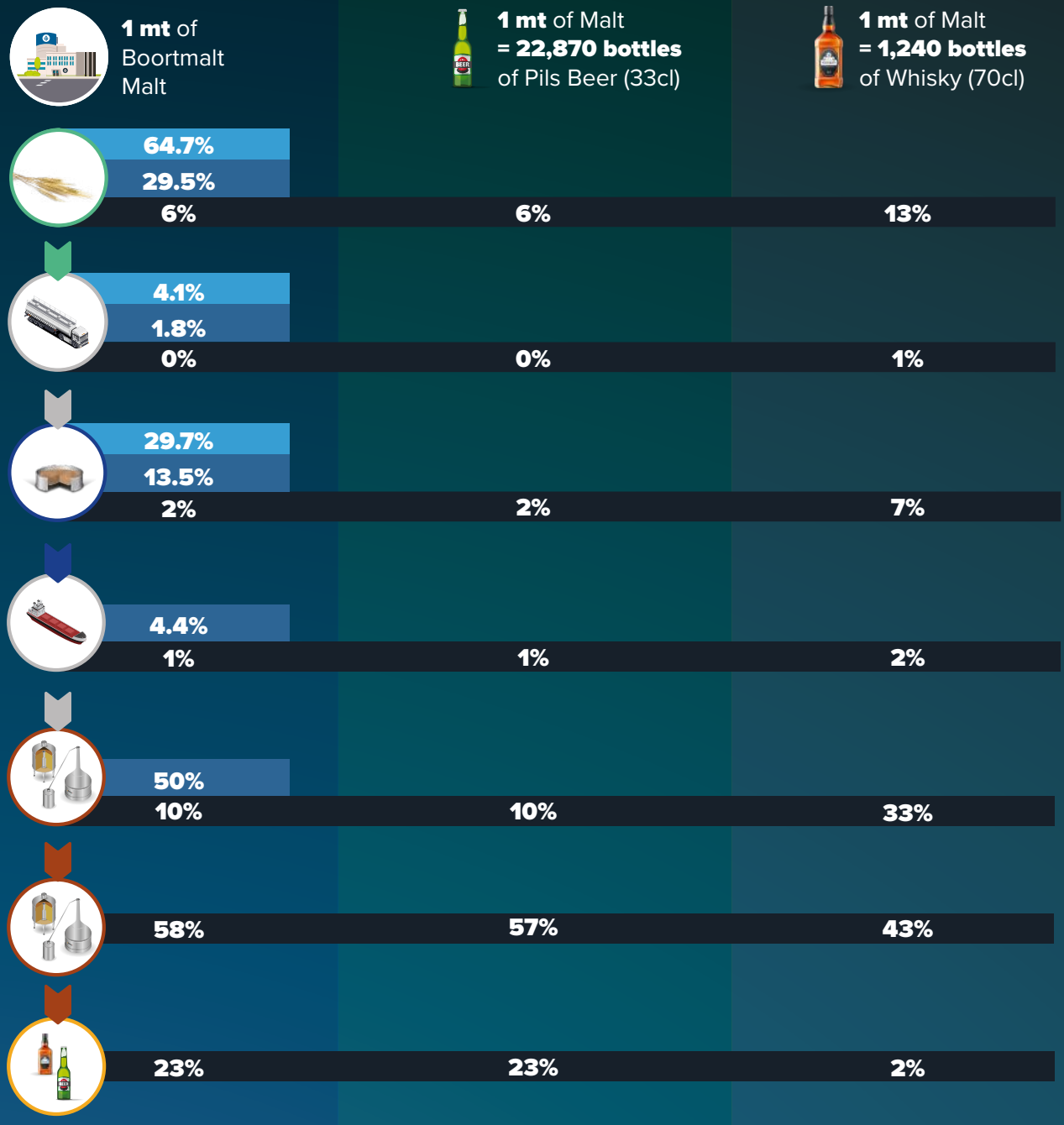
Other emissions - 8.4 kg CO_2/mt

Waste - 0.4 $kgCO_2$/mt

We have very little waste as malting is a natural process based on the germination of barley. It has a side stream of animal feed and a small flow of organic waste going to fertiliser/compost/anaerobic digestion. We aim to have no organic nor other waste going to landfill.

Packaging - 0.5 $kgCO_2$/mt

Most of our shipments are non-packed so the footprint of our packaging material is very small and not material. Yet, we do consider it critical as part of our "waste" strategy.



* The proportion of other emissions is small and not included

Business Travel & Employee Commuting - 1.3 $kgCO_2/mt$

Although the volume of emissions concerned is low, we believe that small changes impacting our employees directly are important. We have a policy in place for electric cars and on-site solar-panel-driven charging stations.

Capital Goods - 6.1 $kgCO_2/mt$

We do not actively strive to reduce the carbon footprint from investments in our buildings and infrastructure as they are needed to decarbonise the malting process. Nevertheless, we implement improvements where possible.

SUSTAINABILITY AT BOORTMALT

Driving sustainability is all about change. Change with a purpose, change for the better. Yet building that shared view and passion takes time. And as the world around us is constantly evolving, it takes resilience and perseverance. As our CEO highlighted, we're doing a good job, but we need to keep our focus and accelerate to meet the targets we've set.

As you read this year's report you will, as in previous years, learn what we've achieved, what we're working on and what's next. As we're on this journey together with our farmers, coops, dealers, traders, suppliers, customers, contractors and consultants we're sharing more insights on what we're doing jointly. We're proud of the partnerships we have in place, and we're keen to broaden our scope and build many more to reach our shared goals.

The sustainability story of Boortmalt is written by all its employees. It is our story. And as we embrace our sustainability programme, we get better at it, and we see new opportunities every day. Are we going fast enough? No. Can we do better? Yes. Should we be proud of the stories we're sharing this year? Yes.

Enjoy reading the report, challenge us on what we're doing, and share ideas and suggestions so we can get even better together.

Inge de Winne
Chief Sustainability & Supply Chain Officer

4 CORE OBJECTIVES

HEALTH & SAFETY

We believe that TOGETHER we can make Boortmalt one of the safest places to work. That is why we promote an open and proactive Health & Safety culture with the full involvement of our people and stakeholders. This is reinforced through strong and visible leadership and by striving to achieve and maintain our group safety target of zero harm.

SUSTAINABLE FARMING

We promote continuous improvement in farming methods via local sourcing programmes prioritising practices that are environmentally sound and beneficial to local communities.

ENERGY EFFICIENCY & EMISSIONS REDUCTION

At Boortmalt, we have a proven track record in improving our energy efficiency and integrating the most cost-effective sustainability technologies in our malting plants.

WATER CONSERVATION

With water scarcity intensifying across the world, we strive to make our malting process as water-efficient as possible. We work to raise awareness of water conservation, with a focus on optimising our water usage and harnessing technology to boost re-use.

5 SUPPORTING OBJECTIVES

Based on United Nations SDG framework

UNITED NATIONS

COMMUNITY ENGAGEMENT

We believe that our business and the communities in which we operate should be well connected. We are convinced that strong and sustainable communities are the basis of our future and that we, through partnerships and sponsorships, can make a difference together.

EQUALITY, INCLUSION & DIVERSITY

Our 1200+ employees are at the core of our organisation and we consider them as our most important assets. Every day, with unwavering dedication, they contribute to Boortmalt's vision of becoming Masters of Malt.

BUSINESS ETHICS & CODE OF CONDUCT

We commit to conducting business in an ethical manner. We all stand by our Business Ethics Manual, which is an extended version of the Axereal Code of Conduct, and expect the same behaviour from our business partners.

WASTE REDUCTION

We are continuously optimising our yield and finding alternative uses for our by-products, thereby contributing to the overall UN goal of halving food waste globally by 2030. In addition, we also aim to reduce waste by using only fully recyclable and recycled packaging materials.

TRACEABILITY & TRANSPARENCY

As Masters of Malt, we want to be the trusted partner providing full end-to-end insights on performance and achievements, as well as being honest about where there's room for improvement. As a key global maltster, we have the responsibility to provide not only transparency but also traceability on our own programmes and throughout the many different collaborations across our value chains.

SUSTAINABILITY GOALS

CORE OBJECTIVES

HEALTH & SAFETY

SUSTAINABLE FARMING

BOORTMALT SUSTAINABILITY GOALS

ENERGY EFFICIENCY & EMISSIONS REDUCTION

WATER CONSERVATION

HEALTH & SAFETY

We believe that TOGETHER we can make Boortmalt one of the safest places to work. That is why we promote an open and proactive Health & Safety culture with the full involvement of our people and stakeholders. This is reinforced through strong and visible leadership and by striving to achieve and maintain our group safety target of zero harm.

Percentage of sites injury-free

68%	73%*	100%
BASELINE	FY 22-23 STATUS	TARGET BY 2030

0
People injured

Approach

Safe working is an integral part of how we plan, organise and undertake our business activities and operations to eliminate hazards and reduce risks. We strive and drive towards our target of zero harm by implementing our unique Together approach, underpinned by three pillars: People Engagement, Innovative Ideas and the Boortmalt Way. Our approach aims for effectiveness through simplicity.

Safety actions and projects are vital, but to reach our goal in the shortest possible time we need to go further. That's why we created our Together approach, with its three components: firstly, implementing safety actions, secondly, generating engagement among our people and thirdly, providing recognition. When we generate engagement in safety projects and provide recognition to the people involved, we create a virtuous circle: the more our people's efforts are recognised, the more engaged they become, encouraging them to continue and accentuate their efforts, moving us ever closer to our goal of zero harm.

> "Safety is not an intellectual exercise – it's about everyone around us. Every time someone gets hurt, however slightly, I'm deeply upset, because our main goal is for all our people to go home from work happy and proud of their achievements. Safety is a collective effort. We make it work together, and we will continue to do so!"
>
> *Mauricio Corsi*
> *Group Safety Manager*

*The backward progress is due to the increase in the number of sites

Implementing safety actions

Providing recognition

Generating engagement

2023-2025

Focus on upcoming actions

Over the next three years we will continue implementing our TOGETHER approach to move us towards our goal of zero harm. As ever, we will aim for effectiveness through simplicity, using tailor-made methods adapted to our culture for maximum effectiveness. We will ensure that all our sites work in full compliance with the group standards, which will in some instances involve a shift in mindset. Our global SHE meetings will form the linchpin of our commitment to spreading best practices, wherever they are developed, to all our sites across the world via networking and personal connections within the SHE and operations teams.

Thanks to the ideas disseminated at these meetings, we will continue to ensure that all our people are fully engaged in safety, so that best practices become second-nature at every location and our people implement them automatically. At the same time, we will expand the schemes we have in place to recognise and celebrate their efforts, from local strategies (champions certificates, safety breakfasts, family days, food truck visits, etc.) to the launch of a new Global Safety Award. This will encourage everyone to keep safety permanently at the top of the agenda and make accidents a thing of the past.

Implementing safety actions

Training is a key component of our safety actions

We run a wide range of projects on our sites to improve safety. Many of these take the form of training sessions, where staff are given the knowledge they need to keep themselves and their colleagues safe. In many cases, the training we provide goes well beyond the legal minimum, equipping staff with skills that are useful to them not only in the workplace but also as members of society.

First aid training

While travelling to work one day, David McCombe (Knapton Maltings Manager) came across a car driver in distress and performed CPR, saving the person's life. As a result, a group-wide initiative was launched to train all Boortmalt personnel across the globe in CPR.

The Knapton site was already training all personnel in emergency first aid, including CPR and the use of defibrillators (AEDs). Under the new initiative, all UK and Ireland personnel, regardless of department or direct employer, were given access to a CPR and AED module on the e-learning portal used in the region.

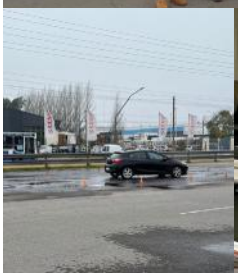
In addition, half-day practical group sessions facilitated by external first aid trainers were arranged at Athy and Buckie maltings. These sessions were an opportunity for the teams to extend their knowledge and test their skills on simulator AEDs and dummies. Staff and contractors from across the business took part, and everyone's feedback was highly positive. Further courses will be planned for FY24 across the region.

In Australia, CPR training was completed at all plants and the technical centre. Delivered both online and in-person, it covered basic life support strategy and how to perform CPR on adults and children. In North America, employees at Biggar, Sheboygan and Saskatoon attended two-day first aid training courses to equip them with these essential skills. A further course is planned in Minneapolis. Training has also been delivered across Europe, including at our Antwerp head office.

By learning CPR at work we could save a colleague's life, but we actually spend most of our time away from the workplace. We could come across a situation where someone's life is in danger at any time, making it even more crucial that we all have the knowledge we need to act. Logan Dommett, SHE Coordinator for North America, described equipping the workforce with the knowledge and skills to respond effectively in an emergency as "not just a professional responsibility but a moral obligation".

Occupational Health and Safety training at Boortmalt Ethiopia

Health and safety is a major focus at Boortmalt Ethiopia. Between 7 and 11 December 2022, all staff at the Debre Birhan plant benefitted from a full-day training course on occupational health and safety. In total, 54 people were trained.



Safe driver training in Latin America

Boortmalt Latin America organises theoretical and practical training for all staff required to drive in the course of their work.

The most recent course, entitled “Defensive driving – Safe driver”, was held in Buenos Aires on 23 June 2023 and lasted six hours. It covered the most common causes of road accidents in Argentina, and included practical sessions enabling the instructors to see how the drivers behaved in unforeseen situations, observe their habits and attitudes, and assess their safe driving potential.

At the end of the course, an evaluation was carried out. The practical section included a forward slalom (to assess arm technique and driving ergonomics), braking and dodging (braking technique and coordination) and cornering and counter-cornering (vehicle control, load transfer and grip limitations). There was also a ten-question theory test covering the course content. Once the participants had successfully completed the evaluations, each was issued with a certificate.

Confined spaces training at Bury St Edmunds

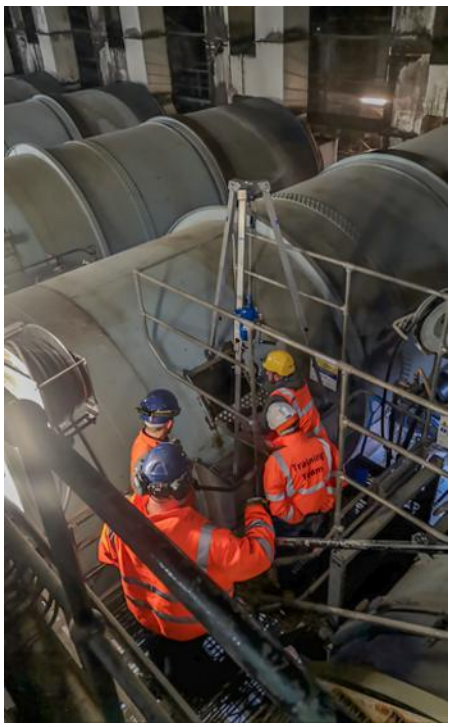
There are numerous confined spaces on all our sites. To keep our people safe, each year we run multiple confined space training courses across the business, both as initial training for new staff and as refreshers for experienced personnel.

During FY23, two on-site training courses were delivered at Bury St Edmunds by a local specialist training company.

Following the classroom session covering the theory of confined space hazards, UK legislation, safe entry, rescue methods and safe systems of work, a practical entry and rescue exercise was undertaken in one of the site’s confined spaces.

At Bury St Edmunds, practical exercises are normally carried out in one of the Boby drum germination vessels. Staff are required to enter these drums after each batch of barley is malted to ensure hygiene measures are implemented. As the UK Confined Space Regulations 1999 stipulate that we must not rely on the emergency services to rescue a casualty, enough site staff must be trained as rescue team members to ensure a safety team is on hand for every drum entry.

During the rescue drills, an observer takes notes and records the time required to recover the dummy. Afterwards, we review the process to identify opportunities to improve the recovery method and rescue the casualty more quickly in the future.



“When providing training, theory is important but it is the practical part that will make the difference in the long term. If the practical part is well done and linked to the daily lives of the participants, then there is a much greater chance of being able to reproduce and apply what has been learned in the field.”

Nicolas Pecqueux
SHE Manager FR-SP

Promoting good mental health

As part of a focus on the company's safety culture, staff in the UK and Ireland have completed Mental Health First Aid training. This equips them to assist someone experiencing a mental health crisis until professional help can be accessed. During the training, they learned how to spot common mental health warning signs, how to offer and provide initial help, and how to guide the person to seek professional support. The trainer talked about listening with empathy and identified words and phrases that can be helpful – and those which are best avoided.

The Boortmalt UK and Ireland leadership team is conscious that assisting someone who is experiencing a mental health crisis can be traumatic. Support is offered to all staff who find themselves in such a situation, to ensure that they don't "take the burden home with them".

In a further initiative to encourage a culture of awareness and support, Boortmalt UK and Ireland is encouraging every manager in the company to do "Just one thing". The idea is for them to work with their teams to make one change that will promote better health and wellbeing.

Boortmalt Ethiopia celebrates World Mental Health Day

Prompted by World Mental Health Day and the company value "Care", Boortmalt Ethiopia ran a full-day workshop for 16 employees from a range of functions on 10 October 2022.

The event was held at the plant, in collaboration with Sitota Mental Health and Rehabilitation Center. Topics included Mental Health Awareness, Mental Health Wellness, and Stress and Depression Management in the Working Environment.

Participants said the workshop was a valuable experience that would be useful to them in their everyday lives. From the point of view of the plant, which opened just two years ago, the event contributed to efforts to build an organisational culture and increase employees' knowledge and awareness of mental health.

The leadership team can see the benefits of organising mental health workshops in partnership with expert health institutions, both for individuals and collectively for the business.

"Prioritising mental health in the workplace fosters a positive and resilient environment, enhancing employee well-being and productivity. By cultivating a supportive workplace that values mental health, we empower our team members to thrive professionally and personally."

Haileyesus Getachew
Safety Manager Ethiopia

Generating engagement

We work hard to engage our people in all our safety actions, so that they take the messages on board and implement them every single day

At Boortmalt, we really believe that engaging people is key to making safety a reality on our sites. That's why we've designated "People Engagement" as a pillar of our Together approach.

Of course, one of the best ways to generate engagement in anything is to make it fun! We've done just that by taking a gamification approach to our safety training.

Tailored tools for stronger messages

We have created a number of tailored tools at group level. We take best practices and tailor them to our company culture to maximise their impact for our people. For example, the "Stop 5" campaign raises awareness of five risks that are particularly prevalent on our sites. To illustrate the risks, rather than sourcing a video using actors, we created our own film, shot on our sites and portraying our people. Seeing how an accident could happen in your own workplace really makes the message hit home! We also use a card game based on industrial safety situations that our staff can encounter day-to-day.

The cards are marked with instructions that the players must follow, such as "Ask the oldest person and the youngest person in the group their reasons for wanting to go home safe and sound today" and "Fetch the nearest fire extinguisher and show the rest of the group how to use it". We have created a special version of the game just for Boortmalt, using our own content.

Bahía Blanca celebrates World Safety Day

Our sites work hard to engage employees in safety too. On Friday 28 April 2023, to celebrate World Safety Day, the Bahía Blanca team got together to enjoy some fun safety-themed activities. In one, staff were asked to find the drawing which had been stuck under their seat and explain what it meant or represented to them. (The drawings were about working at height, confined spaces, explosions, etc.) They also played "Poker Safety". The staff thoroughly enjoyed the day, and the plant leadership team felt that it was a great success in terms of the momentum created. The Bahía Blanca site will definitely be running similar events in the future!

Safety-themed Family Day at Villaverde

At Villaverde, safety was the key theme for this year's Family Day. On Saturday 26 March 2023, we welcomed our employees' families to the site for a tour and a variety of activities. Everyone was kitted out with high-visibility vests and hard hats. There were explanations of the malting process, and even a VR experience. The focus was on maximum impact. For example, visitors didn't just hear about how to use a fire extinguisher or watch a demonstration, they actually had the chance to fight a real fire, courtesy of our fire safety supplier. There was an opportunity to climb up into a truck cab to understand the driver's blind spots to stay safe as a pedestrian or road user. The children enjoyed activities designed specially for them including pictures of "Mr and Mrs Safety" to colour, games to play and a chance to sit in the driver's seat of a truck. To round off the day, everyone shared a barbecue. During the event, a Spanish olive tree at the entrance to the site was designated the "Safety tree". Each day, when the staff walk past it on their way into work, it will remind them of the day and put safety top-of-mind.

Global SHE meeting

SHE at Boortmalt is championed by a close-knit team of ten people, based around the world. In March 2023, for the very first time, they all came together in one place for a week-long meeting. The aim of the week, held in Antwerp, was to construct a five-year plan, share best practices and build team spirit.

The agenda was designed to be particularly engaging. The tone was set long before the meeting began, with participants introduced to one another and given a task to tackle in pairs. The team worked together to plan the meeting, with members particularly expert in each specific area preparing to present their best practices to their colleagues. Rather than a "traditional" safety topic, the first session was given over to "Knowing yourself and others", focusing on purpose and happiness. It included a "Twister-style" game based on the Enneagram personality test.

To build a five-year plan, participants were asked to imagine themselves in the future and see how it looked. They then decided how they were going to get there, writing their ideas on post-it notes. Several sessions were spent working together from these ideas to form the plan in five bullet points. The week also included plenty of time outside the training room, with factory tours, a visit to a customer's brewery and a behind-the-scenes tour to see how safety works at Antwerp Cathedral.

This event was a great success. Apart from all the knowledge they gained, the team built strong bonds meaning that they now work together much more closely and don't hesitate to call on one another for advice. Boortmalt management also appreciates the value of these meetings, which are set to be held annually in different locations across the globe.

Providing recognition

When their efforts to improve safety are recognised, people are motivated to do even better!

As well as giving staff an extra reason to do everything they can to keep themselves and each other safe, this recognition also keeps safety top of mind for everyone.

SHE reward and recognition procedure

In December 2022, Boortmalt Australia introduced a programme to support and promote individual achievements in SHE-related activities that have made a difference to the site or team. The programme is backed by a formal procedure. Each month, management calls for nominations from each plant regarding individual actions matching the criteria in the procedure (for example, See-Say-Stop interventions, hazard recognition and demonstrating SHE values). If the regional SHE manager and the plant managers agree that the action meets the criteria, the site presents the individual in question with a certificate and a small gift at a morning tea. They also write a short article to be published on Yammer, tagging the Managing Director, HR Manager and Group SHE Manager. In addition, the achievement is mentioned at the quarterly town hall meeting. All of this serves to promote safety and encourage the teams to work and act in a safe manner, not only for themselves but for their team mates as well.

So far, 12 individual certificates have been awarded. At the end of the year, senior management will present an annual award to the best plant from a safety perspective. This will be great publicity for the plant, and a donation will be made to a charity of their choice.

Celebrating our successes

When it comes to celebrating time without recordable injuries, our plants have no shortage of ideas!
Every staff member is involved in making safety decisions, every single day. Our purpose is clear: each day we want to do better than the day before as we strive towards our group safety target of zero harm. Our plants around the world have marked some impressive safety achievements this year, with nine years without a recordable injury (an injury requiring treatment beyond first aid) in Nova Gradiska, six years in Bahía Blanca and many other excellent statistics!
Celebrations ranged from sharing delicious pâtisseries in Strasbourg to enjoying a barbecue in Alvear and tucking into Flemish fries in Antwerp and the UK. Sheboygan took a different approach, gifting each of their employees a folding director's chair!
However we opt to do it, celebrating our milestones is an important part of providing recognition to our staff for their efforts, and motivating them to keep focusing on safety in everything they do, being hazard aware and taking action to eliminate risks.

SUSTAINABLE FARMING

We promote continuous improvement in farming methods via local sourcing programmes prioritising practices that are environmentally sound and beneficial to local communities.

Barley volume assessed through carbon emission measurement tool with the aim to reduce the footprint

5% BASELINE

9% FY 22-23 STATUS

67% TARGET BY 2030

Approach

With searing heat, violent storms, extreme rainfall and severe drought, it is impossible to ignore the devastating effects of climate change on our planet. They make us more determined than ever to promote sustainable farming, in the form of regenerative agriculture: an approach that not only protects the land from harm, but actually improves it. Regenerative agriculture is about farming in a way that nurtures and restores the soil, and using resources more efficiently.
It is vital for us to support our barley suppliers by driving sustainable practices because the barley from which our malt is made accounts for 65% of its cradle-to-gate emissions (the emissions generated in producing malt, starting when the barley is grown and ending as the malt leaves our factory gate).

When they implement regenerative agriculture initiatives, farmers enhance soil health, improve water quality and increase biodiversity, all of which boost sustainability. In the long term we are convinced they stand to benefit financially too. Implementing different elements of regenerative farming leads to resource-efficiency and reduces costs. At the same time, it offers farmers the opportunity to attract premiums and hence higher incomes.

> The agricultural transition is underway. The entire industry must be at farmers' sides to support them in this new vision of agriculture.

Pierre-Eric Souplet
Group Barley Procurement

Our engagements with farmers and cooperatives

Regenerative farming

Farming initiatives

2023-2025

Focus on upcoming actions

We have three priorities for the next three years. Firstly, to continue our strategy of supporting initiatives to establish best practices in regenerative farming. Secondly, to pursue our involvement with suppliers and customers in programmes to bring low-carbon malt to the market. Thirdly, to carry on using the SAI Platform's FSA and equivalent certificates to drive sustainable practices across all farms.

Change comes slowly to farming, due primarily to the long crop-growing cycle. This means it takes time to see the results of initiatives, and there are a limited number of harvests available in which to act. Consequently, we are particularly focused on working with our biggest suppliers where we can have the greatest impact in the shortest time and harnessing the power of innovation and start-ups to help us. In regions where we work with farmers directly, we aim to promote direct-farmer programmes.

We are keen to further develop our role as a facilitator, supporting farmers in working regeneratively and establishing links between them and the customers who want to buy more sustainable malt to meet consumer demand. We believe it is important to add value by gathering and analysing data and sharing the insights gained at local, regional and country level, for the benefit of all. In addition, we will support consistency, traceability and transparency by collaborating with verification entities and facilitate the process of certificate or credit generation where this is requested. We will therefore continue to encourage the use of the technical agronomy data solutions that enable the different links in the chain to work together. For example, Boortmalt Argentina is working on a project involving several digital system pilots to source 130,000 metric tons of barley, fully traceable and fully analysed using Cool Farm Tool.

Our engagements with farmers and cooperatives

Our SBTi scope 3 commitments and how we're moving towards them

Boortmalt has joined the Science-Based Targets initiative (SBTi), and under this we have committed to a target of reducing our scope 3 emissions covered by the initiative by 30% by 2030. Scope 3 emissions are indirect emissions that occur within our value chain, but that we do not produce directly. The 3.6 million metric tons of barley that we purchase from our suppliers each year to make our malt are a major contributor, accounting for 30% of our scope 3 emissions.

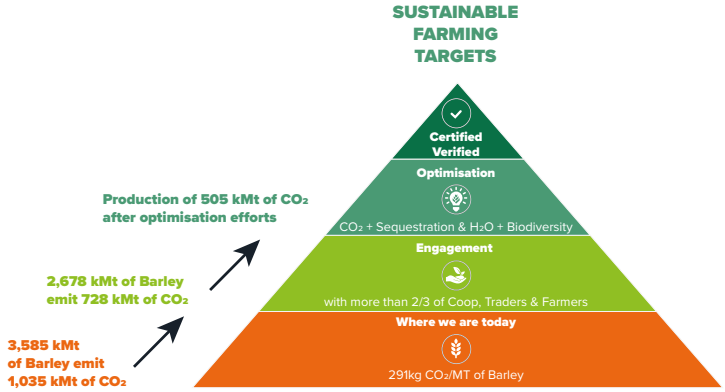
Boortmalt as a company does not grow crops, so we do not have direct control over the way the barley we use is farmed. Our role is therefore to support the change process being undertaken by the farmers whose barley we process, through the cooperatives and organisations that supply it to us.

Reducing emissions generated by agriculture is both a significant challenge and an enormous opportunity. Given the long production cycles in farming, and the weight of tradition and history, things change slowly. All farms, all areas and all countries are different in terms of their practices, soil, climate and more, so there's no one-size-fits-all approach to cutting carbon. It is important to trial different options to see what works best for different crops and different conditions. Fertilisers account for around half of the emissions generated by farming, so they will obviously be a particular focus for farmers and their cooperatives and organisations, working with fertiliser manufacturers.

At the same time, this is an exciting area brimming with opportunities. According to estimates, the forest, land and agriculture sector represents almost a quarter of global greenhouse gas emissions, meaning that cutting carbon in this sphere will have a significant impact. In addition, there are many innovative start-ups harnessing the power of technology to help farmers operate more sustainably, with robots, digital tools, GPS mapping of fields and much more.

We are committed to supporting our suppliers through our involvement in the initiatives and trial programmes that are paving the way for the future of barley farming. We offer support both by playing a direct role in many of these schemes, and through our involvement on a commercial level. We are the link between farmers ready to make changes and produce in more responsible ways and brewing and distilling customers looking to source sustainably-produced malt for their planet-conscious customers. We ensure that the farmers receive the income premiums they need to compensate them for the time and efforts that go into these changes. Ultimately of course, they will be rewarded with more fertile soil and more resistant crops. In providing this support for our partners as they work to produce barley more sustainably, we are delivering on our SBTi commitments and living out our company values of Strive, Care, Explore and Inspire.

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION



> Each “terroir” requires a different set of custom-made solutions. This is what makes the regenerative agriculture debate so complex – there is no panacea.

Yvan Schaepman,
Boortmalt CEO

Regenerative farming

What regenerative farming is and how we're helping to establish best practices

Why regenerative agriculture?

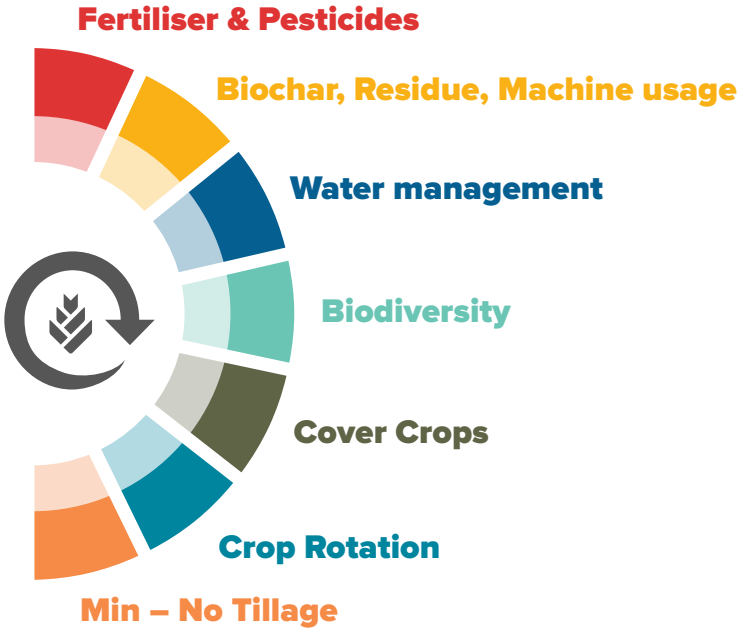
Regenerative (or "regen") farming has become a major sustainability focus in recent years, not just at Boortmalt but also for policymakers, environmental activists and the farming industry at large. It's a philosophy that aims to "regenerate" the soil: nurturing and restoring it, so that it will continue to be capable of producing high-quality, nutrient-dense food in the future.

There is no definitive definition of regenerative farming, but it differs from conventional farming in three main areas. Firstly, soil management: "minimum tillage" systems are used to ensure that as much carbon as possible remains sequestered in the ground. Secondly, fertilisers. Not only are regenerative farmers very selective about the fertilisers they choose (certain low-carbon formulations claim a 70% lower footprint), they also reduce the total quantities they use and adapt their application methods. And thirdly, emissions, which are reduced by cutting fuel consumption through electrification, adapting pesticide usage and tailoring logistics.

This approach to farming has a host of benefits for the environment, as it sequesters more carbon in the soil, minimises the need for watering by making the ground more absorbent and leaves important micro-organisms undisturbed.

In addition, it promotes biodiversity and prevents erosion. Some chefs even claim that regeneratively farmed produce is tastier!

Farmers benefit too: with fewer chemical inputs to purchase, their costs are lower. This boosts profitability. At Boortmalt, farmers operating regeneratively can sell their crops through specific channels such as "neutral malt". With many people prepared to pay a premium for climate-smart products, these channels unlock additional value, resulting in higher incomes.



Green manure and vermicomposting for sustainable agriculture in Ethiopia

Boortmalt Ethiopia and Debre Birhan University are working together to trial vermicomposting and green manure with a view to boosting crop yields by improving soil health.

The main objective of the trial is to find the optimum balance between organic fertilisers and inorganic fertilisers. Organic fertilisers are made from plant- or animal-based materials that are either by-products or end products of naturally occurring processes. These fertilisers provide nutrients more slowly and naturally, improving the soil's properties and microbial community.

Inorganic fertilisers are manufactured artificially and contain minerals or synthetic chemicals. They can harm the environment, for example through greenhouse gas emissions, and cause issues for farmers, such as changes in soil pH and soil salinity.

The trial involved three different combinations of vermicompost, inorganic fertiliser and liquid fertilisers. Once the results are known, they will be demonstrated to farmers through field day events.

Carbon-neutral barley in France

Boortmalt is working with Axereal to run Malt Neutre, a programme to encourage farmers in France to grow carbon-neutral barley by using the principles of regenerative agriculture.

The programme supports the fifty-plus participating farmers in their transition from conventional to regenerative farming. The first of the three main areas where the farmers are making changes is fertiliser usage. They are encouraged to replace mineral fertilisers with organic alternatives, working them into the top layer of the soil.

The second area is adding cover crops into their crop systems, to protect the otherwise bare soil and add organic matter between the main crops. The final major change is in the degree to which the soil is worked – under this programme, the farmers minimise disturbance by limiting deep and intense tillage.

Farmers collect data on their practices and results and enter it into the Cool Farm Tool calculator to work out how much carbon they have captured. Soil Capital, a carbon credit service provider, acts as a trusted third party, guaranteeing that the data has been collected and analysed correctly, and issues carbon credits for the carbon that has been captured. It pays the farmers for the ecosystem services they provide when they capture carbon, and sells the credits on to businesses wishing to offset their emissions or make substantiated contribution claims.

Based on the data they submit, each farm is classified as level 1, 2 or 3 according to a points-based system, with level 3 corresponding to the most regenerative approach. Under the Malt Neutre programme, farmers are paid a premium for their crop based on the level at which they are operating, with level 3 farms receiving the maximum amount. The expectation is that the farms will progress through the levels over the five years of the programme.

The results of the first full year are in, and the news is very positive: 83% of the farmers involved in the programme, representing 84% of the barley volumes collected, are already operating at level 3!

SOILCAPITAL

Sustainability research project in Canada

Boortmalt Canada is involved in a research project to look into reducing the environmental impact of finished malt, by cutting greenhouse gas emissions, energy use and water consumption. As 60% of the environmental footprint of malt is judged to come from the barley itself, identifying more sustainable ways of farming is a key part of the research.

Sustainable practices such as low- and no-till techniques and GPS fertiliser mapping are already common among Canadian farmers, and harsh winters make it difficult to grow cover crops. Consequently, identifying ways to become more sustainable is not straightforward.

The project will have a number of objectives. The main ones are to benchmark current barley production practices to quantify GHG emissions and other impacts, to benchmark the materials and energy used in the malting process, and to look for emission "hot spots" in the malting supply chain and processing to identify the areas where the greatest impact can be made. It will also investigate the environmental impacts of different malting systems, and the potential for modifications to cut energy and water usage. Lastly, it will look at the effects of different barley types and varieties on the potential for reductions.

Boortmalt will be involved in providing baseline data and running trials. Funding has been secured for the project and it is now in the planning stages.

4R Nutrient Stewardship in Canada

The 4R Nutrient Stewardship approach was created by Fertilizer Canada, an industry body, to help farmers understand the need to optimise their use of fertilisers to reduce environmental impacts without compromising food production.

Under the approach, agronomists explain to farmers how best to use fertilisers to replace the nutrients that are taken up from the soil when they grow crops. The 4Rs of the approach are: Right source – matching the fertiliser to the crop's needs, Right rate – applying the appropriate quantity, Right time – making sure the nutrients are available when the crop needs them and Right place – keeping the nutrients where the crops can use them.

Boortmalt is involved in this programme based on a request from Sapporo, a major customer. Under the programme, farmers carry out soil tests and map fields so that they apply exactly the right type and quantity of fertiliser to the individual pockets of land. They keep a journal of precisely what fertiliser is applied and where, and Sapporo can access this on request.

Reducing the carbon footprint of malting barley in Argentina

Boortmalt Argentina is working hard to identify ways of reducing the carbon footprint of our principal raw material, malting barley. The local team is focusing on achieving this through low-carbon fertilisers and precision agriculture technology. Two years ago, they were inspired by information about the new practices being tested on the company's experimental plots.

Based on the promising results of these tests, Boortmalt met with the Argentina leadership team from a fertiliser manufacturer, with a view to exploring how the two businesses could work together to trial these ideas as well as a new fertiliser product, and explore a business model to decarbonise barley sourcing.

The team selected a group of committed, dependable farmers interested in improving quality, reliability and environmental impact. Boortmalt staff and agronomists from the manufacturer worked with them to apply the fertiliser, monitor the crops and record the results, specifically yield, quality, profitability and carbon footprint.

In 2022, the project covered 500 hectares of barley fields across six sites in two regions, and produced 1,800 tonnes of malting barley. The exact results varied depending on the tillage system used, but on average, yields remained unchanged, nitrogen applied dropped by 26% compared to standard farm treatments, nitrogen use efficiency (the ratio of crop nitrogen uptake to the amount of nitrogen applied) increased by 32% and emissions (CO_2 equivalent per metric ton of barley) fell by 30%.

Under the commercial model developed for this year, farmers purchased the fertiliser from a distributor in May 2023. They will run their crop season with technical support from the fertiliser manufacturer, and then sell their barley to Boortmalt, using part of it to pay for next season's fertiliser under a barter model.

All the parties involved have benefitted from the project. It has provided Boortmalt with a source of decarbonised malting barley and strengthened the synergy with the manufacturer. In addition, it has brought the manufacturer new farmer customers, given existing farmers an incentive to cut carbon and interested new farmers in growing malting barley.

Given the success of this initiative, we are now planning to roll it out on a larger scale.

> "The power of collaboration enables us to share value and go further together"
>
> *Laureano Boga*
> *Agricultural Supervisor*

Farming initiatives

Across the world, Boortmalt is involved in numerous regenerative farming programmes

It is vital for us to work with farmers, running initiatives in the field to find the most effective ways to operate regeneratively. These initiatives serve to test and establish good practices that can then be shared to other locations where they will be a good fit. The commitment and enthusiasm of the farmers involved is crucial, and it is their feedback and experiences that will convince the farming community at large that regenerative practices are the way forward.

Certified Sustainable malt in Australia

To meet demand from brewer customers, Joe White Maltings, Boortmalt's brand in Australia, is now offering malt that meets the Certified Sustainable standards.

Certified Sustainable is a not-for-profit organisation created by a group of like-minded farmers who set out to reduce their carbon footprint by promoting regenerative farming practices. Barley certified by the organisation generates less than 50% of the emissions of conventional barley. Strategies employed by farms to achieve this include minimising tillage, using less fertiliser, building strong crop rotations and introducing cover crops.

During the year, Joe White worked with a malt distributor to offer Certified Sustainable malts to customers under two separate projects. The first project involved conducting a one-off toll malting (when the customer's own barley is malted as a separate batch) at the Perth plant for a sustainability-focused Australian brewer. The brewer aims to reach net zero direct emissions by 2025.

The project was challenging. The numerous different parties involved had to work closely together and in addition, moving a small (300 metric ton) batch of barley through the world's second-largest malting plant, where daily output is 600 metric tons, and managing to keep it totally separate is no mean feat!

The second project is the Joe White Signature Malt product, a single-origin malt, Certified Sustainable and made from barley harvested on a single farm. It offers carbon emissions per metric ton of grain 60 to 80% lower than the Australian average.

Certified Sustainable.
PROCESSOR PC22008

> "Today, providing brewers with consistent grains is not enough. They also need to be low carbon emission grains."
>
> *Daniel Baillon*
> *Key account Manager APAC*

These ranges have received a very warm reception from brewer customers, who view them as an excellent way of cutting their scope 3 emissions. As one brewer summed it up: "I can't afford solar panels, but I can make a difference by buying your product."

The future of these ranges is promising. There is significant customer interest in Certified Sustainable malts and Joe White Maltings is looking to introduce them to its Tamworth facility in order to expand availability.

Belgomalt Pure Local

Belgium is known worldwide for its beer. But until the Belgomalt Pure Local project began five years ago, almost all the barley used to produce it was imported and little regard was given to how the crop was grown. The farmers, maltsters and agronomists of the Pure Local team set out to change that. They are working to bring brewing barley back to Belgian soil in a sustainable way, to meet demand from brewers for local, sustainably produced malt, to build a community and to ensure everyone receives their fair share of the value generated.

Under conventional systems, when crops are grown they take up nutrients from the soil and these are replaced with chemical fertilisers. In the long run, the soil becomes increasingly impoverished. Pure Local takes a different approach – regenerative agriculture.

The farmers aim to return nutrients to the soil and sequester carbon naturally, for example by growing cover crops between the barley crops and letting earthworms do their vital work of breaking the organic matter down, and by grazing sheep on the land. They are working hard to implement these practices and progress is being made every year. In the 2022 crop year, the 38 farmers in the team grew 1,957 metric tons of barley. By following regenerative practices, they sequestered 30kg of CO_2 for every metric ton of barley grown. Considering that on average in Europe, 278kg of CO_2 are emitted for every metric ton of barley grown, this is a very significant achievement! The farmers who follow these principles are rewarded with a fair and stable price for their crop and enjoy working as part of a community.

Pure Local has big plans for the future. More and more brewers are interested in buying sustainably produced malt, and more and more farmers are looking to move to regenerative agriculture approaches to protect the environment for future generations. Over the coming years, Belgomalt Pure Local is set to grow significantly, while working hard to ensure that the community aspect is maintained and all the best practices are implemented.

Sourcing sustainable barley across the globe

We are increasing the amount of SAI-certified barley we source in Argentina, Australia and all regions to keep pace with growing customer demand. Certification assures customers that the malt they are buying has been produced according to sustainable standards covering soil, water, biodiversity and farming practices.

For us to be able to offer certified malt, the first step is for the farmer to work to the SAI platform's FSA 3.0 standards, and have this certified by a third party. They then present the certificate they receive to Boortmalt as part of our responsibility to manage the entire process, and the barley and malt flows from field to glass.

Since the 2020 season, certified barley volumes have grown by 43 to 55% in Europe, 20 to 25% in the other regions, and the number of customers served has increased by 25%. The aim for the future is to continue to grow both barley volumes and farmer numbers, in line with customer demand.

SAI PLATFORM

BMGG and The Glenlivet

The Banff and Moray Grain Group (BMGG) is an enthusiastic group of 145 farmers working within a 35-mile (56km) radius of Boortmalt's Buckie maltings. Their focus is on quality and provenance. They directly supply the plant with malting barley, which is malted for a single customer, The Glenlivet distillery, a Chivas (Pernod Ricard) brand.

Conscious of the government's Net Zero target (by 2045 in Scotland) and the importance of agriculture to this, BMGG, Boortmalt and The Glenlivet decided to work together on a sustainability project.

Because of the long lead-times in farming, the objectives the group set are based on figures from two years previously. Consequently, by 2024 farms are required to establish baseline carbon footprint data for the 2022 harvest, using Agrecalc or a similar system. In return for doing this, they will receive a subsidy and a premium for every metric ton of barley produced. The aim is to obtain data for 70-80% of the total tonnages collected.

Once again, growers who achieve the objectives will receive a premium, and the aim is to collect data for more than 80% of tonnages.

The project's goal is to boost sustainable thinking and prompt changes in farming practices (tillage, cover crops, etc.). Work is also being done to reduce the carbon footprint of agricultural inputs such as lime, fertiliser and fuel.

Once the results of the data collected for the 2022 harvest have been compiled, the organisers will pinpoint best practices, look at how they affect the carbon footprint and share the information with the group as a whole. The farms in the BMGG are very diverse in terms of their altitudes, their soil types and whether they are mixed or pure arable farms, and so there is no one-size-fits-all approach.

In addition to improving the environmental impact of the barley, the project's organisers are also working to build a community, for example by organising an annual awards dinner.

In the following year, 2025, there will be three objectives

Highland Grain and Glenmorangie

A further initiative is in progress with Highland Grain, a malting barley cooperative with sustainability objectives that supplies Boortmalt with malting barley. The malt produced with this barley is supplied to Glenmorangie distillery, which itself has broad sustainability ambitions. Boortmalt therefore saw the opportunity to link the two together in a sustainable farming initiative. The baseline data for this initiative was collected during the 2022 harvest.

We will now work with the supplier to ascertain the next steps.

Based on the experience gained during these projects, we hope to create our own programme and collect more data from more suppliers so that we can bring a sustainable malt offering to the market. Demand for such a project is particularly high among whisky producers. As their product needs to be aged for around 20 years before it can be sold, they have to keep well ahead of consumer trends. And their money is on sustainability as a major focus in the future!

Viterra UK and Heineken

The Low Carbon Farming Programme (LCFP) is a Heineken initiative to simplify and enable the transition towards sustainable agriculture, to help the company reach its scope 3 SBTi targets. The programme is based on the Cool Farm Tool (CFT) analysis. Heineken approached Boortmalt about joining, and Boortmalt approached grain merchant Viterra UK. Viterra UK identified 11 growers on a journey to enhance their sustainability and they were enrolled in the programme.

Baseline data was collected in 2021-22. The next step is for the farmers to try different strategies to increase their sustainability and measure the results of these – for example, lower tillage, cover crops, fertiliser management, etc.

Again, this programme involves a community aspect, with visits for participants to maltings, breweries and other facilities.

Sharing sustainable farming practices in Ethiopia

Boortmalt Ethiopia has set up a Farmer Field School (FFS) to promote sustainable farming practices in Ethiopia. The FFS approach, introduced by the Food and Agriculture Organization of the United Nations in 1989, is now used in over 90 countries. It is based on people-centred learning, using adult education methods focused on learning by doing, because adults tend to learn through experience and grow in confidence as they do so. An FFS group consists of 25 to 30 farmers, and learning takes place in the lead farmer's fields.

The Boortmalt Ethiopia FFS was introduced as a pilot scheme to farmers producing barley. It is a forum where farmers and Boortmalt Ethiopia's field advisors can discuss the latest information and experiences, tailoring practices to the local farming conditions, socio-economic situation and farmers' preferences.

The farmers in the FFS then communicate what they have learned to other farmers outside the group.

The FFS has covered topics such as land preparation, crop protection, harvesting and post-harvest handling. Crop protection, and in particular Integrated Pest Management (IPM), is a focus. IPM is an environmentally aware approach to pest management that relies on common-sense practices, making it ideal subject matter for the FFS in Ethiopia.

Farmers learned how to grow healthy crops while minimising the use of pesticides, which are viewed as a last resort. They experimented with mechanical methods of pest control, such as removing weeds by hand, and saw how tillage can disturb the pests' breeding cycles, exposing insect eggs and disease to be eliminated by the sun. They also looked at ways to maintain or improve soil aeration and drainage, to avoid standing water and minimise plant diseases, for example by using tile drainage, sub-soiling, grassed waterways and raised beds.

> "The farmers learned a range of agronomic practices, with a focus on crop protection and integrated pest management."
>
> *Awraris Tesntu*
> *Barley Expert Officer Ethiopia*

Continuing our programmes with key customers in Ireland

While developing our procurement approach in Ireland, we are making it a priority to continue the programmes we have with our key customers to drive sustainable farming.

Our long-term partnership with Diageo and our shared commitment to reducing emissions and advancing regenerative agriculture lie at the base of our Irish programme. Many farmers have implemented different techniques to either reduce emissions or improve the sequestration of carbon in the soil. By working with them and with traders and third-party data collectors, we are discovering what is possible and the risks and implications of changes made. The data shows promising results.

We have a similar initiative with Heineken and Pernod Ricard. Together, we investigate the possibilities, the implications for costs, yield and overall soil quality and the potential to scale up from a project with a small group of farmers to larger programmes encompassing all farmers across the different suppliers.

Here again, we are working with third parties and through their data analysis learning where we are today and what the changes in approach are delivering in terms of reductions or increased sequestration.

In parallel, we have been capturing the footprint of more than 300 farmers in the same region over the last three years, so we have baseline data that we can compare with the results from the farmers participating in the different initiatives. Two years in, we can see a difference. The farmers in our projects are clearly early adopters. They are performing better than the group as a whole, in particular on sequestration.

In the next phase, we aim to put this data together with Teagasc's findings on sustainable farming. Through this, we will gain a clear understanding of what it will take to drive CO_2 down with the help of the farmers, to meet the well-established 1.5°C target. We then look forward to sharing the results, first with our key customers who are leading and funding the respective projects, and then with the wider industry for the benefit of all.

ENERGY EFFICIENCY & EMISSIONS REDUCTION

At Boortmalt, we have a proven track record in improving our energy efficiency and integrating the most cost-effective sustainability technologies in our malting plants.

$KgCO_2$ emissions per metric ton of malt

157kg BASELINE

145kg FY 22-23 STATUS

79kg TARGET BY 2030

50% reduction in carbon intensity / mt malt production

42% reduction in absolute carbon emissions scopes 1 & 2

Approach

As the first generation to feel the impact of climate change, we are committed to making a difference as we care for our planet and future generations. At Boortmalt, we are now striving to build on our track record of improving energy efficiency and cutting emissions to go further and become pioneers in the energy transition.

This translates into an ambitious road map to achieve our SBTi commitment and cut our carbon emissions by 42% by 2030. Over the last year, we have defined the most cost-effective decarbonisation technologies for our maltings. We designed and engineered these innovative projects in-house with key partners so that we can roll them out as quickly as possible.

We are committed to investing in sustainable solutions with the goal of securing true decarbonised heat and electricity, delivered to our maltings at the lowest cost.

To do this, we are focusing on three pillars:

1. Evaluating and rethinking our processes to reduce energy consumption. We approach this in co-operation with our customers, as quality is key.

2. Engineering and designing integrated decarbonisation solutions which we believe are the technologies that will deliver heat to our maltings in the future.

3. Securing certified green electricity for all our sites across the globe.

Key among our decarbonisation technologies are:

HEAT PUMPS to electrify the heat demand at our malting sites.

HEAT LOOP in Antwerp. To turn waste heat from other businesses into useful heat for us.

SOLAR THERMAL to harness the energy from the sun.

Evaluating and rethinking processes to reduce our energy consumption

Integrated decarbonisation solutions

Green electricity through PPAs or certificates

2023-2025

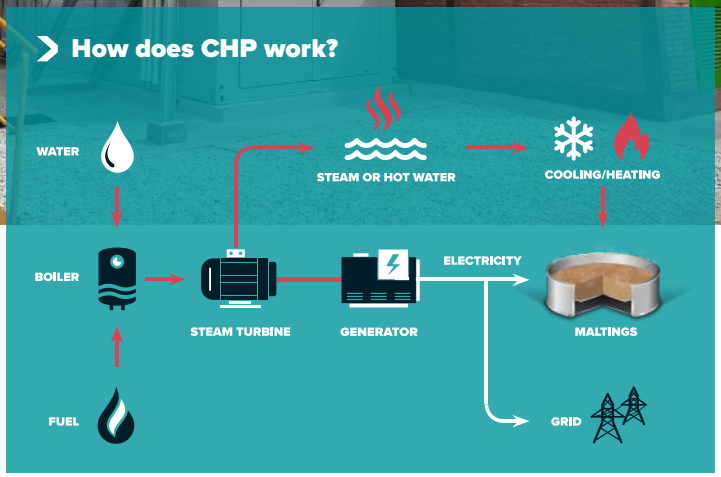
Focus on upcoming actions

Over the coming years, we will continue to focus on implementing high-tech solutions to supply low-carbon heat to our plants. Because malting is a heat-intensive process, this is where our efforts will yield the most significant results. The Antwerp heat loop is a major project in this field, and when it comes on stream in 2024 our emissions will drop substantially. Similarly, each time we equip a malting site with our heat pump solution (patent pending), we will cut the quantity of fossil fuels we burn. Because this technology has been specifically designed to be easy to replicate around the world, it is set to make a big difference in a short time. Solar thermal is a further technique that we can use on our decarbonisation journey in locations with sufficient land and an appropriate irradiation index. We will continue to progress our two projects in this area, in Spain and in Australia.

Simultaneously, we will of course also continue with smaller-scale projects to improve energy efficiency and make use of renewables. Cutting carbon is such an important issue that every contribution is valuable. Projects include ongoing process optimisation at various plants and initiatives in the logistics sphere. One of these is a plan to use a biofuel-powered train to transport barley to our Strasbourg site. The biofuel will be made from 100%-French rapeseed, and will cut emissions by around 60% compared to diesel.

And of course, we will pursue our efforts to source 100% green electricity for all our plants by 2030, by installing solar photovoltaic panels or wind turbines on sites where these technologies are a good choice, by entering into Power Purchase Agreements and green electricity contracts and by buying Energy Attribute Certificates.

Evaluating and rethinking processes to reduce our energy consumption



What is a combined heat and power system?

When oil or natural gas is used to power a conventional generator, 45% of the energy produced is converted into electricity but another 45% is lost as heat. A combined heat and power (CHP) system captures this heat so that it can be used. This is particularly relevant to our business, malting, as it is a very heat-intensive process. By capturing the heat generated, we avoid wasting energy. This cuts the amount of energy we need to power our plants, thereby reducing our carbon footprint.

Combined heat and power in Argentina

Two Boortmalt sites in Argentina are using CHP systems to produce power more efficiently.

At Bahía Blanca, a CHP system has been installed to cut natural gas consumption and grid electricity consumption, reduce emissions to the atmosphere and lower the site's carbon footprint. In the future, a feasibility study will be carried out to investigate potential to inject excess electricity into the national grid. The new system is extremely efficient, as it not only captures the heat produced during power generation so it can be used to heat the kilns, but also reduces transmission and distribution losses.

Two other energy efficiency projects were also carried out in parallel with this installation. One was to replace the existing heat exchanger with a new one, better suited to the plant's needs. The design of the previous exchanger made it difficult to clean effectively, preventing it from working optimally. The new exchanger has square tubes and more space between the fins. This makes it easier to clean, so it operates more efficiently and uses less power. The second project was to replace the kiln gates. The previous gates leaked air, so they were replaced with a different design that forms a better seal and is more efficient.

A CHP system was installed at our Alvear plant ten years ago. It was an oil- and gas-powered system, using diesel for ignition. A project has been completed to upgrade this system, increasing its power production capacity and replacing the diesel ignition with spark plugs. This increased efficiency and reduced the system's carbon footprint.

Combined heat and power in Perth

The Perth CHP system was installed in quarter 3 of FY23, with initial engine commissioning in quarter 4 of the same year. The system consists of two 1.5MW natural gas engines, which will generate electricity for the site. Connected to the engine exhausts is a heat exchanger network which pre-heats the inlet air going into the kilns. So the system both produces electricity and reduces the amount of gas consumed by the kiln burners. It was initially started up in island mode (separate from the grid), at approximately 60% of its full load. Work is being undertaken to connect it to the Western Power grid, at which point it will operate at full load. It will cut emissions by an estimated 11,920 metric tons of CO_2 per year.

Electric truck trial at Port Adelaide

Boortmalt has been working with local logistics partner Symons Clark on a pilot project to use an electric truck to transport malt between the Cavan and Port Adelaide sites and the harbour. The aim of the project is to cut transport emissions.

Electric truck technology is new, so a short route has been chosen for the trial to increase the chances of success. The project is in the planning stages, with the trial due to begin at the end of the year. This is a challenging project because it involves multiple stakeholders – Boortmalt, the carrier company, and the partners who will handle the charging network and its connections to the grid.

However, it is very important because cutting transport emissions is recognised as a key goal for society as a whole. The significant investment involved means long-term commitments will be required, but if the project is successful it has the potential to be replicated in other locations.

Reducing heat usage in Ethiopia

The team at the Debre Bihan plant in Ethiopia has been working to reduce heat usage by optimising processes right across their operations. By putting in place a number of different initiatives, they have cut heat consumption from 615kWh per metric ton in FY22 to 601kWh per metric ton in FY23, reducing the amount of carbon released. Over a full year, this energy saving of 14kWh per metric ton reduces carbon emissions by almost 150 metric tons of CO_2.

The initiatives include:

- Reducing standby boiler pressure from 2.5 bar to 1.5 bar
- Limiting moisture in green malt placed in the kiln (target: below 41%)
- Aiming for final malt moisture of 4.3 to 4.5%
- Keeping boiler water conductivity below 2,000µS/m to maximise efficiency
- Gemba walks to check for steam leaks (a technique drawn from Japanese continuous improvement philosophy involving a physical walk around a workplace to look for issues)
- Holding bi-weekly energy meetings to check the effectiveness of all the actions undertaken

New steep house saves energy at Herent

The Herent site has recently completed a project to build a new steep house, replacing a 55-year-old installation which was not suitable for refurbishment. From start to finish, this major project took around a year to complete.

The new steep house includes six conical steeps with an annual steeping capacity of 47,500 metric tons of malt. The new facility, which was commissioned in January 2023, is fitted with a CO_2 recovery system and saves energy in two specific ways. Firstly, the building is extremely well insulated, so there is no need for either heating in the winter or cooling in the summer.
This will save a significant amount of gas. Secondly, the system is frequency controlled, so the speed of the machinery is tailored to demand. This is in contrast to the single-speed system in the previous installation, and is expected to result in a reduction in electricity consumption of around 5 to 10%. The new installation is also expected to use around 5% less water than the previous one, which suffered from leaks and was prone to over-foaming. In addition, rainwater from the building will be collected in the site's rainwater buffer, a wadi that encourages better soil infiltration, supporting the natural water cycle. As the installation is currently still in the commissioning phase, the exact energy and water savings have yet to be quantified.

A grand opening was held on 29 June 2023. At the event, Herent Plant Manager Wouter Hollevoet and Boortmalt CEO Yvan Schaepman presented the new facility. As well as taking a guided tour of the site, attendees were invited to taste the first beers, made with the malt from the steep house at Boortmalt's Antwerp Innovation Centre!

Energy efficiency at Glenesk

A project has been carried out at our Glenesk plant to enhance the energy efficiency of the malting process. The project covered two systems, water and air.

On the water side, the original steam boilers were capable of producing more heat than malting requires. They have been replaced with water heaters adapted to our process, functioning in a closed-circuit heating loop, which are therefore more fuel-efficient. The system's tank acts as a buffer, storing heat in the same way that a battery stores electricity. This has made it possible to uncouple the water heaters from process demand so that they can always run at optimum efficiency.

On the air side, a new management system has been put in place for the hot air supply to the kilns. The ducting has been interconnected so that heat can be donated between the different kilns, using a system where waste heat from one kiln is captured to preheat the air for another via a heat exchanger. By adjusting the kilning phases and timings, the management system helps the plant to recover as much heat as possible, cutting energy consumption.

This project aims to reduce the heat ratio by 30%, achieving an annual saving of 3,000 metric tons of CO_2. It will form the backbone for future decarbonisation initiatives at the plant.

Integrated decarbonisation solutions

harnessing technology to cut carbon emissions

What is a heat pump?

A heat pump uses technology similar to that found in a refrigerator or air conditioner. It extracts heat from a source (in our case, waste heat from the malting process), uses a compressor to amplify it and then transfers it to where it is needed (here, back to the malting process). Although it is powered by electricity, the quantity of heat that it delivers far exceeds the quantity of electricity used. It does not burn any fossil fuel or emit any carbon dioxide. The system works because of the laws of thermodynamics: when the pressure of a gas increases, its temperature also increases. This means that the compressor can be used to amplify the waste heat captured from the malting process.

Container heat pump – electrification of heat

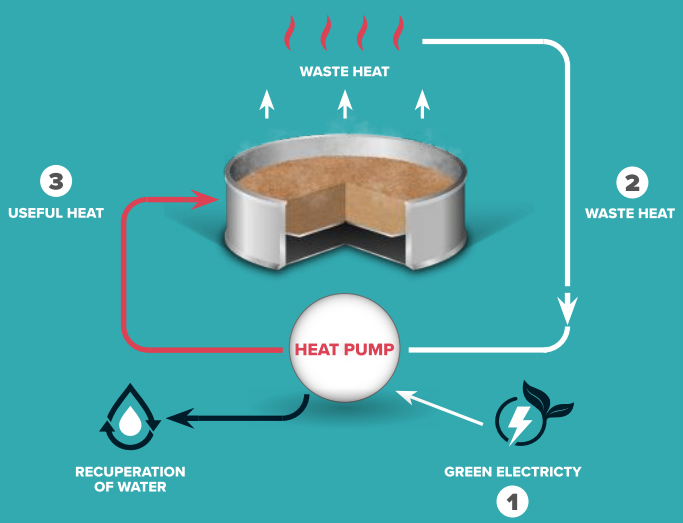
When it comes to reducing our carbon emissions to meet our SBTi commitments, our main challenge is heat. It accounts for 90% of our scope 1 emissions! That is why we have been working hard to develop a way of producing heat using electricity rather than by burning fossil fuels. We have patented the malting industry's first large-scale heat pump project to recycle waste heat from the malting process, capturing it for reuse rather than letting it escape.

The Boortmalt solution

Boortmalt has developed a containerised and modular heat pump solution that will meet local standards wherever it is installed. We have applied for a patent. The solution is quick to implement, and the container-based design is cost-effective. Consequently, we will be able to roll it out widely, cutting our carbon emissions at many of our plants.

This flagship project will be operational in 2024 on our Athy site and 16 other projects are in the pipeline. We aim to roll the technology out to all our malting plants in due course. The Athy project alone will cut CO_2 emissions by 5,800 metric tons a year.

How does a heat pump work?



Antwerp North Heat Network update

Malting is a heat-intensive process, and at Boortmalt one of our priorities is to work with partners who can deliver the heat we need to our plants in a sustainable way. True to our SBTi commitments, we are working to cut our carbon emissions by 42% by 2030, and so we are very enthusiastic about any technology that enables us to access heat without emitting CO_2. One example of this is when residual heat from one industry is used as a source of heat for another, via a heat loop.

As the largest malting plant in the world, our Antwerp site uses a great deal of heat. Indaver, a waste management company, is one of its neighbours. The Indaver facility eliminates medical waste by incinerating it and uses the heat generated in the process to produce electricity. However, an amount of residual heat remains. It is this heat that will be captured by the Antwerp North heat loop. It will be used to heat water, which will be transported in underground pipes to our Antwerp malting plant. As the system is a closed circuit, no water will be lost. And because the pipes are extremely well insulated, heat loss over the 10km distance between the two plants will be minimal. Around 625 cubic metres of water will arrive at the Boortmalt plant every hour, at a temperature of 100°C. This is exactly what is needed to dry our malt.

In the future, there will be opportunities for other companies to connect to the heat loop, and the authorities plan to extend it to serve local homes too. It is an excellent example of cooperation between the port, local companies and the city of Antwerp to cut the use of fossil fuels and so reduce carbon emissions. Supplying heat to Boortmalt, among other partners, will make the project financially viable. Once the heat loop is extended to the city, it will provide local people, including those on lower incomes, with a climate-friendly way to heat their homes. It will be a completely carbon-free heating solution and will cover around 3,200 family homes, costing no more to run than a gas-powered system.

Construction is progressing well. Once the system is up and running in early 2024, it will provide around 50% of the Antwerp malting plant's heating power, cutting demand for gas by the equivalent of the annual consumption of 10,000 households. This is expected to reduce CO_2 emissions by 30,000 metric tons per year.

Boortmalt is also seeking opportunities to become involved in heat loop projects in other locations. As Zuhal Demir, Flemish Minister for Energy and Climate pointed out, "Heat networks are the technology of today and of the future, because the most climate-friendly energy is the energy that does not need to be generated."

Grid augmentation feasibility assessment in Australia

As part of its commitment to reduce energy usage and decarbonise operations, Boortmalt Australia will be looking at opportunities to install more electric equipment, such as heat pumps, on its sites.

As a first step towards this, we called in an external company to carry out a study of our current electricity networks and assess how and at what cost they could be upgraded. All sites apart from those in Western Australia were assessed. As well as identifying upgrade options, the study also pointed out some potential methods of reducing consumption and highlighted opportunities to boost solar generation capacity at certain sites.

"This installation will halve gas usage at our Antwerp plant, cutting our CO_2 emissions by 30,000 metric tons a year."

Gert van Laer
Project and Asset Care Manager Europe

What is solar thermal?

A solar thermal system captures the sun's rays and converts them into heat. It is different from a solar photovoltaic system, which captures the sun's rays and converts them into electricity.

Solar thermal collectors are flat or curved panels containing reinforced pipes. Through these pipes flows a collector fluid. The fluid inside the pipes is heated by the sun, capturing the energy it emits. The collector fluid then flows to a heat exchanger, where it is used to heat water which is pumped to the malting plant as a source of heat. To provide a continuous source of heat even when the sun isn't shining, the hot water is stored in a tank or insulated pool.

Decarbonised heat for Villaverde plant

Boortmalt's Villaverde plant has signed Memoranda of Understanding with landowners with a view to decarbonising 95% of the site's heat. Heat is currently provided to the Villaverde site via gas burners and a CHP plant. This project will use solar collectors (devices that capture radiation from the sun) set on 12 hectares of land close to the plant to supply 95% of its heat needs.

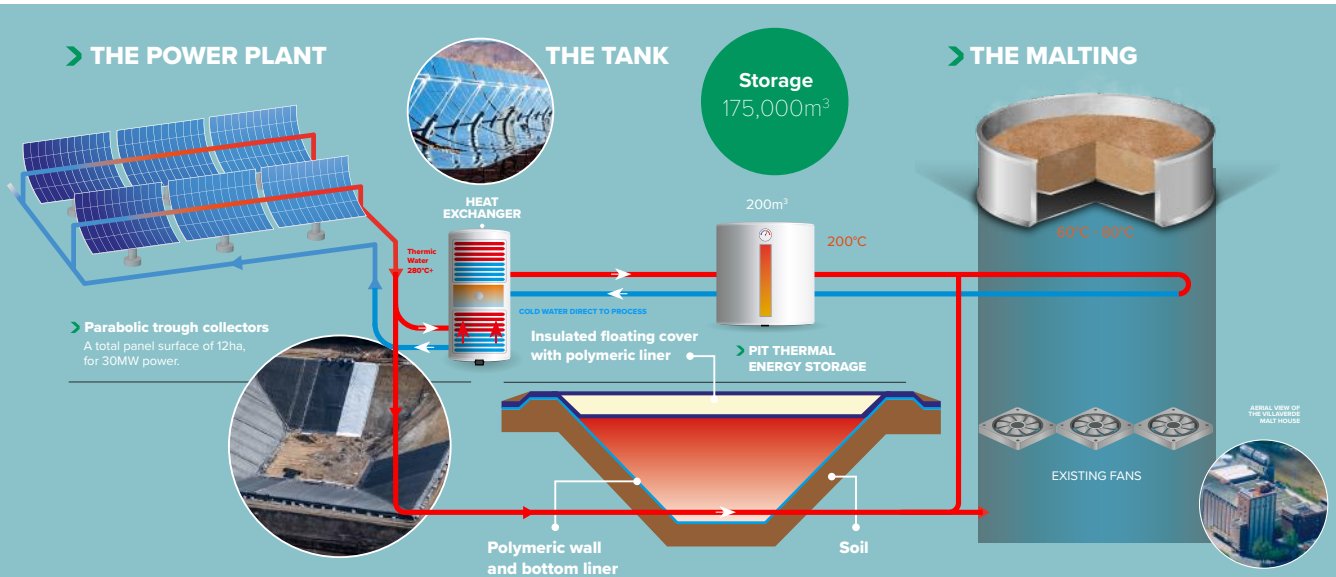
The system will consist of an array of parabolic trough collectors with a total surface area of 12 hectares to produce 30MW of power. At the centre of each collector, the sun will heat a tube containing a liquid. The hot liquid will flow to a heat exchanger where it will be used to heat water to 95°C. It is this water that will be pumped 1.5km to the plant to provide heat. The system will also include an insulated storage pool capable of holding 175,000 cubic metres of hot water, or as much as 70 Olympic swimming pools, to allow the system to operate at night and on days when the sun is not shining.

A similar project is in the planning stages for our Tamworth site.

> Reducing emissions is part of Boortmalt's four core sustainability goals.
> The Villaverde Solar Thermal Project is concrete evidence of Boortmalt's commitment and passion for sustainable development.
> A major step on the path to carbon neutrality.

Martin José Arozamena
Operations Manager France & Spain

How does the solar thermal plant work?



Solar thermal energy at Issoudun

The solar thermal plant on our Issoudun site was inaugurated in 2021. It is equipped with almost 15,000m^2 of flat panels with a total capacity of 10MW. Last year, they captured enough solar energy to generate 8,439MWh of heat for the plant.

The structure of the system on this site is slightly different to that being installed at Villaverde. At Issoudun, the water heated by the sun's rays thanks to the panels is stored in a 3,000 cubic metre tank. It is then used to preheat the air that dries the malt, reducing the power demand on the gas boilers and therefore the CO_2 emissions generated.

During the year, solar energy supplied 11% of the heat required by the plant, biomass 23% and cogeneration 11%. The remainder of the heat continues to be provided by gas. The solar thermal plant at Issoudun avoided emissions equivalent to 1,528 metric tonnes of CO_2 in 2022-2023.

Green electricity through PPAs or certificates

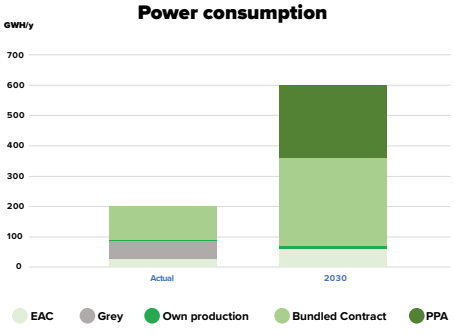
Securing green electricity for our sites

At Boortmalt, we are committed to sourcing 100% green electricity for our sites by 2030. At present, 14 of our 27 sites are already using 100% green electricity.

We are working to decarbonise the production of heat for the malting process on our sites, and to achieve this we are cutting our use of fossil fuels. This will cause our electricity consumption to rise over the coming years, and we are therefore diversifying our sources of green electricity to be able to cope with the increased demand.

Preference is given to on-site generation solutions. Wherever it is possible from a physical and regulatory point of view, we have installed and will continue to install photovoltaic panels on our sites across the world. As this is not feasible in all instances, we are also seeking to enter into Power Purchase Agreements with nearby solar or wind parks. Through these, we can source green electricity while supporting investment in renewable energy.

In addition, we use bundled green electricity contracts and buy Energy Attribute Certificates (EACs). You can read more in the article below about how I-RECs, a type of EAC, are used by Boortmalt Argentina.



Renewable energy certificates in Argentina

At Boortmalt Argentina, we generate most of our electricity ourselves. To ensure that the remaining electricity we consume is generated from green sources, we have committed to buying international renewable energy certificates (I-RECs) from a nearby national windfarm.

The International Renewable Energy Certificate (I-REC) represents transferrable proof that one MWh of electricity was produced from renewable energy sources and added to an electrical grid.

This standard establishes rules and regulations for a transparent system that simplifies claims and eliminates double counting issues.

The certificates we buy cover between 6,000 and 8,000 metric tons of CO_2 emissions, achieving scope 2 neutrality for Boortmalt Argentina. The money paid for the certificates is invested by the operator to extend the wind farms.

WATER CONSERVATION

With water scarcity intensifying across the world, we strive to make our malting process as water-efficient as possible. We work to raise awareness of water conservation, with a focus on optimising our water usage and harnessing technology to boost re-use.

Water consumption per metric ton of malt

2.9m³	2.8m³	<2m³
BASELINE	FY 22-23 STATUS	TARGET BY 2030

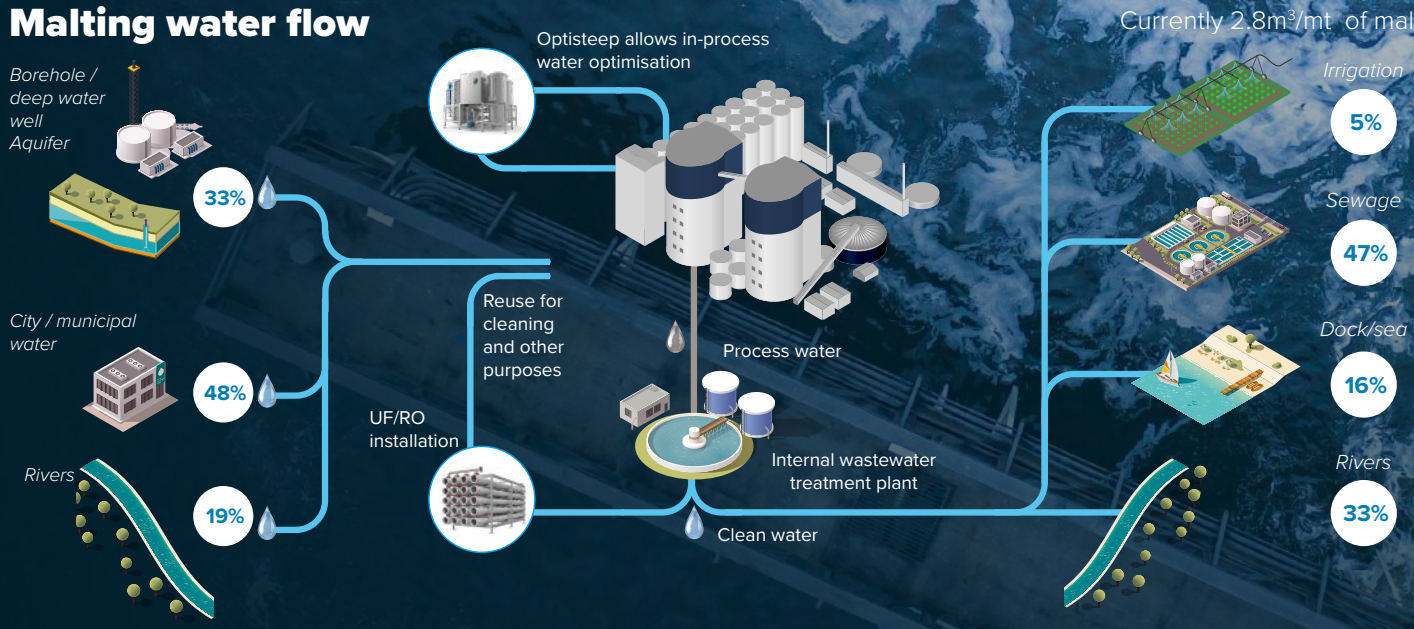
30%
Reduction in water consumption

Approach

Water is a key resource within the malting process. At Boortmalt, we are acutely conscious of our impact on water systems and just how much we depend on water of potable quality. Our approach to water conservation is based on four pillars. The first pillar is our work to "close the loop", by reusing as much of our water as possible. The second is the search for alternative sources of water to reduce our demand for water of potable quality. The third pillar of our strategy is our Optisteep technology, which cuts down the amount of water required in the malting process. We continue to introduce this technology into our plants, and to upgrade existing Optisteep systems. Our fourth pillar consists of other opportunities to save water within our processes.

We measure our consumption in cubic metres of water per metric ton of malt. In some of the areas where we operate, such as Australia and Argentina, water scarcity has long been a reality. These locations lead the way in consumption metrics thanks to long-standing initiatives to reduce usage and a water-aware culture.

Malting water flow



Close the loop

Alternative water sources

Optisteep

In-process optimisation

2023-2025

Focus on upcoming actions

Over the next few years, we will continue to roll Optisteep out to more sites and upgrade the existing systems to harness the full potential of this technology, considerably reducing our water consumption.

We will also continue to introduce reverse osmosis systems, where regulations allow, to help close the loop. In addition, we are working on a system to recover water concentrate from heat pumps and capture it in a separate water stream that can be reused in the malting process rather than it becoming waste water. This will provide a complementary benefit in addition to the reduced energy consumption and lower CO_2 emissions that heat pumps offer our plants.

Looking more broadly, we are considering decentralised water recovery systems to take our water reuse efficiency to the next level.

Close the loop

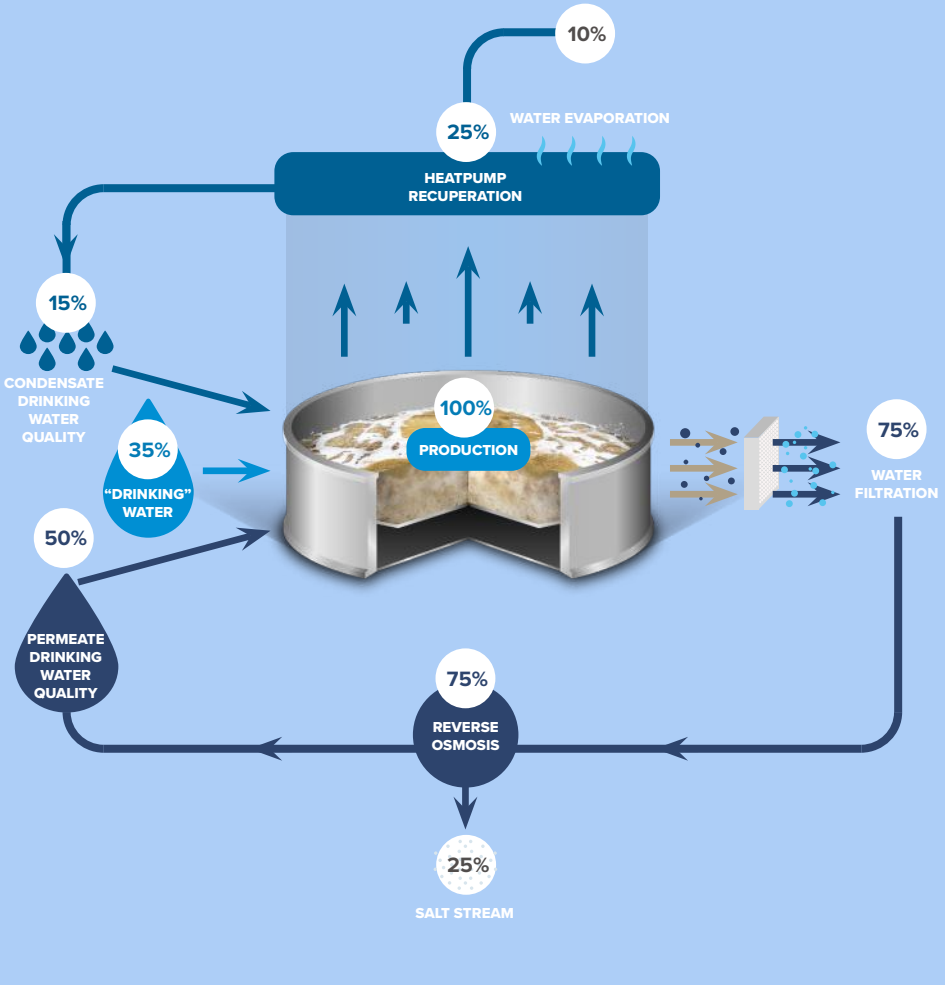
Recycling and reusing wastewater

The “Close the Loop” part of our strategy refers to our efforts to cut our water intake by recycling and reusing wastewater from our processes.

This is of course complementary to our efforts to reduce the amount of water we actually use in our plants (in-process optimisation). Together, the two approaches combine to reduce our demand for water of potable quality.

There are two broad ways that we can “Close the Loop”: through high-grade applications and low-grade applications. When we recycle and reuse water for high-grade applications, we return it to potable quality through technologies such as reverse osmosis, so that it can be reused in our production processes. Conversely, low-grade applications do not require water to be of potable quality. One example of this would be outdoor cleaning.

The leading project in our “Close the Loop” strategy is the Closed Circuit Reverse Osmosis (CCRO) system planned for our Antwerp plant.



CCRO water treatment at Antwerp

A project is underway to upgrade the wastewater treatment system at our Antwerp plant. Currently, wastewater from the plant is treated using an MBR (membrane bioreactor) system. This combines membrane filtration with a biological treatment process. After being processed in such a system, water is pure enough to use for low-grade applications, but not for high-grade applications.

The new system will add a reverse osmosis (RO) step. Once the water has passed through this, it will be so pure that it meets drinking water standards. It will be possible to use it for cooling, cleaning and even in the malting process itself, thereby "closing the loop".

Reverse osmosis is a pressure-driven membrane process using very dense membranes. It captures organic molecules and ions, so that the permeate (the water resulting from the process) is extremely pure. The impurities captured are discharged in a concentrate.

The system to be installed in Antwerp will use the patented Closed Circuit Reverse Osmosis (CCRO) concept. This differs from conventional RO in that rather than the concentrate flowing out continuously, it is discharged using a cycle approach. The permeate, however, is still produced in a continuous manner. The concentrate is recirculated back to the feed side of the system and blended with feed water again. Consequently, the concentration of the retained components in the system rises gradually. Eventually, to prevent the system from scaling, it is flushed out.

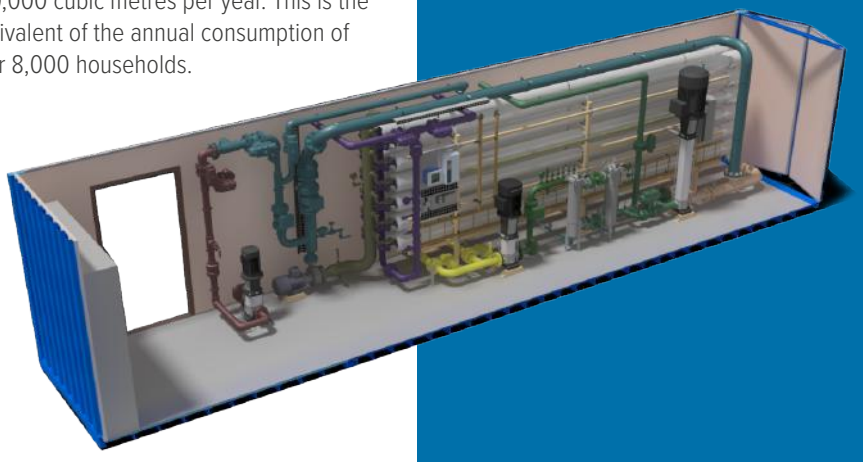
This cycle concept has several benefits from an operational point of view. The gradual concentration increases and higher crossflow over the membranes lower the scaling potential on the membranes. The higher concentrations of retained components and cyclic flush with low concentrated water in the system discourage the growth of biological organisms. The lower scaling potential improves recovery (a higher proportion of permeate is produced from the wastewater pumped in) and lowers the cleaning frequency required.

Recycling the flow also boosts energy efficiency as the pressure in the system is retained during this phase and only lost at the flush out. So not only is CCRO more efficient, but it is also cheaper to operate. It does however demand a higher initial investment than a conventional RO system. Boortmalt will secure a license to use this patented technology through its partner in this project.

Water at the Antwerp plant comes from the same city mains that serve local businesses and households. This new technology has the potential to cut the volume of drinking water we draw from these mains by 50%, from 1.2 million cubic metres to 600,000 cubic metres per year. This is the equivalent of the annual consumption of over 8,000 households.

> "We rely on various technologies to reduce our water consumption. Innovation will help us in this race against time to reach our goals."

Piet Mijten
Project Manager Water Technologies



Alternative water sources

To reduce our use of water of potable quality

With the climate changing and droughts becoming more commonplace, there are two reasons why we must reduce our use of water of potable quality. Firstly, when we cut the amount of treated mains water we draw from municipal networks, we avoid putting strain on the systems that supply local people. Secondly, by diversifying our sources of water, we increase the security of supply to our own plants.

Reverse osmosis at Bahía Blanca

Bahía Blanca malting plant currently draws its water from a deep well 850 metres below the ground. This water can be used in the process directly, because it is of potable quality and arrives at the plant at a temperature of 65°C.

To reduce the plant's reliance on this water source, and limit the amount of water of potable quality that we take from the earth, a project is in progress to draw brackish water from an alternative well, and purify it using conventional reverse osmosis, as explained on the previous page.

Being able to use brackish water in this way would be an additional security for the plant, as it would eliminate reliance on a single well. It would also provide a sufficient water supply for any future expansion.

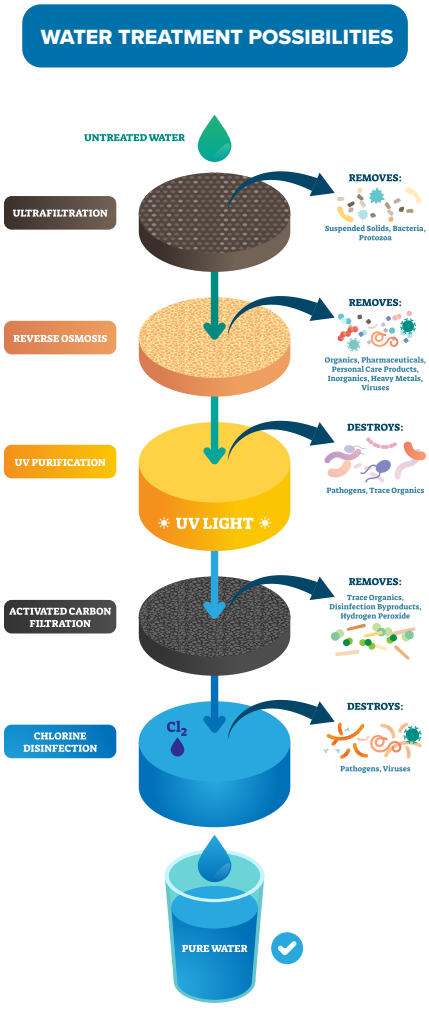
In addition, there is potential for reverse osmosis to be used to treat wastewater from the steeping stage of the malting process, either before discharging it or so that it can be reused as process water.

Reusing process water at Athy

Previously, wastewater from the malting process at Athy plant was discharged into the River Barrow. As a condition of the plant's licence, the water had to be thoroughly filtered so that it was extremely pure before it could be discharged in this way. Keen to find solutions to reduce water usage, the plant team set out to identify alternative uses for this purified water.

After the filtering process, rather than being discharged into the river the water is now pumped back into a holding tank on the site to replace fresh water in cleaning operations. The purified process water is supplied to a number of automated systems to clean various areas of the plant once malting is complete, reducing the need for manual pressure washing, in particular in some hard-to-access areas. This is doubly beneficial, because not only does it save water, it is also safer for plant staff.

Currently, this strategy is saving around 75 cubic metres of fresh water over each two-day cycle, and the plan is to expand the system and use it to clean more and more areas of the plant in the future. The team's ultimate goal is to use no fresh water at all for cleaning.



> The powerful Paraná River is central to our lives here at Punta Alvear. It supplies us with water for our processes and transports our products to the rest of the world. We have an obligation, and above all a commitment, to safeguard it for everyone, both today and in future generations, by minimising the volume of water we draw and returning it in optimum condition.

Pablo Grassini,
Punta Alvear Plant Manager

Optisteep

An important technology in our work to cut water consumption

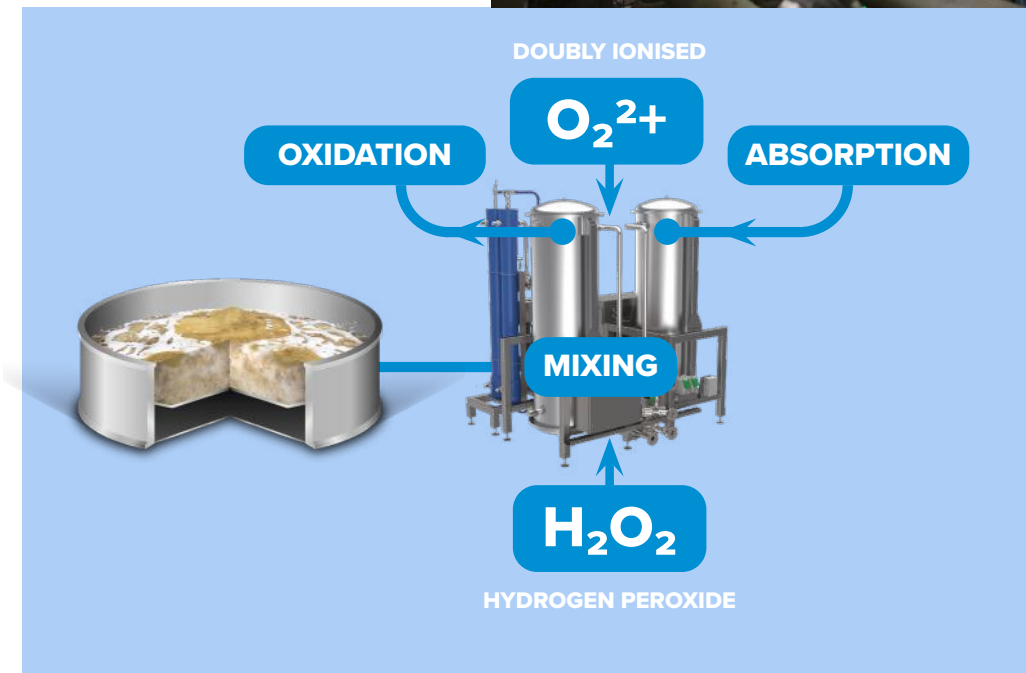
We are continuing our project to introduce Optisteep systems. This year we are also working to take this equipment to the next level, by upgrading and fine-tuning the first systems to bring them into line with more recent installations, enabling the technology to reach its full potential.

Optisteep is one of the key technologies that we use to cut water consumption in the malting process. It increases the speed of moisture intake and improves the enzymatic modification of the barley kernel. This means only a single wet-steep process is needed, and overall malt quality and yield are maintained or even improved, cutting steeping process water consumption by up to 40%.

In addition, because the moisture level of the germinated barley is optimised, less energy is required at the kilning stage. This brings a highly advantageous synergy into play: as we save water, we also save energy.

At Biggar, the focus is on optimising the system and introducing it right across the plant. This is a challenging project because of crop variability. As barley is a natural product, there are of course variations between one batch and another. This makes it difficult to achieve the fine-tuning that all technical systems require. In the case of Optisteep, various properties of the barley crop, such as protein levels, affect how easily it takes up water during the steeping process.

Our Bury St Edmunds plant is fitted with a first-generation Optisteep system. It is being upgraded, both to save even more water and to optimise the safety features, minimising the chemical risks for our staff. At Villaverde, a filter has been added to the system to remove the impurities which enter the steep tanks with the barley, to enhance the performance of the system and the volume of water saved. Optisteep is also being implemented at Port Adelaide.



In-process optimisation

Harnessing innovation to optimise the way we operate

We work hard to keep pace with innovation in our industry. We constantly look for opportunities to improve the way we work and cut our water consumption. When a piece of equipment needs to be repaired or replaced, we always look for a chance to introduce a more efficient and sustainable solution.

Ceramic membranes in Sydney

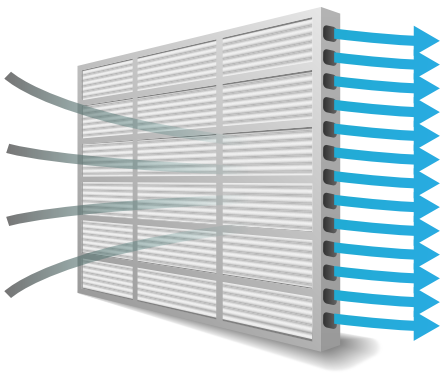
Membranes are used in MBR (membrane bioreactors), the first stage of the water treatment process. At our Sydney plant, we have replaced the previous polymeric (pvdf) membranes with ceramic (silicon carbide) ones. The ceramic membranes offer enhanced mechanical, thermal and chemical strength. They are also more hydrophilic, which allows for a faster water flow and reduces the tendency for substances to accumulate on the membrane's surface. This superior technical performance means that they last longer, reducing waste, contribute to process stability and reduce energy consumption.

High-pressure washing system in Ethiopia

Boortmalt Ethiopia has installed a high-pressure washing system for all germinating vessels, conveyors and the steep. This replaces the high-volume, low-pressure system previously used for cleaning, and will reduce the amount of water required. The system has now been installed and is operational; the next stage will be to quantify the volume of water saved.

Drain surveys

Drain surveys have been carried out at our Bury St Edmunds and Knapton sites. By mapping the sites' drain networks, for both wastewater and rainwater, we aim to collect and treat all available water. This enables us to identify potential avenues for improvement, providing input into both our main objectives: pinpointing and repairing any leaks present in our drainage systems helps us to "Close the Loop", while knowing our drain system better enables us to identify opportunities to use alternative water sources, for example by capturing rainwater for outdoor cleaning.



SUPPORTING OBJECTIVES

COMMUNITY ENGAGEMENT

EQUALITY, INCLUSION & DIVERSITY

BUSINESS ETHICS &

BOORTMALT SUSTAINABILITY GOALS

CODE OF CONDUCT

WASTE REDUCTION

TRACEABILITY & TRANSPARENCY

COMMUNITY ENGAGEMENT

We believe that our business and the communities in which we operate should be well connected. We are convinced that strong and sustainable communities are the basis of our future and that we, through partnerships and sponsorships, can make a difference together.

FY 22-23 STATUS

31 initiatives

2030 OBJECTIVE

>1 initiative per site minimum

Approach

Our engagement with local communities reflects Boortmalt's corporate values and is highlighted in our Business Ethics Manual.

The first objective is to ensure that the energy, water and other resources our facilities need are sourced and consumed sustainably, in a manner that protects the local conditions and circumstances. Our second objective is to partner with local projects that fit our values and sustainability targets to show our commitment to the broader communities. Boortmalt allocates budgets for local engagement projects and adapts to the local context rather than using one-size-fits-all approaches.

Boortmalt supports youth unions in Ethiopia

The Youth Union scheme is run by the city authorities in Debre Birhan, where our Ethiopian plant is located. It offers young people the opportunity to gain experience and earn an income by running their own small-scale business. The scheme supports around 35 young people, running five businesses in groups of around seven.

Boortmalt Ethiopia was looking for relevant community engagement projects to partner, and this scheme fitted the bill. We supported a union by selling the young people our by-products at a heavy discount. They then processed them and sold them on to animal feed companies to generate an income.

Cleaning up our local environment

Various Boortmalt sites are involved in projects to clean up their local environment.

In Biggar, the team takes part in the local annual clean-up. Staff pick up litter to make the town a more attractive place to live and work.

In Antwerp, the harbour authorities hold a "Port Clean-up Challenge" each year. Each company is asked to contribute an initiative and Boortmalt decided to hold a litter pick on the company site. The reason for litter-picking our own site and not the wider harbour area was to show our people how much litter we produce ourselves. This initiative is only in its second year, but the team are confident that momentum will build in the future, and that more people from a wider range of departments will get involved.

Reforestation in Argentina and Ethiopia

Over the last two years, Boortmalt has planted 7,500 native trees in Patagonia (Argentina).

Uma Malta, our craft brand in Argentina, is fully committed to donating one tree for every four metric tons of malt purchased by craft brewers. Over the past two years, we have been working with the NGO Friends of Patagonia (AAP) to launch and run the “Hacemos Bosque” (Let’s build the forest) programme. This programme aims to restore the Andean Patagonian Forest in a durable and sustainable way through education, close cooperation with local communities and the planting of native trees, such as cypresses and coihues. In addition, it generates employment for local people.

The focal point of the last two years has been the restoration of a 10-hectare area around Lake Ñorquicó which suffered a forest fire in 2013. So far, 7,500 monkey-puzzle trees between three and seven years old have been planted in this area. The entire Uma Malta team is proud to support this initiative and continue contributing to restoring and protecting the environment. Each of us can plant a tree, but together we’ll make a forest!

Our teams in Ethiopia have also decided to get involved in a country-wide tree-planting initiative aiming to plant a total of five billion trees. The team took responsibility for a site and went out to physically plant the trees, marking them with a “Boortmalt Ethiopia” sign. Because they did the planting themselves, they benefitted in a range of ways: the initiative boosted team spirit, increased Boortmalt’s visibility and was a great way for staff to enjoy some time in the fresh air and connect with nature.

Pink Walk Challenge 2023

This year, we were delighted to see even more employees take part in the Pink Walk challenge. Participants, not only in Belgium but also across Central Europe, France and Spain, signed up to record their steps in May and again in October. By walking further than they normally would, they raised money for breast cancer charity Pink Ribbon, boosted awareness of the disease and also improved their own health, as exercise reduces the risk of various types of cancer.

School children visit Swalmen site

The Swalmen plant has had close ties with the local elementary school for several years now. As part of this, the team organises an annual visit, inviting pupils aged 11-12 into the plant to watch a presentation and take a tour. They learn about how barley grows, and how it is malted and made into beer. The Swalmen plant is part of the children’s local community, and their visit gives them a far better understanding of what goes on inside the gates, generating goodwill within the community. Who knows, perhaps some of the young visitors will become the maltsters of the future!

Prairie Malt builds ties with the local community

In Biggar, Prairie Malt engages with the local community in a range of different ways. Whatever the community event, you can be sure that staff from the plant are involved!

The team participates in the summer and Christmas displays in the local community park. This not only supports the initiative, but also raises the company’s profile locally.

In FY23, the business supported the Minor Hockey Days, a major local ice hockey event for children’s and youth teams, by providing all the snacks for the day. This reflects a commitment to nurturing positive experiences in sport locally and reinforcing ties with the community.

After a prolonged absence due to the COVID-19 pandemic, Boortmalt returned to the Biggar parade scene in 2023, by uniting to create an eye-catching float. The plant staff also involved their children, who enthusiastically distributed sweets to the crowd. During the same weekend, the plant team also participated in the town’s slow-pitch baseball tournament.

This involvement in local events demonstrates Boortmalt’s dedication to fostering a strong connection with the communities in which we work.

Partnership with Athy College

Our Athy site worked with Athy College students as part of the Business In The Community Ireland (BITCI) World of Work programme. BITCI is an organisation working to bring about sustainable change in business to foster an inclusive society where everyone thrives. One of its focuses is on education. The World of Work programme matches second-year secondary school students with local businesses, to help them learn more about the options available for their future careers and inspire them to reach their full potential.

Our Athy site partnered a class of second-year Business students from Athy College. The organisers set out not only to help the students learn about Boortmalt, but also to open their eyes to the sustainability issues facing businesses today.

The World of Work programme is composed of six sessions. One of these is a workplace visit, and the Athy College students, dressed in full PPE, toured the Athy Boortmalt site with the production manager. During a subsequent session, Boortmalt's Chief Sustainability and Supply Chain Officer Inge de Winne travelled to the school to give a highly engaging and informative presentation about sustainability. It helped the students to understand the wide range of themes encompassed by this subject and how it is relevant to them as the adults of the future.

During the final session, it was over to the students to present to the programme organisers their vision of the future of Boortmalt. They drew on all the new things they had learned about the company and about sustainability, and used the aptitudes they had developed through the programme, in particular teamwork and presentation skills. Both the teachers and the students found the experience highly beneficial. In the words of the students, "it really got us thinking about sustainability". For the Boortmalt team, it was a great way to give back to the local community while promoting our sustainability focus.

Family days around the world

In Australia, many of the office and plant staff have young children. For their family day on 25 March 2023, the team organised a trip to a zoo halfway between the office and the plant, with face painting, a magic show and a lucky dip. It was a great day out and the employees and their families enjoyed exploring the zoo, taking part in the activities and eating lunch together.

"This is Boortmalt's opportunity to recognise the support our families provide us throughout the year, in a relaxed and enjoyable atmosphere."

Biggar plant organised a family day at their company house on 24 June 2023. The event featured a delicious barbecue with hotdogs and burgers, fun bouncy castles for all ages, and a DJ who provided the perfect musical backdrop. The organisers were thrilled to see an outstanding turnout from the staff.

At Villaverde, the family day had a safety theme. As well as safety-oriented activities, the staff and their families also enjoyed a VR experience about malting and "malt shakes" prepared by some budding young chefs. They rounded off the event with a delicious meal cooked on a barbecue designed and constructed by the team in scrap metal from the production site!

Supporting local families

Several of our sites work to support their local communities in a practical way.

To celebrate Saint Nicholas Day on 6 December 2022, the team in Antwerp called in Saint Nicholas himself to help them collect toys and clothes for a local charity – he was even given his own email address from which to send a message inviting employees to donate! A truck-load of donations was collected for a local charity supporting low-income families with young children. The items collected included nearly-new toys, clothes for children of all ages, bicycles and helmets, school equipment such as lunchboxes and backpacks, and even children's bedlinen.

Staff at the Prairie Malt site in Biggar decided to give back to the local community by putting together Christmas hampers for local families in need and delivering them. Thanks to the generous contributions of employees, they were able to fill six hampers with essential items to pass on the warmth of the holiday spirit.

The hampers contained an assortment of toys and everything the families required to prepare a delicious turkey dinner. Thanks to the Biggar team, the families were able to gather round a festive table and create special memories on Christmas Day. This initiative will run again in FY24.

In Ethiopia, Boortmalt donated 260 quintals of flour to help internally displaced people who have arrived in Debre Birhan, where our plant is located, due to conflicts within the country.



Canada


France




Belgium
BOORTMALT
FAMILY DAYS

Argentina



Ethiopia




Spain



Australia





BUSINESS ETHICS

at Boortmalt & our suppliers

We commit to conducting business in an ethical manner. We all stand by our Business Ethics Manual, which is an extended version of the Axereal Code of Conduct, and expect the same behaviour from our business partners.

FY 22-23 STATUS

339 employees enrolled in compliance training

2030 OBJECTIVES

100% employees following our Business Ethics

100% contracts including our Code of Conduct

Approach

Boortmalt stands for good ethical behaviour which is integrated into our corporate values. When engaging with our colleagues, third parties, customers and suppliers, we use our five principles of ethical business conduct: Trust & Integrity, Accountability, Compliance, Dignity & Respect, Openness & Honesty. This helps us protect and further enhance both our own good reputation and those of our stakeholders. Our company's values and ethical practices are captured in our Business Ethics Manual and promoted across all our sites. We expect our employees and others acting on behalf of Boortmalt to embody these principles, always.

At Boortmalt we set the example and believe that our business ethics and sustainability programmes must be taken beyond the boundaries of our own organisation. As such, our Supplier Code of Conduct is closely aligned with our values and our environmental standards and targets. We expect our partners to be equally motivated to meet these standards and to drive sustainable business practices. We see it as our shared responsibility to do business in an ethical and sustainable manner.

Business ethics and anti-corruption training

As a subsidiary of a French group, Axereal, Boortmalt is covered by the French "Sapin II" anti-corruption law. The law requires us to put in place written policies and training in this area.

We have consequently created an interactive e-learning module on guarding against corruption. It is an in-depth session that takes 40 minutes to complete, and it was mandatory for 140 company managers from across the world. The system recorded the participants' scores and sent reminders to anyone that did not complete the course by the required date. To make what can be a rather dry topic more engaging, the information is punctuated with interactive quizzes based on practical situations that staff could imagine encountering in the course of their work.

We also created a presentation on this topic, which was used at the management conference and prior to the launch of our site in Ethiopia. Once again, this was interactive, using a format based on the "Who Wants to be a Millionaire" game show.

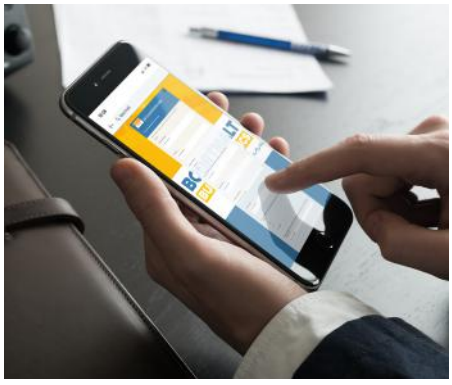
Gifts, hospitality and donations

Giving and receiving gifts, hospitality and donations are normal business practices. However, this is an area that needs to be managed carefully, because it can leave the organisation open to accusations of unfairness, partiality and even corruption.

Boortmalt has put in place a gifts and entertainment policy to guide staff in deciding what is appropriate. In particular, gifts and entertainment can only be offered or accepted if there is no expectation of receiving any benefit in return, if their value is limited and if they would not appear inappropriate should they be disclosed publicly. Value thresholds are in place for gifts and entertainment given or received, and these have recently been updated to take account of inflation. There are two thresholds: a lower one and a higher one. If the value of the gift or offer of entertainment falls below the lower threshold, the staff member can give or accept it. If the value falls between the two thresholds, permission must be sought, and if it falls above the higher threshold, then it is not authorised.

Decision-making in this area is not always as clear-cut as it initially appears, and the rules must be applied with a measure of common sense. For example, if a supplier gives a staff member a bottle of whisky, this could be considered a normal part of doing business. However, if they were to offer a case of whisky three times in a year, the staff member clearly could not accept. Timing can be important too – a gift at Christmas may be appropriate, whereas a gift just before a contract is to be awarded clearly is not. There is also the question of intentions: if a supplier gives a staff member a large box of premium chocolates to take home and enjoy with their partner, they may be aiming to exert undue influence. The same box of chocolates given to the staff member to be shared with their entire team is more likely to be seen as a token of appreciation rewarding good service.

All Boortmalt sites reflect our corporate values by engaging with their local communities, and have a budget to facilitate this. They are free to use this budget to support local causes and initiatives, but they must not engage in lobbying or fund any political or religious organisations. Care must also be taken to ensure that donations do not constitute bribery.



Crisis Management Plan

As Boortmalt grows as a company, it becomes increasingly important for us to put formal procedures in place to guide us in our work. We have developed a Crisis Management Plan to prepare us to respond should we ever experience a sudden and significant negative event, ensuring we are equipped to minimise its effects. It is good practice for businesses to have a plan of this type in place and ensure all staff understand it fully.

The plan starts by explaining the difference between an incident (non-critical) and a crisis (critical). The distinction is made following a risk-assessment process taking into account the severity of the situation and the area affected (health & safety, environment, legal/regulatory, reputation and business continuity & satisfaction). It then explains how managers should react and within what time frame, how to decide what level of crisis response should be triggered and who should take charge. It also covers what information the company should communicate about the situation and how we should respond to media interest.

We have set out our Crisis Management Plan in an easy-to-read eight-page document with colourful visuals. Managers at all levels will be trained on the plan shortly, and will take part in crisis management role plays. An awareness-raising campaign will be run for all staff covering how to react in a crisis and what to say if they are contacted by a journalist.

Confidentiality clauses for Ethiopia

As a global company, it is important for us to take account of the different cultural norms and expectations in the countries where we operate. In Ethiopia, there is a legal requirement for employees to keep their employers' data confidential, but the law is relatively vague and generic.

To ensure that confidentiality is respected in practice, it is therefore common for multinational companies to insert specific confidentiality clauses into their employment contracts.

We have been following suit as we have set up our operation in Ethiopia over the past few years, inserting confidentiality clauses into contracts and ensuring staff understand what they mean in practice.

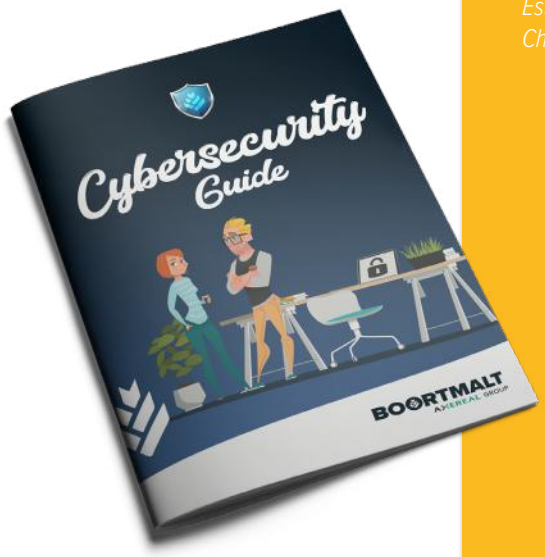
Cybersecurity

Cybersecurity is a major issue for all businesses, and Boortmalt is no exception. It is vital that all staff understand how to guide against a cyberattack, because technical measures are only one element of cybersecurity. User awareness is equally important. As the American security technologist Bruce Schneier said, “Amateurs hack systems, professionals hack people”. We have consequently been working to raise the level of cybersecurity knowledge across the company to protect our systems. A cybersecurity breach could lead rapidly to a crisis for the business.

Mark T. Hofmann, a cyber profiling expert, gave a fascinating presentation to managers at the 2023 management conference. He took attendees inside the mind of a hacker, explaining how AI can be used to gain people’s trust, for example by creating deep fakes to imitate a company director’s appearance or voice, and how easy it can be to gain access to the company IT system. He explained the need to be extremely attentive, whenever we are contacted, to ensure that the person really is who they say they are. This applies in all areas of life, but particularly at work, because we are all more influenceable when we consider someone an authority. He gave plenty of practical information about how to avoid cyberattacks, by technical, psychological and physical means. Important tips include using long passwords and changing them regularly, being aware of the psychological pressures used by cybercriminals (emotion + urgency + exceptional situation) and the importance of keeping computers physically safe and private.

This information and more has been collated to create a cybersecurity guide and video which will form part of an awareness campaign for all staff. In creating them, the focus was on making the information accessible and engaging through the use of colour and appealing graphics.

We occasionally create suspicious-looking emails and send them to users to help them understand what to look out for. In addition, two cybersecurity drills will be run during the year to assess staff’s understanding of the issues and decide what further training is required.



> “At Boortmalt, we recognise the growing threat of cybercrime and are committed to taking all necessary measures to protect our customers’ data and privacy. Our goal is to ensure that our systems and data are secure and reliable and that our customers can trust us with their data.”

Ester Stofberg
Chief IT and Digitalisation Officer

2023-2025

Focus on upcoming actions

Over the 2023 – 2025 period, we plan to organise crisis management training for our top management team, and an awareness campaign regarding our crisis management plan for all staff. A mandatory module on crisis management will also be added to the Boost online learning platform.
We will work with Axereal to guard against cyberattacks by organising training, raising awareness and running drills. These initiatives will include all staff, because to keep our IT system secure and protect the data within it we need every single user to follow best practices.


MINCH MALT
Brau Beviale

EQUALITY, INCLUSION & DIVERSITY

Our 1200+ employees are at the core of our organisation and we consider them as our most important assets. Every day, with unwavering dedication, they contribute to Boortmalt's vision of becoming Masters of Malt.

FY 22-23 STATUS	FEMALE	MALE
ExCom:	42%	58%
Top management positions:	19%	81%
Internal promotions:	>11	
Nationalities:	>40	

0 inequality in opportunities in all our regions

0 inequality in pay in all our regions

Approach

We have developed our equality, inclusion & diversity strategy to support our "Well-being at Work" commitment. We embrace all employees, irrespective of their cultural background, religion, experience, age or sexual orientation. We believe that the diversity of all our employees is what makes us stronger as an organisation.

Promoting this is not enough, however. Through our equality programmes and our internal talent development strategy we also make sure that people can grow and develop in an equal manner within our company.

Inclusion refers to integrating each Master of Malt in the workplace, allowing their differences to coexist in a mutually beneficial way to make everyone feel accepted and empowered to contribute towards achieving our objectives. We have more than 40 cultures at Boortmalt, and we encourage our people to use this vibrant diversity in the best possible way to achieve our business goals.

Boortmalt Ethiopia celebrates International Women's Day

Marked annually on 8 March, International Women's Day is an opportunity to celebrate women's achievements, raise awareness of women's equality and call for positive change that will advance women.
Boortmalt Ethiopia has been celebrating in style for the last three years. This year, all the company's female Masters of Malt travelled to Bishoftu Resort to take a break from their daily work and celebrate one another's achievements. They looked back on the past year, with its successes and challenges, and reflected on how they could become an even better asset for the company.

They also enjoyed the water parks, took part in team engagement activities and shared an amazing lunch beside the lake!

Recruitment in Ethiopia and across the globe

In Ethiopia, gender bias in employment is common. Boortmalt Ethiopia set out from the beginning to be different and we are proud of our approach to recruitment. When selecting staff, we are very careful to base our decisions solely on candidates' profiles and competencies, without considering their gender. We do not practice affirmative action, but we approach recruitment and employment with the mindset that it really is ability, and not gender, that counts.

Boortmalt *Talent Program*

Boortmalt has launched the *Talent Program*, to help talented people within our company to reach their full potential and become the best version of themselves. It combines both hard skills and soft skills to equip the talents to perform even better in their roles.

Participants are selected by the ExCom based on nominations from managers. The participant list is an excellent demonstration of how we develop talent, because it includes colleagues from all our regions representing a wide range of backgrounds and job roles, as well as different religions and genders.

Currently, there are some 70 participants involved in the programme (around 50 in the first wave and 20 in the second). The programme consists of two tracks: hard skills and soft skills. For the hard skills track, we use performance analyses and conversations with managers to understand what, if any, support participants need with job skills. This could be, for example, a financial literacy course for a technical manager without a business background, or project management training for someone who has recently added this responsibility to their role. The soft track consists of different workshops through which the company aims to provide the talents with tools to help them become the best possible version of themselves. At Boortmalt, we believe that individuals who are happy in their private lives will also be happier at work. That is why the soft track is disconnected from the professional environment and focuses primarily on the individual and their normal setting.

Most of the modules for the group-level programme (85% of participants) are run as short retreats in Belgium. In addition, some content is delivered online. There are also two smaller programs running locally in Argentina and Australia, each with four or five participants.

The programme is a multi-year journey with, as yet, no defined finish point. The first wave of talents, who joined 18 months ago, have worked in groups to complete the first cycle, consisting of one module from each pillar. This will be followed by second and third cycles, and possibly more, as the programme has no defined finish date. In later cycles, more focus will be placed on individual personal development work. We are also investigating ways to introduce learning opportunities based on the four pillars to more and more staff across the business.

The Talent PROGRAM

FOUNDATION

ENERGY

HAPPINESS

RESILIENCE

Pay equity

At Boortmalt, pay equity is a no-brainer - equal pay for equal work should be the starting point.

However, given our organisation's rapid growth, various takeovers and heritage pay structures have the potential to create unfair disparities. We go the extra mile to identify such potential mismatches. We resolve them by, for example, creating awareness about pay equity around the world and building future-proof harmonised policies.

Pay transparency

Alongside pay equity there is pay transparency. At Boortmalt, we aim to educate our employees in how to read their payslips and understand the different remuneration components provided by the company. Sometimes, the full value of the benefits in which we have invested is not clear to employees. One example of this is our work to ensure that all employees have access to proper health care or that they can participate in pension saving plans. In some countries, we have also negotiated discounts for our employees at IT equipment suppliers, bookshops or grocery stores.

We see it as our duty to assist our employees to access these benefits and encourage them to use them to their full potential. We share useful information to help our employees to optimise their net take-home remuneration package.

> "Pay equity and transparency will stay on top of our agenda and I'm confident that Boortmalt is doing whatever it takes to ensure fairness."

Frederik Vanpeteghem
Compensation & Benefit Manager

Management training in Argentina

At Boortmalt Argentina, we strongly believe in developing our team and providing them with the necessary tools to reach their full potential. That is why, throughout this year, we have conducted training in coaching and situational leadership, targeting both managers and middle management. We also have our e-learning platform, Boost, where new content and courses are continuously developed.

In addition, as part of our Wellbeing Programme and in collaboration with experts in each field, we have held talks for all our Masters of Malt on various topics such as nutrition, mental health and meditation.

Prairie Malt at the community careers day

Prairie Malt staff actively participated in their plant's local careers day. The reason for the team's presence at this event was twofold: not only did they aim to attract and recruit new talent, but they also sought to reach individuals of varying age groups.

Boortmalt's commitment to workforce diversity and community involvement was clearly on display as the team connected with prospective employees, both young and experienced, and shared the exciting career opportunities available within the business.

Celebrating the Lunar New Year in Australia

Festivals from a wide variety of heritages are celebrated in Australia. One of the biggest is Lunar New Year. On 25 January 2023, the Melbourne office team watched a Lion Dance and enjoyed a Chinese meal, sharing in the traditions of the many colleagues of East and Southeast Asian heritage.

Boortmalt Australia plans to organise similar events in the future. For example, to mark Diwali, team members with Hindu backgrounds will bring in food from different countries.

Take Our Kids to Work programme

Staff at our Biggar plant in Canada participated in the Take Our Kids To Work programme organised by The Learning Partnership and The Students Commission of Canada.

This is a career exploration event where Grade 9 students are invited to spend a day shadowing in a professional environment, encouraging them to explore career paths and think about their future.

Colleagues were thrilled to see students in the workplace as they shadowed their parent/guardian, fostering connections and insights into the world of work. What a great way to empower our team of the future!

Boortmalt at job fairs

In FY23, we were delighted to get back to face-to-face jobs and careers fairs after the online-only format of recent years. Boortmalt staff attended fairs in countries across the world - Australia, Belgium, France, the UK and more. Many were hosted by universities and colleges.

These events help us raise the company's profile among students looking for internships and graduate jobs, as well as career changers of all ages, thereby widening our talent pool. For the attendees, they are an opportunity to learn more about what Boortmalt does, see how the malting process works and hear about the international careers we can offer. Let's hope some of them will discover a passion for malting and be inspired to become Masters of Malt!

Sport for all!

Staff at various Boortmalt locations get together to take part in sports activities, and benefit in a range of ways.

At our Melbourne office, the running group started out with a few colleagues going for a run at lunchtime once a week. Gradually, it has grown and now almost half the staff take part! The group welcomes everyone who wants to join in. Participants decide how far and how fast they want to run – there is no pressure to complete a certain distance or keep up with a set pace. These weekly training sessions have culminated in colleagues entering organised runs in the city, choosing between 4k and 10k distances.

Running is a popular activity at Boortmalt Ethiopia too. Colleagues from all areas of the business get together to train for the Great Ethiopian Run, a 10k event for runners of all levels led by the famous Ethiopian runner Haile Gebrselassie. Over 40,000 people took part in last year's event on 29 November 2022, including a team of more than 20 from Boortmalt.

Rugby players from Boortmalt sites in Argentina, Australia and Spain tried out in their countries for a chance to play in Axereal's Haka Cup rugby tournament, held in France alongside the Rugby Heritage Cup, an international tournament for schools sponsored by Axereal. Some of the staff had never travelled to Europe before. A team from our Issoudun malting plant also took part, and the operational staff enjoyed meeting their counterparts from the other side of the world!

When staff get together to enjoy sport, they benefit in many ways. Obviously, physical exercise is important for health, particularly for desk-based workers. The mental health benefits of exercise are widely recognised too. But beyond this, taking part in sports within a group of staff is a great leveller. Sports activities are excellent for team spirit and inclusion – staff get to know colleagues they wouldn't normally meet, and see a different side to their workmates. In addition, major events like the Great Ethiopian run and the Rugby Heritage Cup are great for engaging with the community, supporting local events and raising the company's profile.

Masters of SPORTS






















WASTE REDUCTION

We are continuously optimising our yield and finding alternative uses for our by-products, thereby contributing to the overall UN goal of halving food waste globally by 2030.
In addition, we aim to reduce waste by using only fully recyclable and recycled packaging materials.

FY 22-23 STATUS

0.05%
Waste to landfill

2030 OBJECTIVE

0%
Waste to landfill

Approach

Globally, around a third of food is wasted. The Intergovernmental Panel on Climate Change (IPCC) states that food waste is responsible for 8% to 10% of total global greenhouse gas emissions. At Boortmalt, we do better. As malt producers, we reuse the majority of our process "waste" as by-products. Organic waste flows, such as small barley and malt culms, are used as fodder for livestock, as they are rich in protein. The remaining food waste is composted or used as biofuel to produce energy in our own or external facilities. Waste of all other types is separated so it can be recycled. Currently, our organic waste stands at just 0.6% and our waste to landfill at 0.05%. Yet we can still do more.

We constantly work towards our goal of achieving zero waste to landfill by 2030. We make sure all organic waste is fit for valorisation and work with service partners to improve our recycling rate. We also minimise packaging by transporting in bulk and, when product packaging is needed, we use recyclable materials.

New from old at Uma Malta

Uma Malta, our craft brand in Argentina, delivers its malt to its craft customers in plastic bags. Naturally, it is conscious of the environmental impact of these bags. It was important to Uma Malta to find a solution to collect its product packaging and reuse it in a high-value application, to reduce waste and prevent plastic pollution.

The brand works with a local company, Kaiapuni, to transform used malt bags into stylish accessories, upcycling them to make backpacks, roll bags and other items that are waterproof, resistant to damage and unique in design. The items are hand-made by female artisans from a local foundation employing people in vulnerable situations. At the start of the project, two women worked in the production area. Today, 14 women are employed, reusing 1,500 to 2,000 bags a month. Not only do these "new" products display Uma Malta's brand identity, they also demonstrate Boortmalt's commitment to sustainability, empowerment and inclusion.

Making aquafeed from malt by-products

One of the start-ups partnered by BoortmaltX is Aquanzo Ltd. It is based in Edinburgh, UK, near Boortmalt's Glenesk plant. This highly promising start-up is working on more sustainable ways of producing protein, and is experimenting with using malting by-products to do this. Currently, the feeds used by the operators breeding and raising fish and shellfish are made from fish caught in the world's seas and oceans. This is not a sustainable situation, and the world's supply of fish is running out. Aquanzo's solution is to farm a zooplankton called artemia, which eats carbohydrates and transforms them into protein and lipids. Aquanzo then uses the artemia to make aquafeed (for fish and shrimps). At present, the artemia are fed on rice bran. Successful trials have already been carried out with feeds made from malting by-products, chiefly rootlets.

With the support of BoortmaltX, Aquanzo successfully applied for an Innovate UK grant to set up a pilot-scale facility at Glenesk, which Boortmalt will support by providing the utilities. The next development in this project, currently at proof-of-concept stage, aims to use the wastewater from steeping at Glenesk to grow the artemia. Steeping water is a waste product from the malting process, which has to be cleaned by the plant before it is discharged. This project has the potential to harness the organic matter it contains, turning it from waste to be treated into a solution to the problem of overfishing!

AQUANZO

Reducing plastic waste at Port Adelaide

Malt is dispatched from our Port Adelaide plant to our brewer customers in 50kg bags. Previously, the bags used were lined. They were made of two layers of plastic – a bag and a liner – in two different materials. This double-walled construction meant they were difficult to recycle, because of the need to separate the materials.

An opportunity was spotted to move to a single-layer laminated bag, which would decrease the volume of plastic used and make it easier to recycle. However, this kind of operational change has implications for all the different parties involved, from the bag manufacturer to the customer, so a trial of the new bags was planned. First, lab permeability tests were carried out to make sure that the new bags would protect the malt from the elements just as well as the previous ones. Then a small-scale trial was carried out on a single customer's shipment (54 bags), to see how the bags handled at the filling stage and in the warehouse, and whether the customer was happy with them. The strength of the bags was also checked at this stage, to ensure that they wouldn't burst if they were dropped, and real-life permeability tests were run to confirm the lab results. Once all these tests had been passed, a large-scale trial (500 bags) was carried out with a bigger customer.

This test was again a success. As well as using less plastic and being easier to recycle, the new bags have a number of other advantages: they are less permeable to vapour, they offer a better surface for printing, they're more robust and they're less expensive. The new bags are in the process of being rolled out to all shipments, and will result in a considerable reduction in the volume of plastic waste generated. This project demonstrates that spotting an opportunity to reduce waste is just the beginning. Before we alter the way we work, it is important that we carry out a full trial involving all parties, both internal and external.

Partnership with Siclo Rural to recycle silo bags

In Argentina, barley and other grains are stored in silo bags. A silo bag is a giant plastic bag used as an alternative to a grain elevator or other permanent system to store agricultural commodities on farms until they are sold. As the bags are single-use, they generate a large amount of plastic waste. Boortmalt Argentina was keen to find a solution to this issue.

We have been working in partnership with Siclo Rural, a certified B Corp (company committed to superior social and environmental performance, accountability and transparency). Siclo Rural collects the empty silo bags and sends them for reuse and recycling. This project has multiple benefits. Firstly, it employs local people to collect and recycle the bags. Secondly, it supports sustainable ventures by entrepreneurs to reuse the bags that are in good condition, making them into backpacks and other articles. Thirdly, it generates a flow of cash – the portion received by Siclo Rural funds reforestation projects to capture carbon, while the part received by Boortmalt is donated to social causes in the local community.

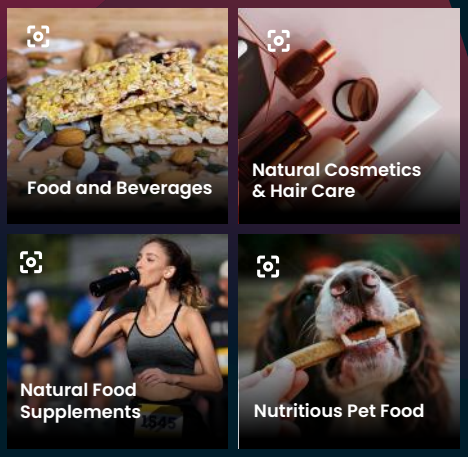
In FY23, through this project, 31,240kg of silo bags were collected. Recycling and reusing them provided an income to 60 families, supported more than 20 sustainable ventures, generated $200,000 in donations to local causes and planted 350 native trees which will capture 105 metric tons of carbon. This is a great example of waste being reused for good!

BOORTMALTX

Unlocking the potential of malt, together.

Boortmalt innovative start-up programme

Innovate with malt and change industries. BoortmaltX brings malt beyond beverages.



BoortmaltX supports start-ups generating value from waste

BoortmaltX is the corporate venture arm of Boortmalt. It exists to assist start-ups working in fields connected with malting. The founders of these start-ups focus on using malt-related ingredients in new ways and applying their innovative ideas to build a sustainable world. BoortmaltX aims to foster avenues to harness the rich protein content of malting by-products in both food and non-food applications.

Launched two years ago, BoortmaltX has already examined numerous projects. The start-ups it has met span a wide variety of value spaces ranging from food, beverages and food supplements to vegan leather and beauty products. It operates as an accelerator, a specialised programme to help start-ups scale up fast. It enables them to overcome challenges and hit their growth milestones. The backing and resources offered range from R&D and business support through to funding.

During its first year, BoortmaltX began partnering three companies, and the selection process for the second edition of the programme is currently underway.

TRACEABILITY & TRANSPARENCY

As Masters of Malt, we want to be the trusted partner providing full end-to-end insights on performance and achievements, as well as being honest about where there's room for improvement.
As a key global maltster, we have a responsibility to provide not only transparency but also traceability on our own programmes and throughout the many different collaborations across our value chains.

FY 22-23 STATUS

100%
Malt traceable in line with Food Safety Requirement

2030 OBJECTIVES

100%
verified traceability & transparency on malt

Approach

We work in a number of ways to provide traceability and transparency to our partners, customers, consumers and the wider community.

We start with ourselves. We participate in a select set of transparency programmes and organisations that we consider relevant, respected and appropriately challenging. These programmes not only enable us to provide data, they also push us to do better and improve the way we and our partners work.

We continuously invest in improving and optimising how we capture data from farmers to be able to monitor and track performance in sustainable agriculture and emission reduction. Through this information, we aim to provide detailed insights from farmers to customers and consumers on the improvements made, and by doing so unlock extra value for all partners but most importantly the farmers. This also enables us to offer complete traceability for certain products.

Finally, we share information across our organisation in order to improve, and we ensure that our results are independently audited for full transparency.

Transparency for our own programmes, targets and achievements

The first tool we use to provide transparency for our own operations is our Sustainability Report. In addition, to help us achieve and demonstrate our commitments and ensure consistency across all our locations, we have chosen to align our operations with several key certifications, memberships and reporting standards. They focus on people and planet and align with our sustainability commitments. We have built a certification management system to ensure we comply with all our legal, regulatory and business obligations. We use the diversity in our locations to better understand the many different requirements and to share best practices and learnings.

EcoVadis - Silver Medal

We are assessed by EcoVadis, a global provider of business sustainability ratings. EcoVadis rates businesses in four different areas: the environment, ethics, labour and human rights, and sustainable procurement. This assessment is an excellent way for us to demonstrate objectively the progress we are making in sustainability.

SILVER 2023 ecovadis Sustainability Rating

During the ratings process, EcoVadis examines businesses' sustainability performance in the four areas and provides them with a score. It then awards the best-performing companies a medal acknowledging their achievements relative to other assessed companies. Our 2023 score placed us on the 78th percentile among all the companies in the EcoVadis database, earning us a silver medal. Our next goal is to achieve a gold medal. As the medals are awarded based on the comparative performance of all the companies assessed, this will require us not just to improve, but to improve more quickly than our peers so it's a genuine challenge!

CDP – B Score

We report annually to CDP, a charity-run global disclosure system that was established as the Carbon Disclosure Project. This year, we received a B score in the three areas for which we report: climate change, water security and supplier engagement.

We aim to improve every year until we reach A-status across all three.

CDP DISCLOSURE INSIGHT ACTION

score B

Sedex

Sedex, the Supplier Ethical Data Exchange, is a collaborative platform that enables members to collect and share ethical data and identify risks in their supply chains. It is the world's largest data platform for supply chain assessment.

Being a member of the Sedex community supports our commitment to fair labour practices, the wellbeing of our employees, business ethics and the environment. The audits provide us with insights into what and where we can improve.

Energy ISO 50001

Energy use is a very important pillar of our sustainability strategy and we have therefore chosen ISO 50001 certification to give structure to our energy management programme. This is achieved by identifying our energy hotspots and providing a framework for our design and procurement strategies.

The group certifications cover 25 sites in total: all our currently operating malting plants across the world, together with our head office in Antwerp. For the most recent audit, four sites were visited out of the 25.

The certification body ensures that a physical audit is carried out on all sites periodically.

Environment ISO 14001

We follow the ISO 14001 principles to assess and manage our impacts on the environment and to comply with all local requirements.

With a focus on optimising resource usage and reducing emissions and waste, environmental certification provides assurance for the practices that we have implemented.

Again, the group certifications cover 25 sites in total, with the same approach to auditing used as for Energy (ISO 50001).

Health & Safety ISO 45001

We are committed to providing a safe workplace for all our employees, contractors and anyone who visits our sites, and are striving to reach our target of zero harm. ISO 45001 certification provides a framework for building and promoting a robust health and safety system.

This certification is a commitment to our teams and a statement that we care equally about internal and external people.

The programme has been rolled out to eight malting plants and storage facilities.

Food Safety ISO/FSSC 22000

We take the safety of our products very seriously, whether they are for human or animal consumption. We have chosen to achieve ISO/FSSC 22000 certification at all our locations to ensure that we are producing safe, high-quality malt and feed.

We use it to give our customers the assurance and information they need for the ingredients that go into the products that they supply to consumers or animals.

Twenty-one sites were certified or approved for certification during FY23, with certification officially awarded to Glenesk, Buckie and Knapton during the second half of 2023.

Organic Certification

We have achieved organic certification for the malt produced at six sites, at the request of customers. This testifies that the grain is grown, malted and traded to organic standards.

Traceability exercices in Ethiopia

Boortmalt Ethiopia carries out an annual traceability exercise to comply with the ISO 22000:2018 standard (Food Safety Management Systems) and meet customer requirements. At present, barley can be efficiently traced from the distribution stage through to site storage. Tracing the product right back to the farmer is more of a challenge, as we have a large number of small (single-household) suppliers. However, we are working to achieve this, with the help of the Source platform.

Our annual traceability exercise, which takes the form of a recall drill, is carried out by the plant HACCP team. HACCP, or hazard analysis and critical control points, is a preventive approach to food safety. The scenario for this year's drill was that a customer had rejected delivery of a batch of malt on the grounds that it did not meet the expected standard of quality. The Quality Manager formed an incident management team including representatives from all departments to investigate the issue and traced the barley back through all the processes it had undergone since it arrived at the malting plant. This enabled the Quality Manager to check that the records for all processes were in place and being kept correctly and consequently that the team was capable of identifying, firstly, which other customers had received malt from the same batch, and secondly, where a quality issue could have occurred.

By carrying out this exercise, we have demonstrated that we comply with the international standard and we avoid non-conformities during third party and supplier audits, increasing customers' trust in Boortmalt.

Traceability and transparency in sustainable farming

The Sustainable Agriculture Initiative (SAI)

We continue to promote the guidelines of sustainable farming as documented in the SAI protocols. Our suppliers and farmers participate in local SAI or SAI-equivalent programmes, often in alignment with customer needs.

These programmes include Irish Grain Assurance Scheme (IGAS) in Ireland, Red Tractor in the UK, Scottish Quality Crops (SQC) in Scotland, CultivUp, Agriconfiance and Irtac in France and Croatia, SAI FSA in Argentina and ISCC Plus in Australia.

Our certifications are held at different levels – Gold, Silver or Bronze – depending on the precise certification and the country concerned.

We track and capture all supporting documentation in a transparent and auditable manner and share it with customers who are equally committed to improving practices across all areas of farming.

Regenerative Farming Practices and SBTi FLAG (Forest, Land and Agriculture) CO_2 targets

Cooperatives, dealers and traders, together with agribusiness groups and other third parties, provide us with insights into the performance of farms, with a focus on emission calculations for barley crops. When dealing with farms directly, we work through farm organisations or other data collectors.

We are a member of the Cool Farm Alliance, and we use the Cool Farm Tool (CFT) calculator to bring farm data together across partners and track and trace improvements. This gives us better insights into the carbon footprint of the barley we procure and helps us pass the information on to our customers in a consistent format.

The data is also used to benchmark and share best practices to drive improvements across all farms. Mass balance guarantees that verified or certified improvements are allocated to customers only once. Based on the information collected, we can generate certificates and/or credits and communicate them through the value chain to provide traceability, securing additional funding for farmers at the same time.

> At Boortmalt, we continue to demonstrate our commitment to compliance and sustainability with all malt plants now certified for energy and environment, and food safety certification nearing completion.

Julie Testi
Group Business Standards Manager

Farm-to-Glass traceability

By using technology and partnering with all players in the end-to-end value chain, we have developed fully traceable programmes with farmers, cooperatives and customers. These are initiated in response to customer demand, and for the ultimate benefit of the consumer.

West Coast Pale Malt

In Australia, there is a growing movement towards sourcing local raw ingredients. Sourcing locally cuts transport emissions and helps brands to build connections with the communities they serve.

Joe White Maltings, Boortmalt's brand in Australia, has launched West Coast Pale Malt to provide Australian brewers with a malt that is sourced in the state of Western Australia and then malted locally. This state was chosen because it is relatively isolated from the rest of the country, and for the proud association that the local community has with locally grown and produced products.

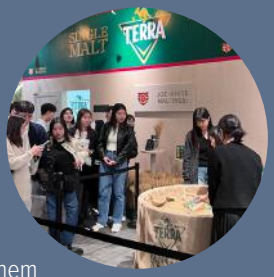
The product's key customer promise is its brand origination, as the barley is sourced only from Western Australia's wheat belt and malted at the local maltings in Forrestfield, near Perth. Not only does this make for a more sustainable product, it also supports local manufacturing and jobs.

The team at Joe White Maltings plans to expand this strategy by introducing locally sourced malts elsewhere in the country in the future.

Tasmanian Single Malt Beer from Hite

The Korean brewer Hite worked with Joe White Maltings to launch the first single malt Korean beer, under their Terra brand. This product is especially noteworthy because the supply chain is fully traceable for the consumer.

The new beer was introduced as part of a special release in the run-up to Christmas 2022. It is made from barley grown exclusively in Tasmania and malted in Boortmalt's Devonport facility in the state.



A QR code is printed on the beer cans. By scanning it, customers can trace the beer right back to the farm. This gives them comprehensive information about the product's origins, from the farm through harvesting and malting, including all the dates, times and processes. This is made possible by the fully traceable supply chain established by the farming company and Joe White Maltings, whose logo features on the cans.

Barley supply chain traceability in Ethiopia

Boortmalt Ethiopia has set up a system capable of providing traceability for the supply chain from farm to factory.

We have been working on developing the barley supply chain in Ethiopia since 2015, well in advance of the opening of our malting plant. It rapidly became clear that an efficient system was needed to capture supply chain data, and work on the system began in 2018. In collaboration with the Boortmalt IT department and Cognize Technology, an external company, we developed the Source platform. It offers full barley traceability and also incorporates a farming app. On the platform, we can view highly detailed information such as how the crop was farmed and with what inputs, field visit observations, harvesting and origination, pricing and grading, and financial and quality data. The farm app includes field data, the farming training programme and information about trials.

As well as providing traceability, this information is useful to our agronomists and to management, who can obtain key data and reports from the dashboard.

Internal reporting and independent audits

We use an internal dashboard to collect and centralise our data. Operating across our 27 sites, it puts robust and comprehensive information at our fingertips. We are now in the process of upgrading this dashboard to make more information accessible to more users across more functions, so our data can work even harder for us. By sharing best practices and learnings more efficiently across our company, we can improve more quickly and maximise the value we add for our customers.

All our Key Performance Indicators (KPIs) are verified by an external auditor. KPMG was engaged to fulfil this role for FY23. The details can be found on the KPI summary page.

METRICS SUMMARY

4 CORE PROGRAMMES		FY 20-21	FY 21-22	FY 22-23	OBJECTIVE 2030
Health & Safety	Sites injury free Ⓐ	68%	76%	73%	100%
	Reportable injury frequency rate (RIFR) Ⓐ (1)	7.76	6.22	4.60	0
Sustainable farming	SAI or equivalent certified Europe Ⓐ	40%	43%	55%	95%
	SAI or equivalent certified all other regions Ⓐ	17%	20%	25%	50%
	% barley volume emissions & methods captured through CFT or equivalent with the aim of reducing the footprint Ⓐ	5%	6%	9%	>67%
Energy use & Emissions reduction	Scopes 1 & 2 GHG emissions per metric ton of malt (in $kgCO_2eq$) Ⓐ	157	155	145 *	-50% (On target coverage & Reduction on GHG emissions intensity)
	Total scopes 1 & 2 GHG emissions (in $mtCO_2eq$) Ⓐ	396,238	425,235	411,224 *	-42% (On target coverage & Reduction on absolute GHG emissions)
	Scope 1 GHG emissions per metric ton of malt (in $kgCO_2eq$) Ⓐ	131	130.5	128.6 *	-
	Scope 2 GHG emissions per metric ton of malt (in $kgCO_2eq$) Ⓐ	26	24.5	16.4 *	-
	Scope 3 - barley GHG emissions per metric ton of malt (in $kgCO_2eq$) Ⓐ	362	362	360 *	-30.3% (On target coverage & Reduction on absolute GHG emissions)
	Scope 3 – logistics upstream and downstream (in – out) GHG emissions per metric ton of malt (in $kgCO_2eq$) Ⓐ	15 + 40	20.9 + 41.7	22.7 + 54.1* **	-42% (On target coverage & Reduction on absolute GHG emissions)
	GHG emissions per metric ton of malt (Scopes 1, 2, 3.1, 3.4 and 3.9) (in $kgCO_2eq$) Ⓐ	N/A	588	582	-
Water conservation	Water withdrawal per metric ton of malt (in m^3) Ⓐ	3.3	3.2	3.2	-
	Water consumption per metric ton of malt (in m^3) Ⓐ	2.8	2.8	2.8	<2 (-30%)
Community engagement	Number of initiatives	30	44	31	>30, min 1 per site.
Equality, inclusion & diversity	% men – women in ExCom	42% - 58%	42% - 58%	42% - 58%	Equal pay, people, promotion
	% men – women in higher mgt positions	N/A	84% - 16%	81% - 19%	
	Number of nationalities represented	>40	>40	>40	
	Equal opportunities: promotions from within	N/A	>15	>11	
Business ethics & Code of Conduct	Business ethics & Code of Conduct training	New manual	100 employees educated on new manual	339 employees enrolled in compliance training	100% of employees know and follow it
	% supplier Code of Conduct (global contracts)	100%	100%	100%	100%
Waste reduction: Malting	% waste to landfill Ⓐ	0.04%	0.04%	0.05%	0%
Traceability & Transparency	All malt traceable in line with Food Safety requirements	100%	100%	100%	100%
	mt traceable and transparent on the market through projects	2 projects	No new project	No new project	-

Ⓐ Audited by KPMG, fiscal year 2022-2023 – Full audit report with limited assurance level.

* The GHG inventory has been calculated internally and audited by KPMG. For the SBT near-term and FLAG target validation submissions, we have our GHG inventory calculated with the help of the climate change consulting firm South Pole. There is a difference in the result of the inventory mainly due to the different emission factor used, scopes 1 and 2 boundary definitions and the different tool used to calculate activity data such as transport distance for raw materials and goods. For the SBT submission, the figures are as follows: scopes 1 and 2 GHG emissions per metric ton of malt (in $kgCO_2eq$) = 144, total scopes 1 and 2 GHG emissions (in $mtCO_2eq$) = 407,095, scope 1 GHG emissions per metric ton of malt (in $kgCO_2eq$) = 123, scope 2 GHG emissions per metric ton of malt (in $kgCO_2eq$) = 21, scope 3 - barley GHG emissions per metric ton of malt (in $kgCO_2eq$) = 366, scope 3 – logistics upstream and downstream (in – out) GHG emissions per metric ton of malt (in $kgCO_2eq$) = 18.2 + 37.

** The increased logistics footprint in FY22-23 is due to a change in our method of calculating the sea transportation footprint. Port-to-port distance is calculated based on the port distance tool instead of using coordinates and an estimation of last mile delivery from port to customer is added. The last mile deliveries from port to customers' sites are arranged by customers and not tracked to our database. Our estimate is based on the distance from the port to the city where the customers are based.

(1) Recordable Injury Frequency Rate (RIFR) is calculated as the number of recordable injuries divided by total workforce hours, multiplied by a million. A recordable injury is a work-related injury that needs treatment beyond First Aid.

GRI STANDARDS CONTENT INDEX

Boortmalt's reporting on sustainability and corporate social responsibility is based on the Global Reporting Initiative (GRI) Standards. In our opinion, our reporting generally corresponds to GRI's reporting principles and the report has been prepared in accordance with the GRI Standards: Core level.
Correspondence between the GRI standards and the Sustainable Development Goals was established following the "Linking the SDGs and the GRI Standards" document.

Disclosure Number	**Disclosure Name**	Source
2-1	Organizational details	Sustainability Report pp.7, 8
2-2	Entities included in the organization's sustainability reporting	Sustainability Report pp.8, 9
2-3	Reporting period, frequency and contact point	Sustainability Report p.3
2-4	Restatements of information	Sustainability Report p.76
2-5	External assurance	Sustainability Report p.76
2-6	Activities, value chain and other business relationships	Sustainability Report p.9
2-7	Employees	Sustainability Report p.8
2-22	Statement on sustainable development strategy	Sustainability Report pp.4, 5, 16
2-23	Policy commitments	Sustainability Report pp.62, 63
2-24	Embedding policy commitments	Sustainability Report pp.62, 63
2-27	Compliance with laws and regulations	Sustainability Report pp.62, 63
2-28	Membership associations	Sustainability Report pp.72, 74
3-1	Process to determine material topics	Process to determine material topics was mentioned in the 2021 Sustainability Report under "Our material issues" Reference to: Boortmalt Sustainability Report 2021, p.13
3-2	List of material topics	List of material topics was mentioned in the 2021 Sustainability Report under on "Our material issues" Reference to: Boortmalt Sustainability Report 2021, p.13
3-3	Management of material topics	Management of material topics was mentioned in the 2021 Sustainability Report under "Our material issues" Reference to: Boortmalt Sustainability Report 2021, p.13
	Economic standards	
201-1	Direct economic value generated and distributed	Reported via Parent company Axereal Group Integrated Report pp.8-11
201-4	Financial assistance received from government	Sustainability Report 2022, p.30
203-1	Infrastructure investments and services supported	Sustainability Report p.12, 13
203-2	Significant indirect economic impacts	Sustainability Report pp.44, 58
	Environmental standards	
301-2	Recycled input materials used	Sustainability Report p.70
302-1	Energy consumption within the organization	Reported Via Parent company Axereal Group Integrated Report p.25
302-3	Energy intensity	Reported Via Parent company Axereal Group Integrated Report p.25
302-4	Reduction of energy consumption	Sustainability Report pp.42, 43
303-1	Interactions with water as a shared resource	Sustainability Report pp.40, 52
303-2	Management of water discharge-related impacts	Sustainability Report pp.51, 52
303-3	Water withdrawal	Sustainability Report pp.48, 76
303-4	Water discharge	Sustainability Report p.76
303-5	Water consumption	Sustainability Report pp.48, 76

GRI: Global Reporting Initiative

The GRI is an international, multi-stakeholder and independent non-profit organisation that promotes economic, environmental and social sustainability. The GRI was established in 1997 in partnership with the United Nations' Environment Programme (UNEP). The organisation has developed Sustainability Reporting Guidelines that strive to increase the transparency and accountability of economic, environmental, and social performance and provides all companies and organisations with a comprehensive sustainability reporting framework that is widely used around the world. Since 2016, the GRI guidelines also include references to the UN Sustainable Development Goals (SDGs).

304-3	Habitats protected or restored	Sustainability Report 2022, pp.26, 27
305-1	Direct (Scope 1) GHG emissions	Sustainability Report p.76
305-2	Energy indirect (Scope 2) GHG emissions	Sustainability Report p.76
305-3	Other indirect (Scope 3) GHG emissions	Sustainability Report p.76
305-4	GHG emissions intensity	Sustainability Report pp.14, 15, 76
305-5	Reduction of GHG emissions	Sustainability Report p.76
306-1	Waste generation and significant waste-related impacts	Sustainability Report pp.70, 71
306-2	Management of significant waste-related impacts	Sustainability Report pp.70, 71
306-3	Waste generated	Reported via Parent company Axereal Group Integrated Report p.25
306-4	Waste diverted from disposal	Reported via Parent company Axereal Group Integrated Report p.25
306-5	Waste directed to disposal	Sustainability Report pp.70, 76
308-1	New suppliers that were screened using environmental criteria	Sustainability Report p.62
416-1	Assessment of the health and safety impacts of product and service categories	Sustainability Report p.73
417-1	Requirements for product and service information and labeling	Sustainability Report pp.73, 74
	Social standards	
205-1	Operations assessed for risks related to corruption	Sustainability Report p.62
205-2	Communication and training about anti-corruption policies and procedures	Sustainability Report pp.62, 76
403-1	Occupational health and safety management system	Sustainability Report pp.20, 21
403-2	Hazard identification, risk assessment, and incident investigation	Sustainability Report pp.22, 23
403-3	Occupational health services	Sustainability Report pp.20, 21
403-4	Worker participation, consultation, and communication on occupational health and safety	Sustainability Report pp.25-27
403-5	Worker training on occupational health and safety	Sustainability Report pp.22, 23
403-6	Promotion of worker health	Sustainability Report p.24
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Sustainability Report p.24
403-8	Workers covered by an occupational health and safety management system	Sustainability Report pp.20, 21 All of our workers covered
403-9	Work-related injuries	Sustainability Report pp.20, 76
404-1	Average hours of training per year per employee	Reported via Parent company Axereal Group Integrated Report p.25
404-2	Programs for upgrading employee skills and transition assistance programs	Sustainability Report p.67
405-1	Diversity of governance bodies and employees	Sustainability Report pp.66, 76
408-1	Operations and suppliers at significant risk for incidents of child labor	Sustainability Report p.62
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Sustainability Report p.62
413-1	Operations with local community engagement, impact assessments, and development programs	Sustainability Report p.58

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