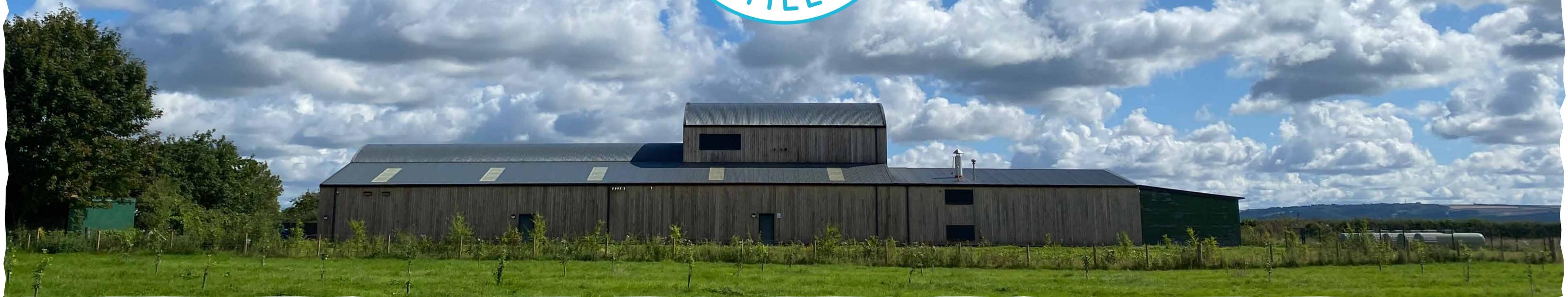


2022-2023 IMPACT REPORT



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ABOUT US



The Ellers Farm team on a cold winter day.

At Ellers Farm Distillery, we want to change the spirits business for good. We plan to do this by minimising our negative impacts, maximising our positive impacts, and sharing our successes and failures along the way. Our ambition is to make our hero product, Dutch Barn Orchard Vodka, a global top 20 vodka brand known for its sustainability credentials.

Our story started when our founder Chris saw lots of windfall apples going to waste in his orchard. He knew there were only so many apple crumbles and pints of cider his family could stomach, so set about finding another use for them. He eventually came upon the seedling of an idea to make vodka from apples, from which Dutch Barn Orchard Vodka eventually grew.

But Chris didn't just want to make a different vodka, he wanted to make vodka differently too. From the very start, the philosophy behind our business has always been to make the very best spirits in the most sustainable and ethical way, which is why the business

is built on the principle of balancing people, planet, and profit. That's why we've been carbon neutral from day one, are a Pending B Corporation and why everyone in the business has a stake in the business through a unique profit-share scheme.

We know that sustainability is more than a selling-point, it's the only way to ensure the success of our business in the long-term, and most importantly, thriving communities on a living planet.



IMPACT AT A GLANCE



Ecologi
4,367 trees planted
around the world

Living Wage
employer since
April 2022

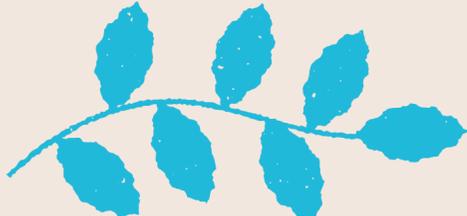


12 jobs created since
the business started

246.73 **Ecologi** | **climate positive workforce**
tonnes CO₂ avoided to compensate
for our employee's personal emissions
(September 2020 – March 2023)



Carbon Literate Organisation
Silver



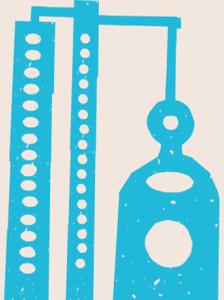
Carbon Literate Organisation
since August 2022

Upcycled materials from the
farm used to create our bar
and recycled paint from
Seagulls Reuse in Leeds used
to decorate our visitor centre



ClimatePartner
Full product range and business
impact footprinted, 837.8 tonnes
carbon offsets purchased

361
apple trees planted
in our own orchard



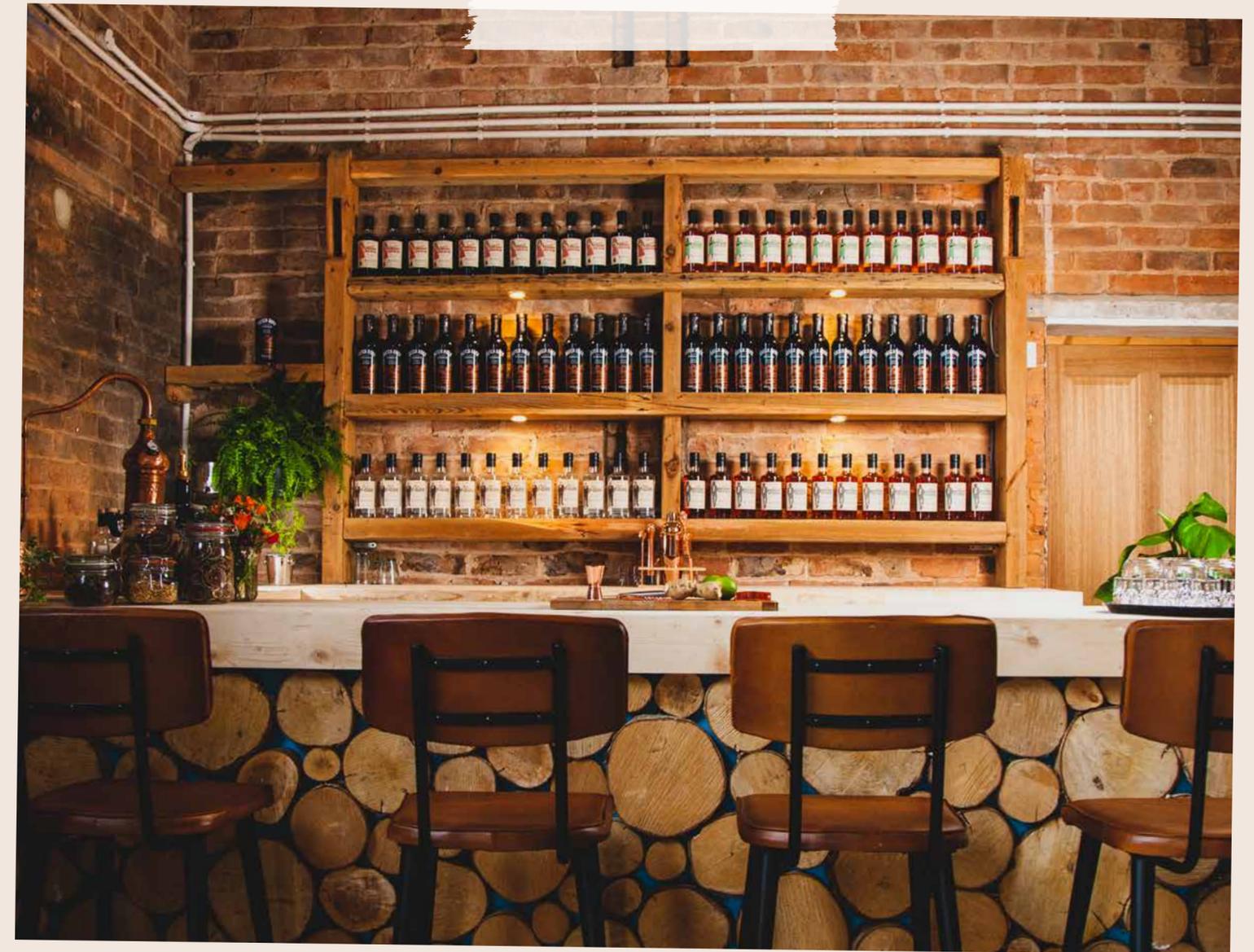
25,407 kWh
of 100% renewable electricity
purchased for our office and
distillery (April 2022-March 2023)

CARBON NEUTRAL FROM DAY ONE

We live in a world powered by fossil fuels, so virtually everything in modern society has an associated carbon footprint. When we first set up the business, we knew there would be carbon emissions associated with our products and operations – everything from employee commuting and the energy we use on site to the energy used to create and transport the raw materials for our products and packaging.

Firstly, we wanted to measure this carbon impact – it's pretty hard to reduce carbon emissions if you don't know where they're coming from. Secondly, we wanted to do something to offset those emissions and ensure our business and products were carbon neutral from day one of production. While offsetting itself is not the ultimate answer to decarbonising our business, it's certainly a start. Without businesses investing in offsetting projects, many important projects like renewable energy infrastructure and forest protection simply wouldn't happen.

But being carbon neutral from day one is just the beginning! We're actively looking for ways to eliminate carbon emissions from our business activities. And as members of the SME Climate Hub, we've committed to reach net zero carbon emissions by 2040.



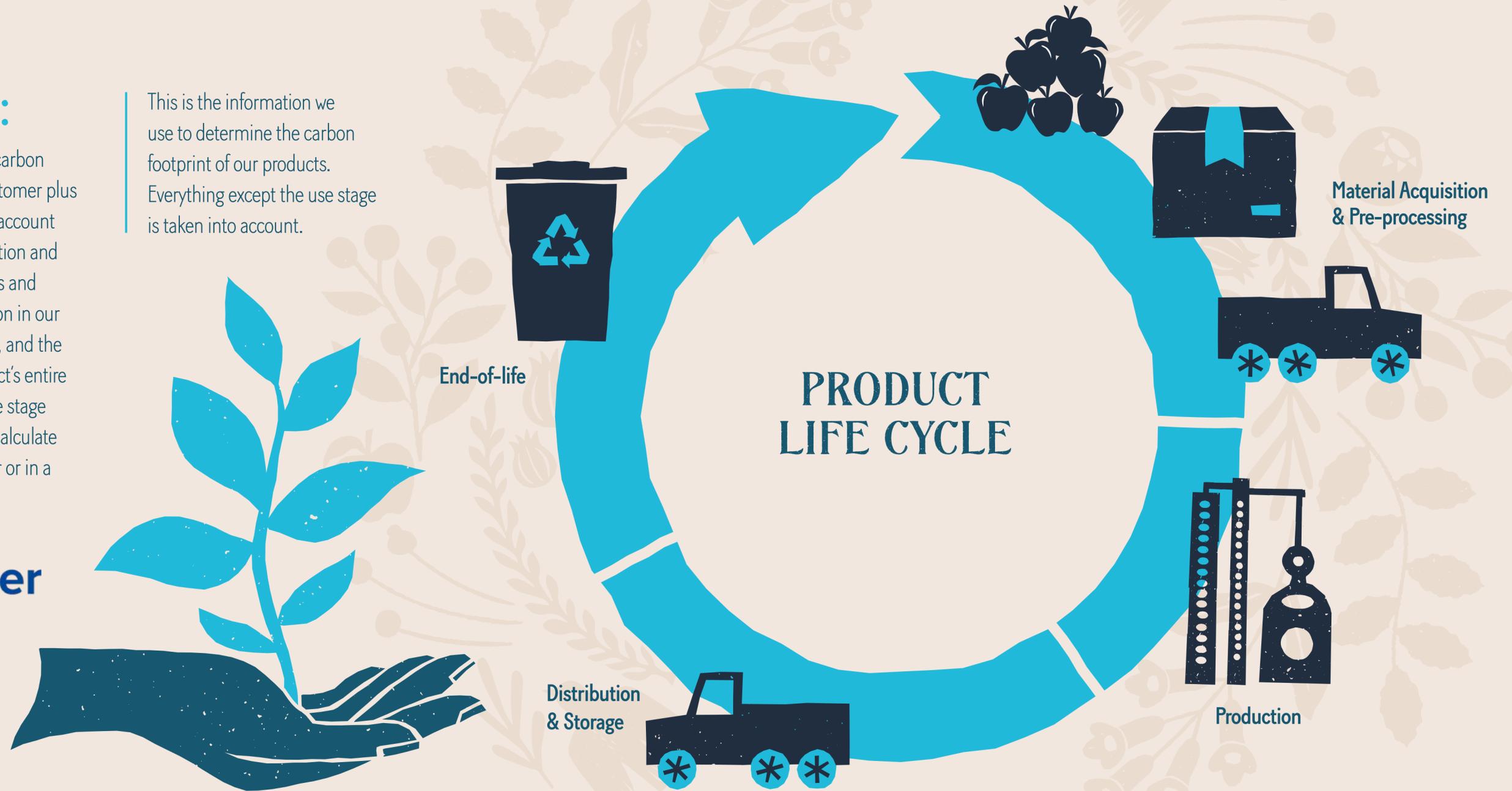
The bar in our visitor centre was made using upcycled wood found around the farm.

OUR FOOTPRINTS:

We worked with ClimatePartner to calculate the carbon footprints of our products using a “cradle-to-customer plus waste” approach. The emissions were taken into account according to the following lifecycle stages: extraction and pre-processing of materials including ingredients and packaging before they reach our doors, production in our facilities, distribution to customers’ factory gates, and the disposal of any packaging. This covers the product’s entire lifecycle, with the exception of the consumer-use stage because there are simply too many variables to calculate the footprint from the use of our product in a bar or in a customer’s home.



This is the information we use to determine the carbon footprint of our products. Everything except the use stage is taken into account.



OUR PRODUCT CARBON FOOTPRINTS

Sources of emissions	Dutch Barn Orchard Vodka (700ml)		Small Batch Spirits Range (500ml)		Future focus
	kg CO ₂	%	kg CO ₂	%	
Material acquisition and pre-processing	3.31	71.0	2.34	93.9	
Raw materials	2.70	58.0	1.92	76.9	<ul style="list-style-type: none"> • Longer term, we will seek to work with growers to reduce their on-farm emissions associated with apple production • We have also already planted 361 trees in our own farm orchard and will continue to expand our own apple orchard to reduce mileage and processing. In addition the planting of new apple trees will increase carbon absorbed from the atmosphere
Packaging	0.56	12.1	0.37	14.7	<ul style="list-style-type: none"> • We have already made a number of decisions to reduce the emissions associated with our packaging, including sourcing from UK bottle manufacturers • For all products made at the distillery, we use: <ul style="list-style-type: none"> - Sustainably sourced wood stopper tops rather than plastic closures - Agglomerated natural cork vs plastics - FSC-certified cardboard boxes • We've done a lot of work on our bespoke Dutch Barn Orchard Vodka bottle including: <ul style="list-style-type: none"> - Using at least 60% recycled glass content in our bottle - Light-weighting the bottle to reduce the total amount of glass used (reduced energy and materials) and reducing the weight per unit to increase transport efficiency • Our focus moving forward is to increase the recycled content in the glass bottles to further reduce carbon emissions • We have commenced a trial of 100% post-consumer recycled miniature (50ml) aluminium bottles which are significantly lighter weight than glass • We offer a closed-loop refill solution to some local customers and we will look to expand this as a solution for large volume consumption venues

OUR PRODUCT CARBON FOOTPRINTS

Sources of emissions	Dutch Barn Orchard Vodka (700ml)		Small Batch Spirits Range (500ml)		Future focus
	kg CO ₂	%	kg CO ₂	%	
Inbound logistics	0.04	0.9	0.06	2.4	• Although a small component, we will look to preferentially use lower emission transport partners in order to help create demand for low carbon logistics providers
Production	1.30	28.0	0.05	2.1	
Heating	1.30	27.8	0.05	1.9	<ul style="list-style-type: none"> • Our main source of on-site emissions comes from the use of LPG to heat our steam boilers. A key focus is to replace this energy source with a renewable zero emission source of energy. Our current boiler is green hydrogen ready, however the current low level of supply and low energy efficiency of green hydrogen do not make this a practical choice • Our focus will be to upgrade the renewable electricity supply to facilitate the use of an electrode-based steam boiler. This will eliminate the use of LPG other than in times when the grid is unable to supply to our sites (for continuity of production)
Electricity	0.01	0.2	0.01	0.2	• We already source 100% renewable electricity from the UK grid and will continue to do so. The small emissions associated with this relate to the transmission networks and their maintenance
Distribution and storage	0.04	0.8	0.08	3.2	
Outbound logistics	0.04	0.8	0.08	3.2	• Although a small component, we will look to preferentially use lower emission transport partners in order to help create demand for low carbon logistics providers
End-of-life	0.01	0.2	0.01	0.2	• By using materials that are widely recycled and easily recyclable we will continue to keep this to a minimum
Overall results	4.66	100.0	2.49	100.0	

For both of our product ranges, Dutch Barn Orchard Vodka and Small Batch Spirits, the majority of emissions come from higher up our supply chain (which is the case for most businesses). In order to get a better understanding of where our suppliers are with their own decarbonisation plans, we sent them a survey in 2022. There's still plenty of work to be done with our suppliers, but engagement is a good first step in the process to creating change.

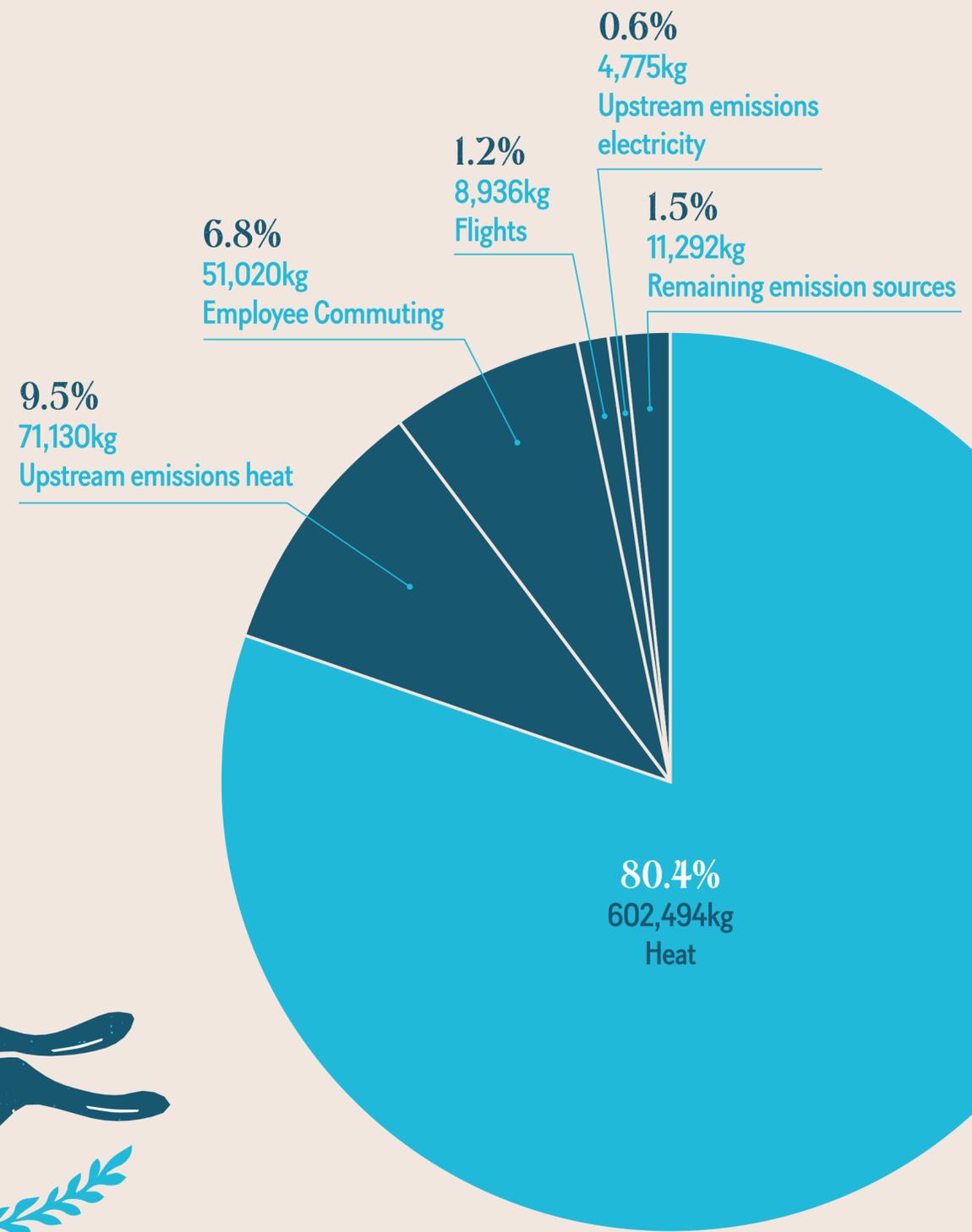
OUR BUSINESS:

We can break down the carbon footprint of our business into three scopes of emissions. Scope 1 includes all direct emissions generated by us through, for example, company-owned facilities or vehicle fleets. Scope 2 includes emissions released through purchased energy such as electricity. Scope 3 encompasses indirect emissions such as employee commuting and purchased services.

It's no surprise to see heat, which we create by burning LPG, at the top of our business emissions. We've already done some things to make our use of heat more efficient, including insulating our boiler and pipework as well as reusing already-heated water in our steam system, but we're looking at ways to optimise the use of our steam in order to operate more efficiently and use less energy overall. Our ultimate goal is to move away from LPG and into a renewable energy source for our steam needs, whether that's electricity or another fuel source like green hydrogen.

Because we purchase our energy through a contract backed by Renewable Energy of Origin Certificates, we have negligible emissions associated with the electricity used in our office, visitor centre and distillery. In fact, the emissions associated are to do with the provision of electricity through the grid.

Though nowhere near as big as the impact of our heat, another significant area of our emissions comes from employee commuting. Unfortunately our distillery isn't placed very conveniently for public transportation; however, we do have a few employees who live near one another who have made a bigger effort to carshare after taking a Carbon Literacy course. Most office-based employees work from home at least one day per week, which helps cut down on commuting emissions as well.



OFFSETTING FOR CARBON NEUTRALITY

Responsible carbon offsetting requires the following:

- 1. Additionality** - the project is dependent on additional financial support and would not have happened otherwise.
- 2. Exclusion of double counting** - each tonne of carbon avoided or removed is accounted for once only.
- 3. Permanence** - emissions avoidance or removal must be guaranteed long-term.
- 4. Auditing** - the projects and their effectiveness must be audited by independent third parties to verify compliance with international standards and calculation of actual carbon savings.

After calculating the carbon footprint of our products and business, we wanted to support projects with a positive impact on nature and people. A safety margin of 10% was added to the total of our emissions to ensure that all emissions were offset within the system boundaries. As a result, any potential doubts that inherently arise regarding the underlying data are offset, e.g., through the use of database values, assumptions or estimates.

We supported two projects with our offset purchases.

CORPORATE & DUTCH BARN ORCHARD VODKA

[click here](#)



This project in eastern Nicaragua has planted more than one million plants of a native species of giant clumping bamboo, covering 2,361 hectares while protecting an additional 1,000 hectares of old forest as a conservation zone. It has transformed a degraded landscape into a flourishing and biodiverse ecosystem. Bamboo is one of the most efficient biological tools for fighting climate change. The project contributes to mitigation by preventing deforestation and capturing CO₂ as well as to adaptation by reducing temperatures, creating micro-climates, supporting a low-carbon economy and creating livelihoods for vulnerable communities.

In contrast to cutting trees, harvesting giant clumping bamboo does not kill the plant. Once fully mature, selective poles are harvested from each bamboo clump annually, leaving enough time for other poles to regenerate. Thus the carbon stored within the bamboo becomes a permanent sink, with the bamboo clumps having a lifetime of 80 years. The bamboo fibre from the plantations forms the base for a broad range of sustainable, deforestation-free products like fibres or building materials.

SMALL BATCH SPIRITS [click here](#)



As the biggest REDD+ Project in Colombia this initiative protects 1,150,200 hectares of tropical forests, safeguarding its biodiversity. It provides education, healthcare, sanitation, food security, nutrition, and further social benefits for 16,000 indigenous people. The project works hand-in-hand with the communities to constantly inform and train them, improve living conditions and promote sustainable economic growth. The project follows a holistic approach to make a lasting change in the behaviour towards sustainable practices, forest protection, and conservation. The different scopes of the project focus on reducing the vulnerability of indigenous territory through strengthening governance through the communities, improving surveillance and control of the territory, as well as the system of communication and transportation. Besides, the project helps improve food self-sufficiency for six different ethnic groups.

WHY APPLES?

There's a long history of apple cultivation in the British Isles. In fact the first apples to reach these shores were brought along the silk road by the Romans, who would have picked them up in present-day Syria. But the original home of all apples is the Tian Shan mountains, which are situated in present-day Kazakhstan. It's likely that animals like birds and bears were responsible for spreading the seeds of these wild apples to other regions, where humans then learned to cultivate them.

Because every seed of every apple contains a mixture of genetic material from the parent tree and other apple trees (via their pollen), the only way to get a true copy of a given apple variety is to propagate a new plant from a cutting (also known as a scion). Otherwise, fruits grown from pips will contain the traits of both the parent tree and the pollinating tree.

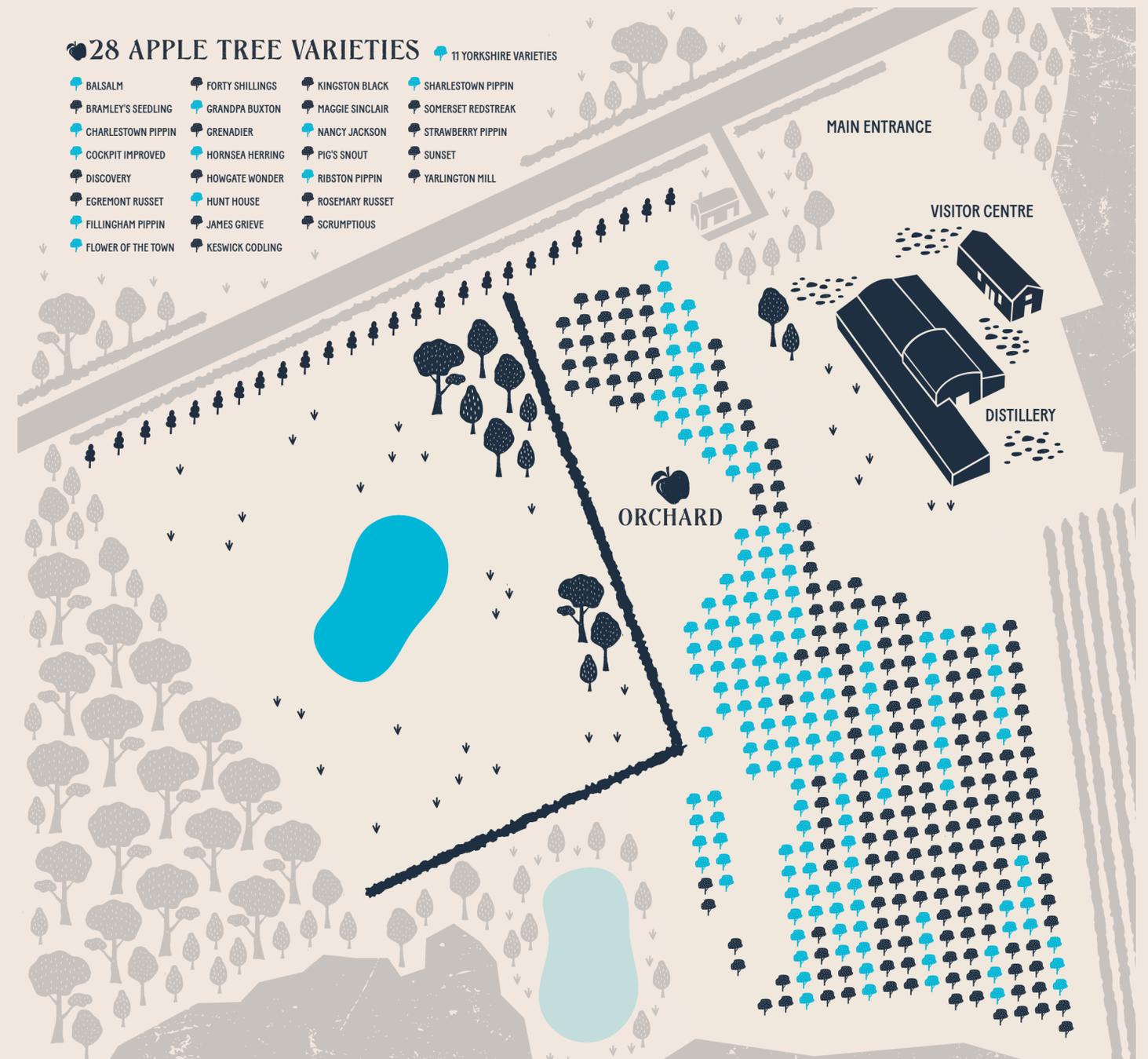
In the ensuing two centuries since the Romans made their way to these isles, more than 2,600 new varieties of apples have been cultivated. Some of these varieties were found growing as one of nature's happy accidents after an apple pip took root. Others were painstakingly created by cross-pollinating known varieties, in the hopes of combining the best traits of each variety to produce extraordinary fruit.

Despite the storied history of apples and orchards in the UK, since the 1950's Natural England estimates that nearly two-thirds of all orchards have been lost from England alone. Changing agricultural policy, cheap imports, and demands for a limited and homogenous few varieties of apples have meant that most orchards have been grubbed up and many varieties are at risk of disappearing.

But apples and orchards don't just hold an important historical significance, they are of great ecological importance too. Orchards are a unique mosaic habitat, consisting of trees, meadow and hedgerows that provide food and shelter to myriad insects, birds, and mammals. As they grow, apple trees store carbon dioxide from the atmosphere in their woody trunks, branches and roots as well as fix it into the surrounding soil.

OUR ORCHARD

The plan to the right shows our site layout and details the variety of apple trees we planted in March 2023.

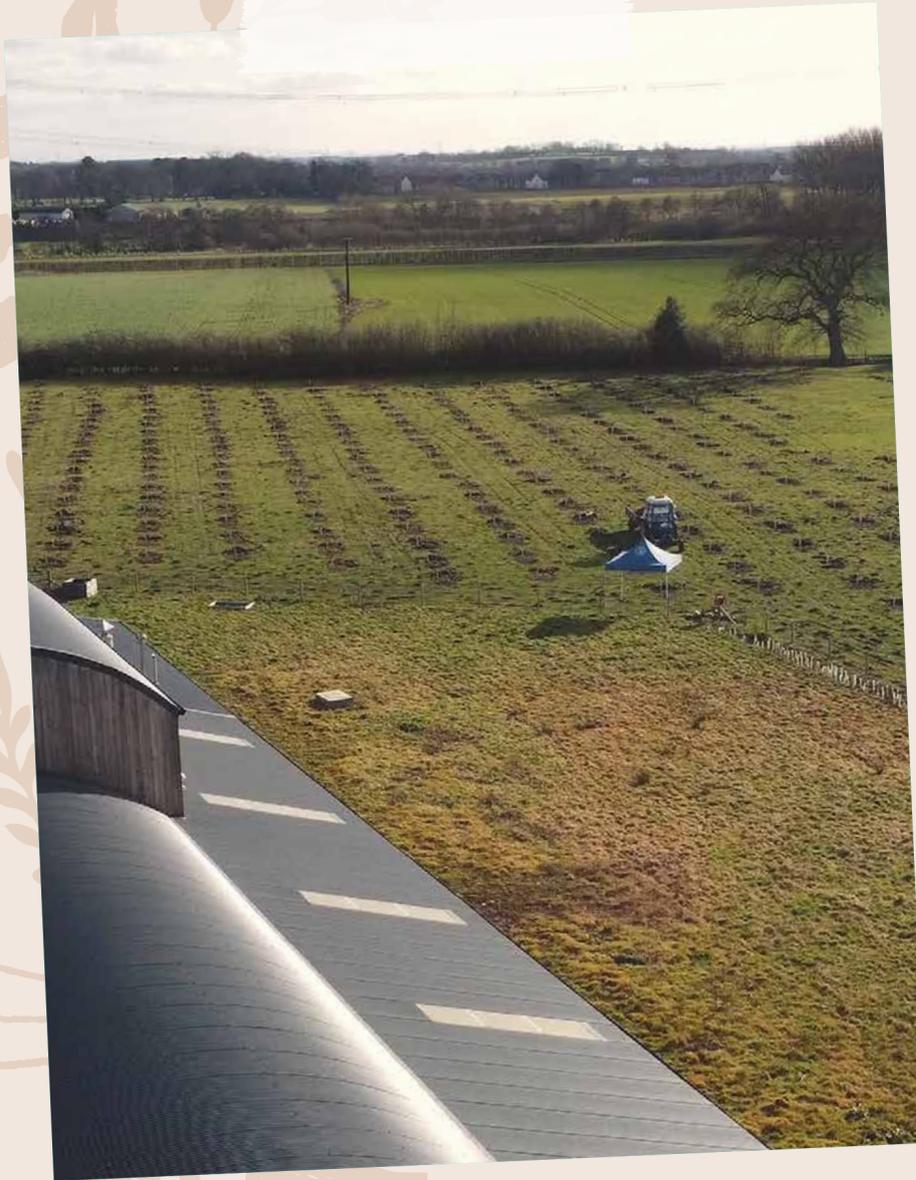


28 APPLE TREE VARIETIES 11 YORKSHIRE VARIETIES

- | | | | |
|----------------------|-------------------|-------------------|----------------------|
| ● BALSAM | ● FORTY SHILLINGS | ● KINGSTON BLACK | ● SHARLESTOWN PIPPIN |
| ● BRAMLEY'S SEEDLING | ● GRANDPA BUXTON | ● MAGGIE SINCLAIR | ● SOMERSET REDSTREAK |
| ● CHARLESTOWN PIPPIN | ● GRENADE | ● NANCY JACKSON | ● STRAWBERRY PIPPIN |
| ● COCKPIT IMPROVED | ● HORNSEA HERRING | ● PIC'S SNOUT | ● SUNSET |
| ● DISCOVERY | ● HOWGATE WONDER | ● RIBSTON PIPPIN | ● YARLINGTON MILL |
| ● EGREMONT RUSSET | ● HUNT HOUSE | ● ROSEMARY RUSSET | |
| ● FILLINGHAM PIPPIN | ● JAMES GRIEVE | ● SCRUMPTIOUS | |
| ● FLOWER OF THE TOWN | ● KESWICK CODLING | | |

When apples are harvested, the root systems of trees stay in place, meaning soil health is maintained and the soil microbiome is undisturbed. And according to a report published by British Apples and pears, which surveyed over 75% of all British apple and pear growers, 33% of orchards don't use any form of irrigation. And 92% of growers are implementing biodiversity measures like wildflower leys and beetle banks in or adjacent to their orchards.

Choosing a raw material that readily grows here in the UK means we can get much closer to our supply chain and build close working relationships with farmers over the years as our business grows. We've also planted our very own orchard in the fields behind our distillery. We've focussed on mainly heritage varieties and half of the varieties planted were originally cultivated in Yorkshire. We've taken baseline assessments of the flora and fauna in the fields before we planted the orchard and will continue to monitor over the years in order to determine the impact we've had on biodiversity on our site. We hope our orchard will become a haven for wildlife and will support a huge variety of insects, birds and mammals for the years to come.



We planted all 361 trees in our orchard over the course of two days. The entire Ellers Farm team worked under the supervision of three tree-planting experts and with the help of 18 volunteers from Portakabin.

BALANCING PURPOSE & PROFIT IN ACTION

The following case studies illustrate one area where we've chosen to put purpose over profit and another where we have room for improvement.

OUR PACKAGING

When designing the bottle for Dutch Barn Orchard Vodka, we realised the industry is faced with a large problem. The clear glass used in premium spirits is often made with little or no recycled content in heavy glass bottles to give a more "premium" feel. We could have stuck to the standard script, but we thought it was time to do things a little differently.

We not only chose lighter-weight, recycled glass, but chose to purchase from a Yorkshire business. We could have saved money by purchasing our glass from Europe or China, but we decided to trade off the financial cost in favour of keeping transport mileage to a minimum and supporting another UK business.

Glass: We worked hard to reduce the emissions associated with our packaging. Our brown bottle is made with more than 60% recycled glass, and at just 550g is significantly lighter than the average weight (900g) of a premium spirits bottle. Using recycled glass not only helps to close the loop in a waste stream, but also helps to minimise emissions from production. When virgin glass is created for the first time, carbon dioxide emissions are produced due to the decomposition of carbonates – this can account for between 15 and 25% of the total carbon dioxide emissions of glass production. Recycled glass also melts at a lower temperature, meaning less energy is required and fewer emissions are created. Finally, our bottle manufacturer is located just 60 miles from our distillery, which helps to minimise emissions associated with transportation.

Printed labels: We decided to print all the information that would normally be contained in a separate label directly onto the bottle. This allows us to minimise the total volume of materials needed and our total packaging weight. The printed labels don't interfere with the recycling process as they simply burn off when the glass is being re-melted.



Cork and wood stopper: We use beech wood from FSC certified sustainable sources and agglomerated cork in our stoppers. Both wood and cork are naturally renewable, biodegradable materials. Cork trees live for up to 300 years and absorb CO₂ throughout their lives. Because cork is harvested without cutting down the trees, it's a natural carbon sink. We use agglomerated cork as this makes the best use of cork harvested and avoids waste.

Tamper-proof seal: We decided to use a paper seal printed with plant-based inks as we wanted to avoid single-use, not widely recycled plastic.

No etching: We decided not to use any etching on our bottle as this effect is normally achieved through the use of hydrofluoric acid – a powerfully corrosive compound that can cause serious damage to humans and the environment if not handled properly.

Outer case: Our outer case is made of FSC certified, unbleached cardboard.

Happy consequences

Not only was the choice of a brown bottle better in terms of environmental impact, it's also had a positive impact on product quality. In a study commissioned by us with the University of York's Biorenewable Development Centre, brown glass was scientifically proven to better protect and not affect vodka's flavour between distillery and customer when compared to clear glass bottles – meaning Dutch Barn Orchard vodka tastes as good as the day it was made.

BALANCING PURPOSE & PROFIT IN ACTION

OUR BOILER

Distilleries require a lot of energy, most commonly in the form of steam due to its ability to move quickly through pipework and deliver evenly-distributed heat. We spent a lot of time considering how to power our steam boilers. The options we considered were:

Biomass: plants or by-products of plants are burned to create steam. We looked into this as an option, but biomass boilers can be tricky for a number of reasons: they don't heat up quickly and can't create steam on demand, can have negative air quality impacts and there are environmental issues related to the sources of biomass itself. Much of the biomass imported into the UK comes from the USA and Canada, and as such creates additional carbon emissions through transportation as well as impacts from land use change.

Electricity: electrode boilers are great because they can deliver the same instantaneous heat as a conventional gas boiler, but can be powered with renewable energy sources. Unfortunately, at the time we built the distillery we couldn't physically get enough electricity to the site.



Mains gas: due to our remote location, we don't have a connection to the gas grid. If we had, we would have been able to pay for "green gas certificates", a market-based mechanism that works in the same way as green electricity contracts. Green gas is created when food or other natural waste biodegrades and created biomethane, which is captured and injected into the national gas grid.

Green hydrogen: Hydrogen can be created by putting water through an electrolyser, with the only by-product of hydrogen creation being oxygen. The process itself requires lots of energy, but green hydrogen is created using only renewable energy sources like wind, solar, and water. Unfortunately, there isn't a commercially viable source of green hydrogen for us to use. Creating our own green hydrogen using an on-site electrolyser is not commercially viable at this time either.



Unfortunately, due to our limited options, we're using LPG to power our steam boilers. This is definitely not our long-term plan and is our main hurdle to eradicating our operational emissions. We did purchase a hydrogen-ready boiler so we could switch over our fuel source if green hydrogen becomes commercially viable, but we're also exploring our options to upgrade electricity infrastructure for the use of electrode boilers. This is one of our biggest areas of improvement for our environmental impact, and one we're working hard to address.



LPG: also known as liquefied petroleum gas, is a highly calorific fossil fuel which is often used for heating in rural locations as it can be transported via road tanker and stored in large metal tanks on site. LPG is a fossil fuel, but it's touted for being relatively "clean" compared to other fossil fuels like coal and oil because it creates less air pollution like particulate matter, nitrogen oxides and sulphur and produces fewer carbon dioxide emissions. However, it's still an unrenewable fossil fuel.

RESPONSIBLE EMPLOYER



Living wage – we've been a Living Wage Employer since April 2022. We believe that everyone deserves to be paid a wage that meets their everyday needs. Unlike the National Living Wage, the Real Living Wage is paid voluntarily by businesses, is based on the cost of living and is updated annually.

Pay ratios – we've committed to paying the highest paid person in the business no more than 10x the pay of the lowest paid person. This includes any bonuses given too.

Employee profit share – we've amended our articles of association to include a unique employee profit share whereby up to 20% of the businesses profits are distributed to all employees in a given year. We've committed that the highest paid bonus will be no more than 10x the lowest paid bonus.

Volunteer days – each employee is given three paid volunteer days per year to help organisations close to their hearts.

Business travel – we encourage the use of public transport and car-sharing whenever possible and we don't allow flights within the UK.

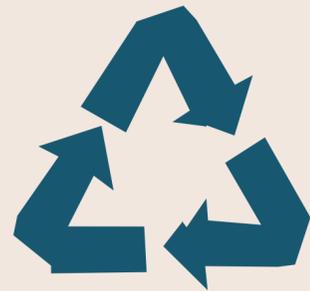
Employee health plan – we want our employees to have good physical and mental health, so we've invested in an employee cash back plan that covers services like physiotherapy, opticians, and mental health counselling services.

Ecologi – We purchase a monthly Climate Positive Workforce® subscription for every employee in the business. We compensate each employee's personal emissions by funding certified climate avoidance and tree planting projects.

Carbon Literacy Training – through training our workforce with the Carbon Literacy Project, we're empowering everyone who works for us with knowledge about the causes of and solutions to the climate crisis and a personal and organisational level.



AMBITIONS



CIRCULARITY

Our ultimate goal is to have a circular production system, where waste from one area is used in another. We're currently working on a project to utilise the wastewater from our production processes as a fertiliser for our orchard. This is one of many ways in which we could move from a traditional, linear production model to a circular and sustainable one.



NET ZERO

As part of our commitment to The Climate Pledge and as members of the SME Climate Hub, we've committed to reaching net zero carbon emissions by 2040 and halving our carbon emissions by 2030. We now have a year of data gathered and the next step will be to set a science-based target to achieve our emissions reduction goals.

Certified



Corporation
PENDING

CERTIFIED B CORP

We've been a Pending B Corp since the first year of our business, but hope to have full certification in 2023. B Corp is the only holistic sustainability certification for businesses. Being a B Corp means being part of a movement of businesses that believe in doing business the right way, for both people and the planet. The certification makes sure we hold ourselves accountable to meet high standards of social and environmental performance.



BIODIVERSITY AND HABITAT IMPROVEMENTS

We've already planted 361 apple trees and 150m of hedging around our distillery, but we want to turn the area around the distillery into a thriving habitat for nature. We'll continue to measure our impact and report the changes we've seen over time in subsequent impact reports.



We hope this report has shed some light on where we're doing well and where we hope to improve our impact. Our ultimate goal is to use our business as a force for good but we know we're not always going to get everything right the first time. Hopefully sharing our story along the way will inspire others and help in the effort to make change for the better.

