




TOAST

BREWING

IMPACT REPORT 2023

- Published June 2024 -



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Hi! We're Toast

We set out to make beer that tastes amazing and does amazing things too. That's why we brew with surplus bread, turning leftover loaves into liquid gold.

We've reinvigorated a process that's as old as beer itself - our ancestors first brewed beer with bread over 5,000 years ago. We use surplus bread to replace barley using the ancient technique of fermentation.

Not only does this make good use of one of the world's most commonly wasted foods, but we dramatically cut back on the amount of land, water and energy used, reducing carbon emissions and giving nature a break.

What's more, 100% of our profits go to environmental charities to buy Mother Nature a round.

One-third of food is wasted globally, and reducing this waste is the fastest, cheapest and most equitable action to tackle the climate and nature crisis. So our mission is to do just that.

This Impact Report sets out how we do it, and the impact we are having. Look out for the 'pub quiz' questions too - answers at the end!

Cheers!



Our Impact in Context

In 2023, the UN's World Meteorological Organisation issued a "red alert" on climate change. It was the hottest year on record, with the average global temperature reaching 1.45°C above pre-industrial temperatures. We were also served with record-breaking climate events.

We have big work to do. We have to say goodbye to extractive, capitalist economies that negatively impact nature, the climate and our own health, and hello to regenerative models that repair the damage done and help us build a better world for all.

We first need to repair our human relationship with the natural world. The more people understand we are part of nature and dependent on healthy ecosystems, the more motivated people will be to act.

Unfortunately too few people have access to nature to build this connection. The UK is one of the most nature-depleted countries in the world, and 10 million people in England lack access to green space.

But we connect with nature through our food every day. Farmers sow seeds in the earth, rain waters seedlings, and pollinators help plants to deliver a nutritious bounty to our bellies, renewably powered by sunlight.

Once we deeply value nature and understand the connection with our food system, we will better value our food and not a crumb of goodness would go to waste.

This belief inspired us to give Toast's branding a makeover in 2023, bringing nature to the forefront. Our packaging now flaunts stunning illustrations of arable fields, woodlands and orchards, grasslands and meadows, and our seas, rivers and lakes.

We also named each beer to champion collective action: Rise Up, New Dawn, Grassroots and Changing Tides. We can individually do things to help our green/blue planet, scoring ourselves physical and emotional benefits too. But the impact is so much greater (and more fun) when we join together to take action and call for change.



PUB QUIZ TIME!

Q1: What is the most impactful action individuals can take to reduce carbon emissions?

Change has to happen at every level. The UK government has so far failed to provide leadership, breaching its own Climate Change legislation. Business leaders must act responsibly, and push for a political and legal landscape to enable regenerative, circular models to thrive.

Toast's circular model of upcycling surplus bread avoids waste for bakeries and uses less land, water and energy by reducing barley. We measure the carbon footprint of this work and act to reduce emissions.

Toast engages with other businesses and with policy makers to lobby for change, and this year we funded legal action against the government's lack of action on food waste reporting. We also funded charities who are helping nature to thrive.

We maintained our commitment to supporting charitable work in 2023 despite tricky economic times. Sales were hit by the cost of living crisis and a wet summer that continued into the wettest Winter on record. Profit margins were squeezed by high energy and water costs (for everyone except the energy and water companies).

But we need to invest in nature for beer's sake (and for all of us!).

No-one has all the answers. We need to bring more people together to connect and converse. To create a space for this, we've opened Good Company with fellow social enterprise Change Please coffee. It's a cafe by day, a bar by night, and hosts all manner of events for changemakers.

Join us there and let's raise a Toast to planet Earth.

Cheers!

Louisa, COO & Co-founder



Impact Business Model



CIRCULAR ECONOMY: Unlike linear business models that unsustainably take from nature and create waste, we use circular economy principles. We brew with surplus bakery bread, using 25% less malted barley than other beers. Our spent grain is fed to animals and spent hops are composted to return nutrients to the soil.



SOCIAL ENTERPRISE: We aim to make profits like other businesses, but we use our profits to create positive change. Our legal constitution specifies that all our distributable profits (a minimum of 1% of revenue) will go to environmental causes rather than shareholders.



B CORP: We were the first UK brewery to become a Certified B Corp in 2018, meeting high standards of verified social and environmental performance, public transparency, and legal accountability. We re-certify again in 2024.



EQUITY FOR GOOD: We established a unique ownership model in 2018 called Equity for Good. Investors pledge to reinvest net capital gains in businesses with an environmental mission so that value created does good, not harm. Toast employees part-own the business, and there is a golden share to protect our mission.



NET ZERO TARGET: We measure our full scope 1, 2 and 3 carbon footprint. Most emissions occur in our supply chain so we're working with partners and campaigning for system change to achieve Net Zero by 2030.



PUB QUIZ TIME!
Q3: How many B Corps were there globally at the end of 2023?

Joyful Activism



We prompt positive conversations over a pint and invite everyone in. We open-source a recipe for home brewers and collaborate with breweries to inspire our industry.

We also advocate for policy to support systemic change. In addition to campaign work we funded on mandating food waste reporting in 2023, we're supporters of initiatives such as:



We support the **CLIMATE AND NATURE BILL** to enshrine in law the need to limit warming to 1.5°C and halt and reverse nature loss by 2030. Add your support at zerohour.uk



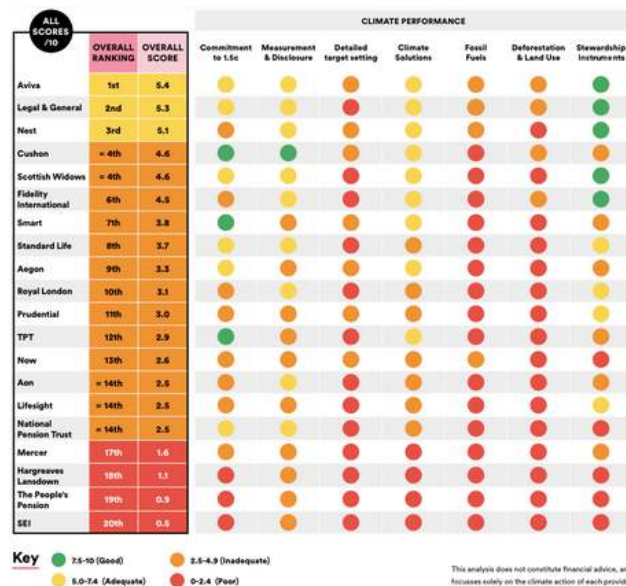
We support the **BETTER BUSINESS ACT** to remove shareholder primacy and ensure all UK companies align their interests with those of wider society and the environment. Join the BBA coalition at betterbusinessact.org



We're a member of **BUSINESS DECLARES**. The group raises business awareness of the need to accelerate action to address climate change, biodiversity loss and social injustice. Join at businessdeclares.com


We consider how our money can shape the society we want to live in. We bank with The Co-operative and our employee pension scheme is with NEST.

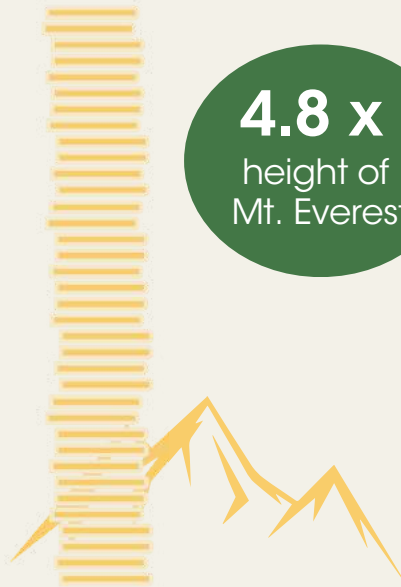
You can find out more about how to use your money intentionally at [Make My Money Matter](https://www.makeyourmoneycount.org.uk).





Impact Ripples

Our Operations


70.1 tCO2e
 emissions avoided
 26 million
 phone charges



288,104 m2
 land freed up
 1,473
 tennis courts 

422,445 Ltrs
 water saved
 9,184
 showers 

3,313,241
 SLICES OF SURPLUS
 BREAD

Our Profits




£116,752

DONATED TO FOOD &
 NATURE CHARITIES



Our Influence


15 MILLION
 people reached
 on social media

3.3 MILLION
 CONVERSATIONS
 OVER PINTS



1,533
 media mentions

87 BREWERY
 collaborations in
 10 countries



4.1 MILLION
 slices saved by 72
 inspired breweries

85,000
 home brewers,
 0.7 million slices



Big Hairy Audacious Goal

In 2016 we set ourselves a Big Hairy Audacious Goal: To prevent 1 billion slices of surplus bread from being wasted.

Bread is one of the UK's most wasted foods: 400,000 tonnes/year. Bakeries overproduce to meet unpredictable demand, sandwich factories discard loaf ends, and supermarkets overstock to keep shelves full. In our homes, we waste 1 million loaves every day.

It's symbolic of a huge problem. Globally we waste one-third of all food: 1.3 billion tonnes (15mt in the UK). This waste has a carbon footprint of 3.3Gt CO₂e (if it was a country, it'd be the 3rd top emitter after the USA and China). It uses 250 km³ of water (3 times Lake Geneva) and 1.4bn hectares (28% of the world's agricultural land).

With growing demand for land to grow crops for food and animal feed, land use is changing from forests and grasslands that act as carbon sinks and habitats for the diversity of life, to intensively farmed monocultures that pollute soils, water and the air.

By reducing food waste, we can free up land, water and energy and reduce emissions of greenhouse gases, and also prevent changes to biodiverse ecosystems.

We use 1 slice of surplus bread per pint. We currently only brew about 500,000L per year, but our goal is to influence our industry. We open source a recipe and collaborate with breweries all over the world. We're working to simplify the supply chain, including an R&D partnership with Heineken (who invested in Toast in 2022).

We believe UK bread waste could be halved (meeting Sustainable Development Goal 12.3) by using surplus to replace malt. In the UK, 4 billion litres of beer are produced annually. By replacing 10% of the grain bill, we'd use 170,000 tonnes of bread, reducing waste by 43%.

PUB QUIZ TIME!

Q4: Which country consumes the most beer per person?



Food for Thought



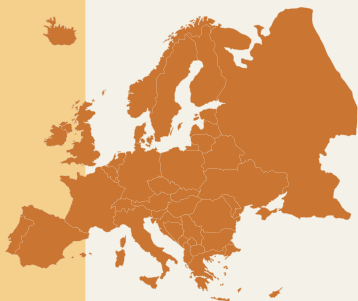
Indirect Land-Use Change

Global demand for food is increasing every year. And so, we are extending the agricultural frontier further and further into the world's remaining wild places including forests such as the Amazon.

This destroys wild habitat and contributes to the mass extinction of species. It interrupts water cycles, erodes soils and releases huge amounts of greenhouse gases.

We need land to produce food, but how do we avoid eroding more wilderness? How can we free up land for nature and feed a growing population?

We need to reduce demand for agricultural land. One way to do this is by making diets more plant-based, but this needs a big cultural shift. Given one-third of the food we produce is wasted, reducing food waste and using by-products instead is a no-brainer.



Eliminating food waste could free up 15% of the world's habitable land. Europe covers 7% of Earth's land surface to put that in perspective!



This is why Toast exists: to show that the brewing industry, and the food system in general, can massively reduce its demand for land by using by-products like bread that would otherwise be wasted, in place of virgin crops like barley.

As well as biodiversity and habitat protection benefits, not changing land-use can help lower emissions. We can prevent the release of stored carbon from activities like deforestation or draining wetlands. We also maintain natural ecosystems that act as carbon sinks.

It can also help to maintain soil health and safeguard water sources.

Since Toast began brewing with surplus bread in 2016, we've freed up 71 acres of land by reducing barley. This is an area bigger than London's St James' Park (a beautiful place to enjoy nature in the heart of the city).

The barley we use, and used by UK brewers, isn't grown on recently deforested land. But, consider the global nature of our food system.

Reducing barley would free up land to grow other crops, like protein-rich peas and beans and support more plant-based diets.

Locally-grown soy for animal feed indirectly avoids forest-clearance in South America, where soy is grown for export to Britain and Europe. Swapping barley for leftover bread could indirectly reduce deforestation in the Amazon.

Deforesting an acre of Amazon rainforest releases more than 300 tonnes of carbon dioxide. By freeing up 71 acres of farmland, we indirectly reduce the need to deforest 71 acres of Amazon rainforest, avoiding 21,300 tonnes of CO₂e!

A living forest can capture and store 2.5 - 3 tCO₂ per acre per year. Freeing up 71 acres supports a carbon sink of 213 tCO₂ per year.

These numbers are hypothetical, but illustrate the butterfly effect of our use (and waste) of food, the land, and the impact on nature.

If all breweries reduced malt use by just 10%, replacing it with surplus bread in their beers, this would free up about 900,000 acres (an area more than twice the size of Greater London) every year.

That would be huge for vital ecosystems like the Amazon.



PUB QUIZ TIME!

Q5: How many trees are there in the Amazon rainforest?



Charity Partners



In 2023, we split our charitable funding between organisations protecting and regenerating our natural world and campaigning for policies to prevent food waste.

Protecting Nature

We worked with Plantlife in May, brewing a special collaboration beer with St Austell Brewery to celebrate No Mow May.

We worked with City to Sea for their World Refill Day campaign, in June, launching our refillable growler offer at Good Company.

The Steel Keg Association awarded us 'Keg Champion', recognising our sustainability work and embracing reusable steel kegs. We donated the cash prize to these two great charities.

In November we worked with the Eden Project to raise awareness of their National Wildflower Centre. Wildflowers are critical for biodiversity, and our food systems, feeding pollinators and pest predators alike.

We can all do our bit by giving more space to nature, so we now include wildflower seeds in a taster gift box, exclusively available on our website.



Charity Partners

Preventing Food Waste

Through our longstanding partnership with the [Feedback](#), we funded legal action to challenge the UK government's decision not to force big food companies to report on food waste.

Some companies have voluntarily reported and taken action to reduce waste over the past 15 decade. Others have been getting an easy ride.

A government consultation showed that most companies - including 79% of retailers and 73% of hospitality respondents - were in favour of making it mandatory.

But the government opted to keep it voluntary - a system that doesn't work. We couldn't let this go unchallenged.

As a result of the legal action we took, the government committed to review its decision in the first half of 2024. It still hasn't.

We'll continue to engage with policy makers and other businesses to change the regulatory landscape and reduce the overproduction and waste of food. Follow our [blog](#) for the latest!



Carbon Footprint



Summary

Our 2023 carbon footprint was 150,151 kgCO₂e.

This includes emissions from grain to glass, arising from sources that are not owned or controlled by our business (known as Scope 3 under the GHG Protocol). We work with our suppliers, who brew and distribute our beer, to measure and manage these emissions.

This footprint includes emissions from the production of the bread. As we purchase bread from bakeries, rather than taking it for free, the GHG Protocol requires us to include it as an ingredient. We use an approach called 'economic allocation' to account for the lower value of surplus.

However, by using surplus bread, we reduce demand for malt, saving the energy, water and land that would have been needed to produce it. We also prevent the bread from being wasted.

In total we avoided emissions of 5.3 tCO₂e, giving a net footprint of 144,841 kgCO₂.

We have broken down our organisational footprint over the next few pages. You can also see emissions by product on the next page. This analysis helps us to think about how recipe choices influence emissions and how to communicate this to our customers.

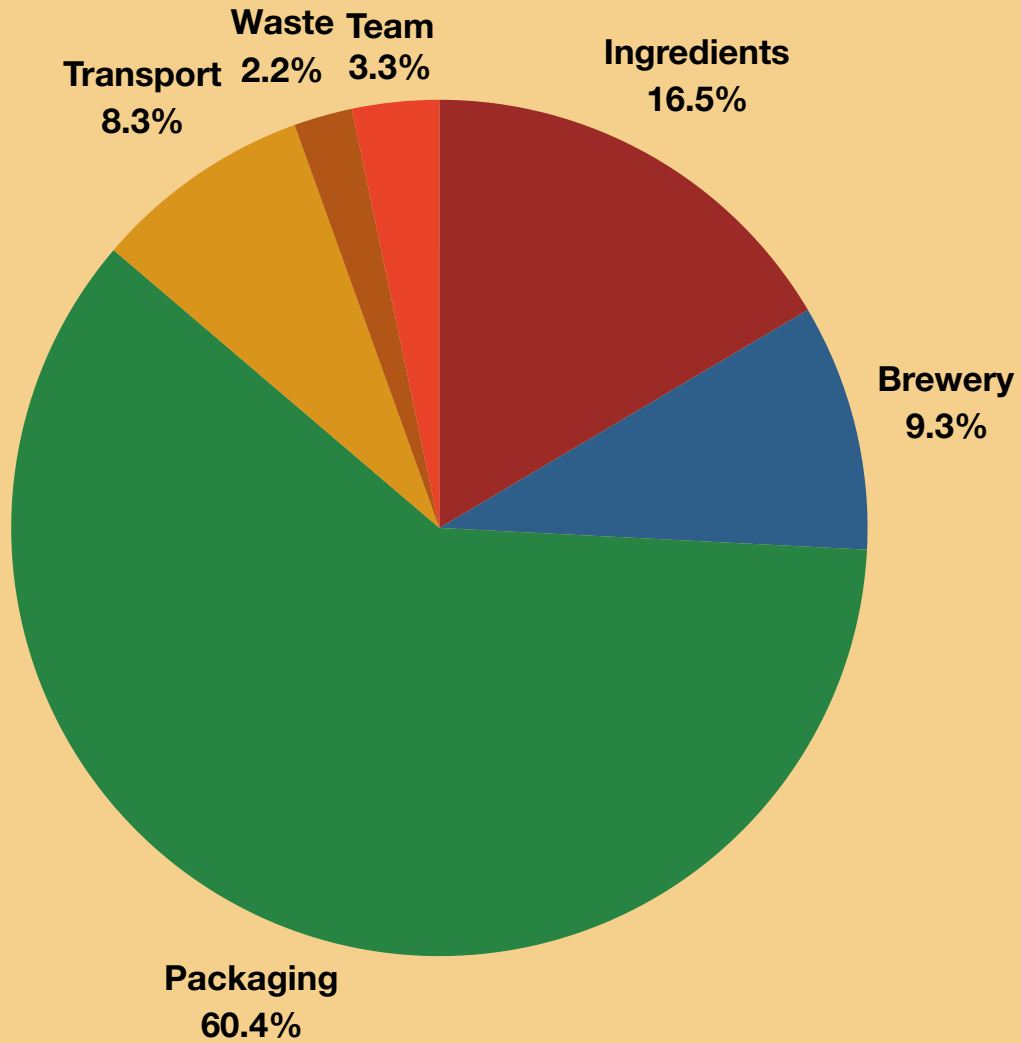
Our footprint data has been audited by ClimatePartner.



PUB QUIZ TIME!

Q6: What % of all the aluminum ever produced is still in use today?

Organisational Footprint 150tCO₂ (538 gCO₂ per Litre)



Product Footprints (gCO₂e)



Grassroots Pale Ale
 Can (330ml): 113.4gCO₂e
 Bottle (330ml): 323.3gCO₂e
 Pint (568ml): 104.9gCO₂e



Rise Up Lager
 Can (330ml): 118.0gCO₂e
 Bottle (330ml): 329.9gCO₂e
 Pint (568ml): 111.2gCO₂e



New Dawn Session IPA
 Can (330ml): 121.7gCO₂e
 Bottle (330ml): 332.0gCO₂e
 Pint (568ml): 117.8gCO₂e



Changing Tides 0.5% Lager
 Can (330ml): 120.8gCO₂e
 Bottle (330ml): N/A
 Pint (568ml): N/A



Carbon Footprint

Ingredients

To brew our beer, we use: malted barley (10% of emissions), bread (1.3%), hops (3.3%), oats (1.3%), yeast and water.

Malt provides starches, and enzymes that break the starches down into sugars for the yeast to convert to alcohol. Malt also adds colour and flavour to the beer. However it has a high carbon footprint due to the land used to grow barley and the energy used for malting.

We brew with 1/4 less malt than most brewers by replacing it with surplus bakery bread, dried and reduced to a large crumb.

We also use oats in some of our beers as they contribute to a lovely soft mouthfeel and some of the haze.

Hops are the seasoning of beer. They add aroma and bitterness, and act as a natural preservative. We use all-English hops for our new Rise Up Lager and Changing Tides 0.5% Lager. These need less irrigation, so are better for the environment in terms of water usage. They're also bred to be more disease resistant, so use less pesticides or herbicides. And of course they don't have far to travel.



Carbon Footprint

Brewing

We partner with breweries to use existing capacity in the industry and minimise our land and capital equipment footprint. In 2023, we moved to a new brewing partner to enable us to scale further: Curious Brewery in Kent (recently bought by St Peter's Brewery in Suffolk).

During brewing, energy is used to heat liquid during the mash and boil stages (gas 6.2%), and to cool the beer for fermentation (electricity 1%).

Purchased CO₂ is used to purge tanks and package the beers (1.9%). In April, we did an Earth Day collaboration with Gadd's Brewery in Kent, the first small brewery to install carbon capture.

At the end of the brew process, spent grains go to a local farm to feed animals (who get fibre, proteins and minerals from the grain after we've used the sugars). This avoids waste and reduces the demand for crops grown specifically for animal feed - often soya from deforested land.

Spent hops are used for compost, returning nutrients to the soil.

Carbon Footprint

Packaging

The embodied emissions in packaging is the biggest part of our footprint - glass bottles 47%, aluminium cans 9% and cardboard boxes 3%.

Our cans have a lower footprint than our bottles, so in 2023 we set out to use less bottles. Rather than choice-editing for our customers, we brought them on a journey with us.

We began by adding information to our online shop in February so people could see the difference in emissions between bottles and cans. The share of cans increased from 70% of sales to 82% - a big leap!

Indeed, research shows that consumers will choosing a greener option when it is made easy. It would be great to see all breweries sharing the carbon footprint of beers.

Next, between August and November, we made cans 5% cheaper. However, the share of cans fell slightly to 78%. We are unsure why. There may be a different taste perception (cans actually better protect beer quality). Perhaps bottles feel more premium. Or people like them for other reasons. This was by no means a scientific study, so we'd love to know what you think.

With our updated branding, we used fully printed cans, eliminating plastic labels. We removed bottles from our online shop and made the full switch with Waitrose, Co-op and Ocado. Some people probably miss the bottles, but we couldn't justify delivering heavy glass to households across the UK.

We're following a similar approach with our trade customers, though the transition will be longer. In the hospitality sector in particular, bottles are part of the customer experience.



Cans and bottles and pints

Oh my!

In the UK, 82% of aluminium cans are recycled (compared to 68% of glass). Recycled and virgin aluminium is mixed by metal producers and used to produce new cans (or other things, from cars to buildings). The properties of recycled and virgin aluminium are the same, so it's infinitely recyclable.



Virgin aluminium production involves mining bauxite and extracting aluminium using energy-intensive electrolysis. Recycled aluminium saves 95% of the energy, 97% of the greenhouse gas emissions.

The recycled content depends on availability of recycled metal - our can supplier estimates it is 70-80%. Demanding more recycled content wouldn't stimulate more recovery and recycling, because the efficient recycling process and infrastructure already does this - scrap metal is valuable.



What we can do is to encourage recycling to raise recycling rates and reduce the need for virgin metal. In 2023 we worked on a fun project with fellow B Corp Sloane Lighting, turning waste cans into bottle opener keyrings to show people how valuable metal is and incentivise recycling.



Cans also win over bottles due to being lighter and more compact, reducing the emissions from distribution. Smaller, harder-to-damage cans also need less (recycled and recyclable FSC certified) cardboard for packing boxes.



But nothing beats a pint! Our draught beer has no single-use packaging, served from repeatedly reused steel kegs into sparkling clean glassware.

In 2023 we collaborated with Change Please to open our 'Good Company' cafe taproom. We introduced a growler scheme on World Refill Day and paired up with Too Good To Go to avoid waste.



Carbon Footprint



Transport

We measure inbound distribution, for ingredients and packaging arriving at the brewery (2.5%), and outbound for the finished beer moving to UK fulfilment partners and our customers (5.8%). Emissions are calculated from the weight of the cargo, the distance travelled and mode of transport used.

Light and compact aluminium cans help us to reduce emissions from transport (they take up less space in vehicles, which need less fuel to transport them). This is more significant the further the beer travels.

We have a policy against export outside of the UK. Instead we collaborate with incredible breweries around the world who can produce locally.

In June we collaborated with Lagunitas in California. We brewed 'Toast of Petaluma' a Lager using imperfect loaves of sourdough from local Alvarado Street Bakery. Lagunitas made a donation to Sonoma Family Meal to feed 200 people experiencing food insecurity in the community.



Carbon Footprint

End of Life

Our beer can be stored under ambient conditions, but needs to be chilled before it is enjoyed, so we account for refrigeration energy. For kegged beer, we account for the energy used to dispense it.

Single-use packaging is disposed of once the beer has been enjoyed, and both aluminium and glass are infinitely recyclable. Recycling retains the materials and energy used to make it, reducing the high energy and carbon costs of primary aluminium or glass production.

Our metal kegs are collected for cleaning and refilling.

Toast Bread Quarters

Our small office is now based in the Good Company taproom cafe near Regents Park, where all energy is electrical and from renewable sources.

We also have a flexible working policy so the team can work from home. Nine of our team of ten are on tariffs with renewable electricity providers.

For commuting and business travel, we have a policy to prioritise the use of public transport, the best option to minimise emissions. Travel information is shared with the team as a ranking to encourage a little healthy competition.

Net Zero Plans

We have measured all emission sources since 2019 and are improving our coverage and access to activity data every year.

Most emissions are scope 3, meaning we have limited control. We have to work with our suppliers to understand and support their efforts, and campaign for broader system change.

Below are some of the things we're working on to achieve an 82% reduction in Scope 3 emissions by 2030.

Ingredients - Efficiency

We're improving the efficiency of surplus bread, trying to maximise the extraction of fermentable sugars. We've optimised for the moisture content of the bread and the crumb size, plus experimented with adjuncts such as rice hulls (a waste product!).

Ingredients - Low carbon barley

Regenerative farming includes various actions, tailored for the soil, climate and crops, with different impacts on climate and nature. Using less artificial chemicals reduces emissions, and using measures to improve soil health such as no-till can fix CO₂ in the soil as carbon.

We've been connected with farmers who grow regen malt since working with Soil Heroes and Groundswell in 2021. But barley has to be malted and we aren't big enough to buy direct from farmers and contract the malting and storage.

We need maltsters who are also managing their energy and water use to offer products to the market. We're on wait lists and would love to collaborate with other breweries to support this innovation.

Net Zero Plans

Brewing - energy efficiency and renewables

Curious, our brewery partner, monitors energy use and is installing solar arrays in 2024. The economics of gas and electricity need to change to incentivise investment in renewable heat.

Brewing - Carbon Capture

Curious is investing in the capture of CO₂ from fermentation. These 'biogenic' emissions aren't included in carbon footprints, but using captured CO₂ for packaging instead of purchasing CO₂ from chemical companies (a byproduct of ammonia fertiliser production) will reduce costs and emissions.

Packaging

We've reduced our product range to meet minimum order quantities for printed cans and are nudging customers to choose cans over bottles, sharing our analysis and offering price savings.

Ultimately we'll have to withdraw bottles but the to-be-confirmed UK Deposit Return Schemes creates challenges. The scheme for England is to exclude glass bottles - despite needing to improve recycling rates to increase the feedstock for production plants - and would make cans more expensive.

Distribution

Our website orders are delivered by DPD, who and are moving towards an all-electric fleet by 2025 (currently 33%). Our London trade delivery partner also runs an electric vehicle. We need the entire transport sector to move towards electrification, supported by EV charging infrastructure and the decarbonisation of the grid.

Companion

We have continued work to diversify our business, with a clear focus on our Big Hairy Audacious Goal - to prevent 1 billion slices of bread from being wasted.

We'll continue to brew our own beer, but are also helping others to embrace the circular economy and overcome some of the barriers to effectively using surplus bread.

This project - Companion® - embodies our approach to finding solutions at scale through collaboration.

We were awarded an InnovateUK SMART grant to enable research and development to scale our approach. This will include working with Heineken International, as one of our investors, and other smaller breweries to explore how they can use surplus bread in their recipes to deliver against their environmental goals.

Breweries and other interested partners will be able to access our experience and visit our new microbrewery in Milton Keynes to see the practical use of surplus bread.

In 2024 we will work with the University of Reading thanks to an InnovateUK Accelerated Knowledge Transfer Partnership. This will focus on the methodology for measuring the wider environmental impact of using surplus bread at scale, including the impact of avoided land-use change.

Follow us during 2024 as big things are happening!

PUB QUIZ TIME - THE ANSWERS

Q1: Greening your pension is 21x more effective at cutting carbon than stopping flying, going veggie & switching energy supplier combined.

Q2: 7.5% (92.5% are from virgin sources).

Q3: 8,000 (UK B Corps hit 2,000 in early 2024).

Q4: Czech Republic (140L per person per year).

Q5: 390 billion (17% of Amazon forests have been lost).

Q6: 75% and it is infinitely recyclable.

Q7: Fermentation.

Q8: Bicycle (in the 2021 UK census, 569,000 people said they usually cycle to work).





CHEERS

Certified



Corporation



TOASTBREWING.COM