



Brewing Green 2019

a greener future for British beer and pubs

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CONTENTS

01 – recycling and reuse

03 – water

05 – greener pubs

02 – carbon and energy

04 – environmental sustainability

06 – local community

Introduction from Brigid Simmonds OBE, Chief Executive of the British Beer and Pub Association

Britain's brewing industry is one of the oldest and most revered around the world. To maintain this reputation, it is now more important than ever for us to brew world class beer in a sustainable way and to meet the United Nations Sustainable Development Goals (SDG). From reducing CO₂, to lowering water consumption, cutting down on plastic waste or supporting local businesses and agriculture, Britain's breweries and pubs are more determined than ever to make Britain a world leader for environmental sustainability.

As a sector, we know that more needs to be done, and future objectives must be more ambitious than ever before. Breweries and pubs across the country must set challenging, yet necessary, targets, which focus on meeting our six commitments, set out below.

There are over 48,000 pubs in the UK, serving one billion meals a year and billions of pints of beer. All of them have a key role to play in protecting the environment and creating a more sustainable economy. So, in Brewing Green 2019 we have also focused on the work pubs are doing to reduce their carbon emissions, reduce waste

and improve their recycling. As you will see later, pubs are stepping up to the plate, from introducing charging power points for electric cars, to using smart meters to reduce energy consumption and improve profits.

As we all know it is vital that we reduce our carbon emissions and protect our environment. I firmly believe that the beer and pub sector has an important role to play and is determined to meet the challenge. It is fantastic to see companies reducing their impact on the environment, from Carlsberg reducing plastic in their packaging to Robinsons cutting the amount of food waste in their pubs. I hope you enjoy the report and gain an understanding of the incredible work the beer and pub sector has done to support our local environment and reduce carbon emissions. I also hope this report signals a move towards a greener future for Britain's beer and pubs.





Building on the huge steps made in recent years, as highlighted in this report, our commitments include:

- 1** To improve the sector's energy efficiency and reduce the level of carbon emitted to the atmosphere
- 2** To reduce water usage and improve the quality of water returned to the environment
- 3** To reduce the environmental impact of packaging
- 4** To aim for zero product waste to landfill
- 5** To ensure that environmental best practice is implemented through management systems and partnership with supply chain partners
- 6** To support pubs in improving energy efficiency, increasing recycling rates and reducing waste

Over the next 12 months, we will be setting specific targets and an action plan to deliver against these.

01 RECYCLING AND REUSE

From the materials used for packaging beer and protecting it during distribution and shipping, to the waste from the brewing process, our sector is continuously looking for ways to cut down waste by reducing the amount of virgin material used and reusing materials wherever possible. We are proud that the brewing sector has consistently reached high levels of waste recovery (see the below chart), allowing us to extract the maximum value from all waste whilst working towards the target of zero waste to landfill.

Breweries and pubs are a great example of a circular economy in action. 93% of beer sold in British pubs is sold through kegs and casks which are recycled and reused by our breweries for up to 30 years. Breweries also send off their used brewers grains and spent hops to local farms for animal feed, to local agricultural colleges, and spent yeast to make food items such as Marmite, or even dog and cat foods.

The beer sector is committed to supporting Government in all of its goals to reduce the amount of unnecessary single-use packaging being placed on the market, in particular plastic, and working towards a nationwide 'circular economy'.

Year	Waste production	Waste disposal	Waste recovered	% recovered
2006	95,178	27,689	67,489	71
2008	118,881	13,244	105,637	89
2010	125,783	14,321	111,462	89
2012	106,240	4,654	101,586	96
2013	80,287	1,015	79,344	99
2014	89,518	3,163	86,355	96
2016	82,774	1,116	81,657	98
2017	37,243	601	36,642	98

Waste production and recovery – source: Environment Agency.¹

CARLSBERG

Packaging innovations – Snap Pack and 'Greener Green' ink

Through its sustainability programme, Together Towards ZERO, Carlsberg Group aims to cut emissions across its entire value chain – the beer-in-hand footprint – by 30% from 2015 to 2030. Packaging accounts for around 40% of this footprint.

With the launch of the new Carlsberg Danish Pilsner in the UK, Carlsberg made a series of improvements which will contribute to reducing its environmental impact. These include packaging innovations aimed at cutting the amount of materials used and improving recyclability.

Snap Pack replaces the traditional plastic rings on small packs of cans, using glue to hold the cans together. Snap Pack is already available in 330ml six packs of Carlsberg Danish Pilsner and

Carlsberg Export, contributing to cutting plastic use by 50% from brewery to store.

Green is synonymous with Carlsberg and the environment, but it is also one of the least environmentally-friendly colours as it is difficult to recycle. That's why they switched to the 'Greener Green' ink on their bottle labels and outer packaging to Cradle to Cradle Certified™ ink, ensuring it is fully recyclable and produced using renewable energy.

Carlsberg continue to explore new ideas and solutions to make the packaging of their products as efficient and sustainable as possible.

ADNAMS

Light-weighting bottles to create annual carbon savings of 1,000 tonnes

Adnams has once again collaborated with glassmaker O-I to develop the UK's lightest branded 500ml glass premium ale bottle. At 280g, the innovation shaved a further 19g off Adnams' market-leading lightweight bottle. This partnership has helped in creating further carbon savings, totalling more than 1,100 tonnes per annum as well as reducing glass waste by over 1,250 tonnes.

Adnams pioneered the use of lightweight branded glass in the premium packaged ale sector when working with O-I to launch a 299g bottle in 2007. This style of long-neck, lightweight pack has since helped regenerate the entire sector, which had grown to £490 million by the end of 2014. It is hoped that this latest move will inspire other brewers to seek further carbon savings in packaging.

DIAGEO

Diageo's multi-million pound investment to reduce the amount of plastic used in beer packaging

In April Diageo announced that plastic ring carriers and shrink wrap will be removed from multipacks of beer brands including Guinness, Harp and Smithwick's. They are investing £16 million to reduce the amount of plastic used in packaging, replacing it with 100% recyclable and biodegradable cardboard.

The new beer packs will be on the shelves in Ireland from August 2019 and Great Britain and other international markets by Summer 2020. This investment will see a reduction of plastic waste equivalent to removing 40 million 50cl plastic bottles from the world, which if laid out in a row would reach from London to Beijing (8,136km).



Currently, under 5% of Diageo's total packaging around the world is plastic and in 2018, they announced new plastics targets from 2025 and beyond. These targets include: ensure 100% of plastic used is designed to be widely recyclable, have 100% recycled content in plastic bottles by 2030, continue to invest in circular economy opportunity, and accelerate support for recycling by increasing collaboration and engaging with Governments, peers and consumers.

BUDWEISER BREWING GROUP UK&I

Working towards a closed loop – Budweiser's 2025 recycling and reuse goals

Budweiser Brewing Group UK&I is continuously seeking ways to increase recycling rates through the recovery and reuse of materials, to increase the recycled content of materials, and to improve consumers' awareness around the importance of recycling.

They have worked diligently in breweries around the world to achieve an average 98% recycling rate. However, more can be done, and the next challenge is to ensure that 100% of products are in packaging that is returnable or made from majority recycled content. They hope to achieve this by 2025, starting from a 46% baseline.

Since 2012, Budweiser Brewing Group UK&I's packaging sustainability journey began with a commitment to remove 100,000 metric tonnes of packaging material globally. In 2016, this goal was exceeded, removing 146,000 metric tons of material from packaging while maintaining the quality consumers expect.

They have been working with multiple partners, including the Ellen MacArthur Foundation, the Closed Loop Fund, and the Glass Recycling Coalition, as well as their peers, consumers, vertical operations, local governments, and suppliers.



TOAST ALE

Brewing beer with fresh surplus bread

Food production is the biggest impact we have on the planet, yet globally we waste one-third of all food produced – that's 1.3 billion tonnes every year. In the UK, bread is the worst offender – 44% of

bread is never consumed. Toast Ale is on a mission to change this. Toast Ale sustainably brew award-winning beer with fresh surplus bread and pour all profits into the food charity Feedback to tackle systemic food waste and its environmental impact. To date, they have rescued over one million slices of bread. If stacked, this would be a 15,000 metre loaf of bread - for context, Mount Everest is 8,848 metres.

This means they can brew a more sustainable beer by (1) upcycling the energy, ingredients and resources that went into producing something that would otherwise go to waste, (2) offsetting barley requirements in the brewing process to reduce 7 football pitches worth of land and water demand and (3) saving surplus bread from landfill, thereby avoiding harmful greenhouse gas emissions (the equivalent to 9 flights around the world). They have also donated £25,000 to food charities that are changing the wasteful way we produce our food and feed our people.



ADNAMS

'Used our Loaf' beers using retailer's leftover bread

Adnams has brewed three new beers exclusively for Marks and Spencer using surplus M&S British bread under the name 'Used our Loaf'. Triple English Hop Southwold Pale Ale, Earl Grey Pale Ale and Raspberry Fruit Beer are available in selected Marks and Spencer stores and online.

The Used our Loaf beers are made using surplus bread from the retailer's sandwich producer. The surplus bread was previously sent for animal feed but is now being used instead to make a delicious range of beers. This not only provides a use for wasted food but also reduces the amount of grain required and the associated environmental impacts.

Making beers from bread isn't new. There is a long history stretching back at least 4,000 years where brewers and bakers worked collaboratively together.

02 CARBON AND ENERGY

To date, the brewing sector has made some outstanding progress in cutting down the amount of carbon emissions which are released into the atmosphere whilst improving energy efficiency in the sector. As demonstrated in the below chart, we are pleased to say that **the British brewing industry has exceeded its 2020 targets** of increasing energy efficiency by 19%, and reducing carbon emissions by 30%, both from a 2008 baseline.

Just some of the achievements which we have made to date, from large investments in renewable energy to smaller projects to reduce energy usage, are celebrated in this section. However, to become a zero carbon- emissions sector, we know that even more hard work is needed over the next few years.

BUDWEISER BREWING GROUP UK&I

Pushing to 100% renewable energy with the largest unsubsidized solar power deal in history

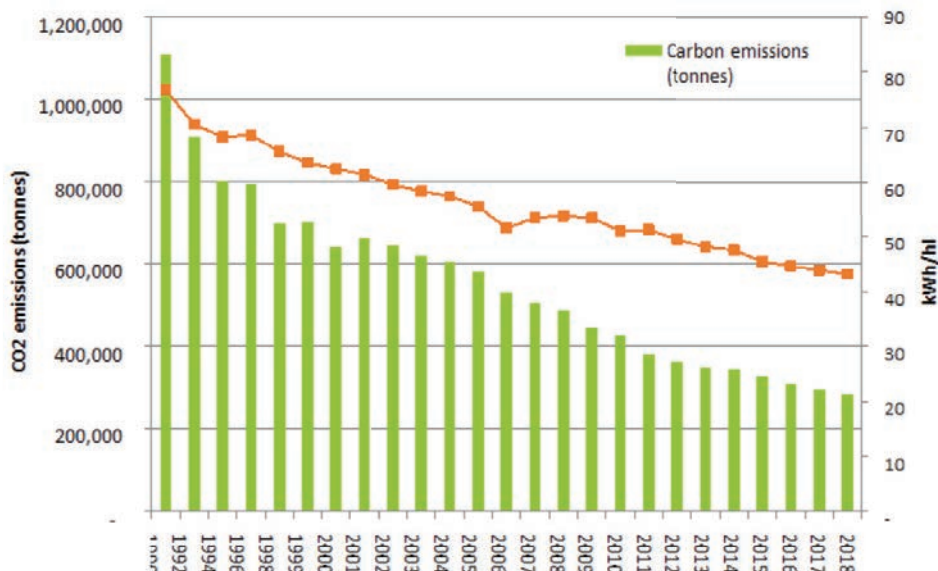
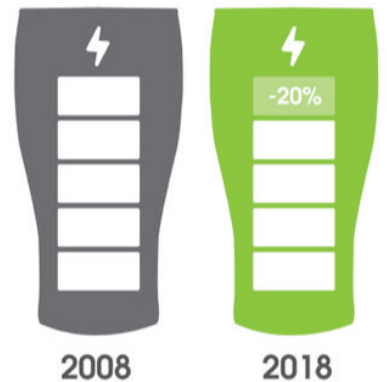
Budweiser Brewing Group UK&I recently announced a 15-year power purchase agreement with the UK-based renewable energy developer Lightsource BP that will provide 100% of the purchased electricity for Budweiser's two main UK breweries, where 17 million bottles and cans of beer are brewed each week. This makes Budweiser the largest corporate direct purchaser of renewable electricity in the consumer goods sector globally.

Keeping with the goal of adding renewable capacity to all of the markets where Budweiser Brewing Group UK&I operate, this deal will bring 100MW of new, renewable capacity to the UK energy grid, the equivalent of powering 18,000 homes with electricity every year. This milestone is part of their global, company-wide commitment to secure 100% of all of their purchased electricity from renewable sources by 2025 and is the latest step in a move to brew all Budweiser around the world with 100% renewable electricity.

To celebrate their commitment to climate action and to engage consumers on the issue, the new renewable electricity symbol will be added to Budweiser labels, appearing on Budweiser in the UK by 2020 and will be rolling out globally as countries meet this milestone in their Budweiser brewing operations. The 100% renewable electricity symbol is already on the label of every Budweiser sold in the United States, where the beer is brewed with renewable electricity from wind power.



It takes a **fifth less energy** to make a pint of beer than in 2008





HEINEKEN

Upgrading HEINEKEN's boiler to use less natural gas and increase the use of biogas

HEINEKEN UK recently invested in high-efficiency burners for the boilers at their brewery in Manchester, to improve the use of biogas and reduce the need for natural gas.

In 2018, new burners were fitted to a boiler along with the installation of an economiser. These high-efficiency burners are now capable of burning biogas meaning that there is less reliance on natural gas. What's more, biogas is a by-product from the waste water treatment plant which was previously disposed of - utilising it to heat the boilers means less flaring of gas. An economiser was also fitted to the boiler exhaust which allows the feed water to be preheated meaning that less gas is required for evaporation.

CARLSBERG

Carlsberg re-treads their forklift tyres, saving 38 tonnes of CO₂

In 2015, Carlsberg UK set about a scheme to refit all forklift trucks with re-treaded tyres rather than brand new tyres, with the aim to increase fuel and material efficiency.

The results were outstanding. Compared to a new tyre, one re-treaded tyre saves around 68 litres of oil and 44kg of rubber compound. The re-tread scheme has certainly delivered on the initial promise. In 2017, total savings amounted to 9.2 tonnes of rubber and an impressive 38 tonnes of CO₂.

MOLSON COORS

Molson Coors' investment in CO₂ recovery systems

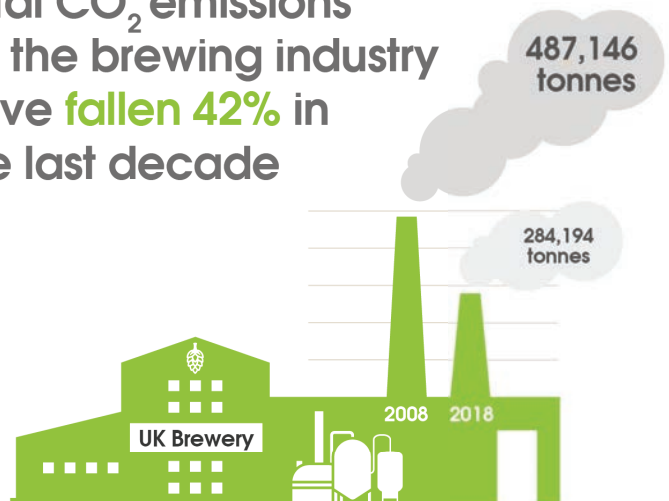
As a result of the investment they have made in CO₂ recovery systems, Molson Coors is now able to generate most of their own CO₂ for the production and packaging of major brands. On-site at the home of their largest UK brewery in Burton on Trent, they can recover up to 47 tonnes of CO₂ from the fermentation process each day, which would otherwise be lost to the environment.

Molson Coors undertook this improvement project to maximise the amount of CO₂ recovered as part of a £100m overall investment to ensure the site was more efficient and sustainable for future generations.

There was a large decrease in purchased CO₂ in May 2017, but it was from January 2018 that the site became self-sufficient. In the whole of 2018 only 100 tonnes were purchased which equates to 5 tankers – most of these were associated with operational issues.

In 2016 approximately 4,750 tonnes were purchased on site; 2,370 tonnes in 2017 and 100 tonnes in 2018. They continue to invest in ways to reduce our carbon footprint further.

Total CO₂ emissions
for the brewing industry
have **fallen 42%** in
the last decade

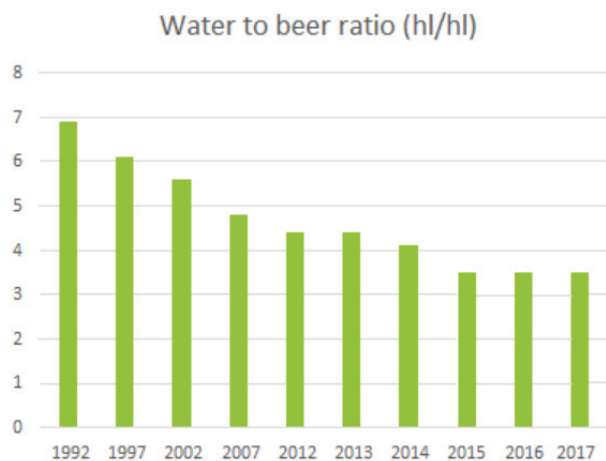


03 WATER

WATER

As a historically water-intensive sector, the brewing industry is always seeking ways to reduce its usage of water whilst continuing to brew great beer. We are proud to say that through investment and innovation, **the brewing industry has already exceeded its 2020 target** of achieving an industry average of four litres of water for each litre of beer produced. In 2017, the average number of hectolitres of water required to make one hectolitre of beer reached just 3.5. We will now look to the future to set a new and highly ambitious industry target and we will work as a sector to ensure that this is achieved.

Not only is the amount of water used to make beer important; brewers are also looking for ways to treat waste water to feed it back into local water supplies, and reuse water wherever possible within their operations. Just some of the many examples of this work can be found in this section.



ASAHI, FULLER'S GRIFFIN BREWERY

Reducing water consumption in cleaning: Fuller's Griffin Brewery Cleaning in Place (CIP) Optimisation Project

The Fuller's Griffin Brewery underwent a project to observe and record data from cleaning cycles with the aim of reducing the amount of water used and waste water produced, whilst maintaining or even improving hygiene quality in their vessels.

By taking into account variables including water pressure, duration of cycles and water temperatures, they conducted trials where parameters such as flow rates, duration and frequency of CIP cycles were adjusted. The results were analysed to monitor pH levels and levels of turbidity. The original CIP cycles consisted of 2 x 2 minute rinses.

After analysing results obtained from many different variations, they found that the most efficient method was to amend this to 3 x 50 second cycles. The required pH levels were reached sooner and the time taken to conduct the rinses were reduced. This resulted in an outstanding reduction in water usage, and reduced the amount of effluent produced by 37.5%, without compromising hygiene quality.

HOBSONS

Heat recovery and water conservation – Ground Source Heat Pump system

Hobsons have spent the past nine years creating an imaginative yet environmentally-efficient system that recovers heat from the cold store return. After discovering that there were no Ground Source Heat Pump (GSHP) systems available which would simultaneously heat the bottle store room while cooling the barrel warehouse, they went about designing their own GSHP system.

The introduction of this technology improves both heat recovery and water conservation at the brewery. Four 100 metre boreholes were sunk providing a constant water supply at 11 c. This is then compressed for heat or reverse cycled for cooling, and sometimes even both.

This integrated system is so effective that it is now used to heat the offices and the Brewery Tap. In addition, a rainwater harvesting system has now been installed to capture greywater from the extensive roof of the barrel and bottle store which is then used for flushing toilets, cleaning down ancillary processes and washing vehicles. Even better, the GSHP's system efficiency is also improved by the use of their very own on-site wind turbine, Windy Wendy (pictured), who powers around a third of the brewery's energy requirements along with extensive solar PV panels which provide primary energy.



FREEDOM

Treating waste water through a natural reed bed system

Freedom Brewery has developed a natural filtration system to process all effluent discharged by the brewery which is then drained directly back into the local brook. Effluent is flowed to the area by gravity, and natural filtration occurs due to both the structure and the natural filtering properties of the willow and reedbeds.

So how does the natural filtration wetland (pictured) work? The effluent leaves the brewery and passes through a settlement tank to remove larger solids, where it is then passed on to a deep anaerobic digestion pond.



The water then runs to the first of three swale ditches, each running parallel and separated by earth banks which are planted with rows of willows. The roots of the willow combine with the soil to form a natural filter. As the water runs through each bank it is further filtered, until it reaches the large oxidation pond which is fitted with an aeration unit to assist with further breakdown.

For its final filtration, there is a 2000 metre square horizontal flow reedbed, which once the water passes through, it leaves the wetland through a perforated pipe into the local watercourse. In total, the system covers 3.45 hectares, its volumetric capacity is 14900 cubic metres and the hydraulic retention is approximately 380 days when the system is full.

CARLSBERG

Upgrading bottling lines to halve water use and reach zero carbon emissions

As part of its sustainability programme, Together Towards ZERO, Carlsberg Group aims to halve water use and reach zero carbon emissions at all of its breweries between 2015 and 2030. In 2018, Carlsberg UK used around 22% less water and cut carbon emissions by 13% compared to the baseline year of 2015, through continued efficiency improvements combined with a reduction in production volumes.

In 2018, they introduced a system to collect the water used to rinse bottles before they are filled. Instead of going down the drain, it's now used in the tunnel pasteuriser. This saved 45,000hl of water in 2018 – enough to fill around 18 Olympic-sized swimming pools, and by upgrading the software to run the pasteuriser, they improved control over temperatures and changeover times, saving a further 12,000 hl and almost 300,000 kwh of heat energy.

Centrifugal filtration is essential to a high-quality brewing process, but keeping the equipment cool is extremely water intensive. Although the water used for cooling is relatively clean, historically it has been treated as waste. Carlsberg sought to change that by diverting the water to well-water storage tanks to be re-used for cleaning or further cooling. This saves around 300,000 litres annually, and with no pumping required, it's also energy efficient.

HEINEKEN

Improving the brewery's energy efficiency by monitoring condensate return

At the HEINEKEN cidery in Hereford, they wanted to reduce carbon emissions as well as water usage by improving condensate

return to its technical capacity. By monitoring condensate return as a percentage, it was found that weekly return was on average reaching 46% with sporadic weeks of less than 20% return.

HEINEKEN made a number of changes to improve levels of condensate return, including installing simple taps to pinpoint and eliminate any sources of contaminated condensate. In addition, the range of which good condensate could flow into the hotwell was widened as it was found that the setpoint for auto rejection was excessively tight. They also uncovered that the level probes in the condensate receiver/pumping stations were fouled, causing them to regularly fail and good condensate to overflow. They fixed this and ensured that regular maintenance was in place to keep the probes clean.

By the end of 2018 the team also installed condensate return lines from the keg to improve technical capacity, increasing capacity by an estimated 9%. Overall, this project resulted in an estimated increase in condensate return to an average of 61%, with high weeks of 66%, improved thermal KPI's to 0.61ML/hl and made water savings of 0.02hl/hl.

ADNAMS

Getting into the Spirit of Water Efficiency: closed loop water use and heat recovery

In an aim to further reduce water and energy consumption at their Sole Bay Brewery and Copper House Distillery, Adnams has introduced new state of the art heat exchangers on site, combining two technologies; heat recovery and closed loop water use.

Adnams identified that its distillery produced a high temperature waste stream and realised it was a very valuable resource. Rather than wasting this heat and water, they wanted to capture and reuse it.

The process of distillation requires spirits to be cooled by passing cold water through rectifying columns, which absorbs the heat and at around 80 c is extremely valuable. The heated water then passes through the heat exchangers and the heat passed into the brewing liquor. This reduces the energy needed to heat the liquor thus assisting with all on site heat recovery processes. Back in the distillery, the now cold water is re-routed back to the start of the distilling process ready to be passed over the next batch of spirits.

This process is a closed loop, so can continue indefinitely and requires very little additional fresh water. The immediate results were a huge 85% reduction in the amount of fresh water required in the distillery, equating to around an overall reduction of 50% in the amount of water required to make Adnams grain to glass spirits. The energy saving calculations are still ongoing, but initial estimates are around 5-10%.

04 LOCAL ENVIRONMENT AND SUSTAINABILITY

Brewers across the UK play a vital role in supporting British farmers to produce sustainable and high quality ingredients, in order to protect the key ingredients required to make a perfect pint for future generations.

The British hop industry has for decades been a world leader in breeding programmes to develop new varieties of hops which are eco-friendly, have greater disease resistance and require lower chemical inputs, such as aphid-resistant varieties. In the UK, our natural resources mean that very few hops are irrigated. This all highlights that British hops are not only unique in flavour, but some of the most environmentally-friendly and sustainable in the world.ⁱⁱ

Working towards the UN's Sustainable Development Goals, in particular, number 12 which focusses on responsible consumption and production, brewers are focussing on developing long-term, sustainable ways to source ingredients and improve farming best practice. Some of these examples can be found in this section.



HOGS BACK

From Field to Firkin in a Furlong: Hogs Back Brewery reduce their carbon footprint with their on-site hop farm

With an aim to grow a sustainable, environmentally conscious business with a greater understanding for key ingredients, Hogs Back Brewery in Surrey has relocated its hop garden and is currently building a hop kiln ready for picking and drying. This is part of a total £700,000 investment in the brewing site.

As previous winners of the BBPA Grain to Glass Award in 2016 for the Revival Hop Garden, the new hop garden is nearly three times the size of the previous one at 8.5 acres and when fully mature will provide 50% of Hogs Back's hops.

The new kiln will be used to dry Hogs Back's hops for around one month a year. For the rest of the year, it will serve as an event space, brewery tap room and visitor centre, educating people about the local hop farming industry which Hogs Back is helping to revive. Sitting the kiln and warehouse close to the hop garden means hops can be dried immediately after picking and will be packed within 24 hours using state-of-the-art vacuum packing technology to fully capture the hops' freshness.

There's a growing consumer demand for knowing the source of

one's produce. Being able to give a sense of local provenance is key to the development of the brewery, whilst reducing food miles and the carbon footprint is also a fundamental outcome.



HEINEKEN

Protecting British orchards and barley supply through sustainable farming

Every year, HEINEKEN use around 115,000 tonnes of UK barley to brew their beers. At the beginning of 2016, they launched their Sustainable Futures initiative, which seeks to create more sustainable, collaborative supply chains. The end goal is to change the way Britain's main commodity crops are produced so yield goes up, whilst CO₂, water and pesticides go down.

Year one consisted of getting the farming community on board, and now with over 140 farmers, around 11% of the arable land in Yorkshire, year two will see these techniques into practice. Through simple and natural changes, such as planting clover in between rows of barley which has natural properties to deter bugs, these goals can be achieved.

HEINEKEN has also worked with its apple farmers to increase sustainability and over the past three years has been working with growers to make orcharding more sustainable by encouraging them to become members of the HEINEKEN Sustainable Cider Apple Scheme. Around 62% of growers are now members. Last year, 79% of their cider apples came from sustainable farms meaning HEINEKEN are on track to source all apples from sustainable farms by 2020.



05 GREENER PUBS

As consumers grow increasingly concerned about green issues, the pub sector has worked diligently to find ways to reduce its carbon footprint and make green issues central to their operations.

PLASTIC

Alongside a number of industry bodies, BBPA last year launched an industry-wide campaign to reduce the use of single-use plastic straws and stirrers. This campaign saw UK-wide action across all pubs who removed plastic straws and stirrers from their bars.

Instead, these pubs only gave them out on demand or replaced them with environmentally-friendly alternatives. We will continue to look for ways to reduce plastic usage in areas such as one-way plastic cups and coffee cups, as well as by working with suppliers to seek practical and sustainable alternatives to plastic which is used for deliveries.

ENERGY

Utilities are a significant cost to pubs, contributing up to 15 per cent of business costs. Not only does cutting energy use bring economic benefits, but environmental ones too. From lighting, heating, catering, cellars and accommodation, pubs can make simple yet effective changes to cut down on annual energy usage. This is an area which pubs must continue to work on over the next few years to reduce the carbon footprint of the sector whilst cutting down on costs.

FOOD WASTE

Hospitality organisations across the UK have been working hard to reduce the amount of food being thrown into bins, in line with the UN's Sustainable Development Goal 12.3, which seeks to halve per capita global food waste at both retail and consumer levels. Pubs can play their part in a number of ways; from training staff, to offering reduced portion sizes, measuring food waste and educating consumers. As one of the greatest contributors to greenhouse gas emissions, the issue of food waste must continue to be a priority for the hospitality and food service sector.

BERMONDSEY PUB COMPANY

Becoming a greener business: how efficient, simple, green technology can improve profitability

Bermondsey Pub Company worked with Compliance365 (energy consultants) to develop a tailored energy reduction solution. As a consequence a number of improvements have been made across the estate reducing energy consumption, carbon footprint and operating overheads.

The review undertaken considered the annual carbon and energy consumption data collected for Ei Group's Greenhouse Gas submission. The results included a number of technological upgrades

including LED lighting, heating systems, heating controls and ECO Flo Chiller Pumps.

	Not important	Somewhat important	Important	Very important
How important is removing plastic from your estate?	-	32%	46%	32%
How important is reducing food waste in your estate?	-	-	78%	22%
How important is improving the energy efficiency of your estate?	-	-	77%	23%
How important are green issues for your customers?	-	-	97%	3%

In addition, workshops were conducted in a number of pubs to assess how they could further reduce their consumption by targeting on site operational behaviours. Simple changes included optimising kitchen equipment turn on times versus hours of trade, ensuring TV screens are not left on standby and turning lights off in areas such as unoccupied toilets.

Bermondsey Pub Company have seen several benefits since introducing the improvements including an energy saving of 622,266kWh, amounting to £56,164. This has now exceeded the costs of all the technology installations.

ADNAMS

'Free to use' charging points for customers with electric cars

Adnams has rolled out electric vehicle charging points for customers at their managed pubs. The 'free to charge' (7kW, 32amp) points are available at a number of



Adnams' managed pubs so while customers enjoy a drink, some food or even stay overnight, they can plug in and power up their car for free.

The electricity used across all operations at Adnams is entirely from renewable sources as the company believes it makes sense for all of us to move away from carbon-emitting fossil fuels where we can. Adnams uses an electric van out of its Southwold store to deliver customer orders and hopes to invest in more electric vans in the near future.



they reduced the amount of garnish put on the plate which is often wasted resulting in an increase in gross food profit from 63% to 76%.

The Airport, Manchester, was wasting over 40kgs of food a day worth £74. The large majority of this waste was from plate waste, particularly uneaten coleslaw. The Airport now only offers coleslaw on request. Instead, of using eight tubs of coleslaw daily they use just one. Along with a number of other small changes in their operations, projected annual savings reach almost £3000, a 16% reduction in food waste.

HEINEKEN

Smart Dispense – HEINEKEN's energy efficient, water saving beer dispenser

HEINEKEN's cutting-edge beer dispenser, Smart Dispense, looks to save water, consistently deliver high quality and save energy. The unique cooling technology is 20% more energy efficient than other standard systems. What's more, instead of having to clean lines weekly, Smart Dispense reduces this to every four weeks, driving real environmental change in both water and chemical usage, which with Smart Dispense has been cut by a massive 75%.

SmartDispense is currently in almost 4,500 outlets across the UK. Through a significant investment programme they plan to install 10,000 units by 2020 - that's a unit in 20% of all pubs in the UK. As installs go up, water use of pubs and bars goes down. In 2016 alone, Smart Dispense will have saved the hospitality sector 35 million pints of water.

ROBINSONS

How food waste reduction led to dramatic financial gains for Robinsons

According to estimates by WRAP, food waste costs the UK pub sector a staggering £480 million each year, or £10000 per pub. Over the years, Robinsons Brewery has been looking at ways to tackle this waste to not only make their operations greener, but also to convert this waste into cash. There are now around 50 Robinsons pubs taking part in this, benefitting an annual saving of 1,758kg of food waste, or around £3,000 per pub.

Robinsons implemented a method to measure the three types of food waste found in kitchens: spoilage, preparation and plate. By placing three containers around the kitchen, food waste from each of the three categories were split into the containers. This allowed them to measure where the food waste was originating from and as a result act on this.

At the Swan Inn, Wybunbury, the kitchen acted on the large amounts of prep waste, using trimmings which would have originally gone into the bin to make stocks and soups. In addition,



06 LOCAL COMMUNITY

Breweries and pubs play a central role in local communities, not only through providing jobs, supporting the local economy and offering a place to spend quality time by yourself or with family and friends. The beer sector also plays a key role in supporting and sustaining the local environment and wildlife. Pubs are a great way to support your local community whilst reducing your carbon footprint, and there is no more enjoyable experience than enjoying a locally brewed pint of beer in your local pub.

Up and down the country, British brewers and pubs run a number of projects working with local people to protect the natural environment and ensure that it is fit for generations to come. Just some of the many projects can be found in this section.



PUB IS THE HUB

Sustainability projects to support local people and reduce the community's carbon footprint

Pub is The Hub is a not-for-profit organisation which highlights the central role which pubs play in their local communities. Not only are pubs a social place to meet friends and family for drinks, food and entertainment, or to have a quiet drink alone, but pubs can play a role within the community by expanding their services and working as a central hub for local people. Not just this, but these pubs are a great way to create jobs for local people, whilst reducing the community's carbon footprint through local living.

Pub is The Hub has helped to fund the development of pubs who aspired to broaden the range of services which they can offer. These services have included a number of sustainability projects.

At the Queens Arms at Breage in Cornwall, the pub owners wanted to re-establish allotments to let out to the local people for £1 per annum, with the proviso that 10% of all the produce grown is donated to the pub which will then appear on the pub menu. With the vegetables, a monthly market is also held. The Saracen's Head near Ashbourne in Derbyshire has built a local deli, bakery and farm shop on premise, which supports the local community by stocking local fresh milk, dairy items, fruit and vegetables, as well as home baked goods such as bread, cakes and pastries.

ADNAMS

Adnams' very own bee hives in the Reydon Distribution Centre

Adnams, based in Southwold, have been working to make the most of the local biodiverse grassland wildflower habitat by housing a number of native honey bees at their environmentally-friendly distribution centre.

Hand-made hives and two rescued swarms of bees were brought to the sedum-roofed site by beekeeper Steve Barrett in 2014 and have since flourished to more than 1,000,000 honey bees across a buzzing bee corridor around their Suffolk coastal area.

Bees worldwide are under threat. Decades of indiscriminate pesticide use, farming and land-use practices are destroying bee's habitat and food sources, and today's virulent diseases and pests are wiping out colonies of honey bees, as well as many other species of bee globally. Without bees, many crops would fail to be pollinated.



WRAP

Guardians of Grub – food waste prevention campaign for the hospitality sector

It takes natural resources, energy and time to produce our food. British pubs produce more than 200,000 tonnes of food waste every year, 75% of which could have been eaten. And beside the cost to businesses (around £10k per site), that waste adds greenhouse gases to the atmosphere and contributes directly to global warming. Designed for the Hospitality and Food Service sector, 'Guardians of Grub' is a new food waste prevention campaign from sustainability experts WRAP.

So if you want to take food waste off the menu, and show your customers you care about the environment (just like they do), get started with WRAP's free resources. Show your community how you are getting involved this September, when every pub has the chance to be part of Guardians of Grub month of action. To find out how you can be involved and make a big noise about your business visit www.guardiansofgrub.com and watch the introducing Guardians of Grub video.



HEINEKEN

Community orchards to bring local people together

One initiative that brings to life HEINEKEN's commitment to building sustainable communities is their nationwide orchard programme in partnership with the charity, The Orchard Project.

HEINEKEN have been in partnership with The Orchard Project for the past five years. In that time they've helped them grow from a small London charity to a truly national organisation and together they're proud to have created and restored 250 community orchards across the UK, giving thousands of people access to more quality green spaces right on their doorstep. More than 3,000 people are involved in volunteering, and HEINEKEN have



trained orchard leaders and horticulture experts to ensure they have a long term sustainable future.

In June 2019, they went live with their collaboration with singer-turned TV presenter Peter Andre, to help shine a light on the partnership with the charity through the Bulmers brand, and raise awareness of the charity's great work.

The partnership also provided a great platform for HEINEKEN to talk about Bulmers' journey to becoming 100% British.

ADNAMS

Adnams works with the local community to clean up beaches across Southwold

Since the Adnams beach clean ups began 16 years ago, increasing numbers of local residents have taken to the beach to pick up litter. Three times a year, the team remove all the litter they can find from a stretch of Southwold beach from Gun Hill to the Harbour.

Each year, it is incredible to see year on year what is achieved - not only has the number of volunteers significantly increased, but the amount of litter being found has reduced.

At each beach clean Adnams collect data on the type of volume of litter found in the first 100m stretch of the beach; this data is fed into the Marine Conservation Society's Beachwatch survey. The March 2019 data reported huge improvements - in 2018, 602 items were collected, in comparison to March 2019 which saw 231 items. Sadly this is not the case across the country and beach litter is still a growing issue.



BBPA MEMBERS

- Admiral Taverns Ltd
- Adnams plc
- Arkell's Brewery
- Asahi UK Ltd
- Black Sheep Brewery
- Brakspear Pub Company
- Budweiser Brewing Group UK&I
- Budweiser Budvar UK
- C & C Group
- Caledonian Heritable
- Camerons Brewing Ltd
- Carlsberg UK
- Charles Wells Ltd
- Daleside Brewery
- Daniel Batham & Son Ltd
- Daniel Thwaites plc
- Diageo plc
- Ei Group
- Everards Brewery Ltd
- Frederic Robinson Ltd
- Fuller Smith & Turner plc
- George Bateman & Son Ltd
- Gray & Sons
- G1 Group
- Hall & Woodhouse Ltd
- Harvey & Son (Lewes) Ltd
- Harviestoun Brewery
- Hawthorn Leisure
- Heavitree Brewery plc
- HEINEKEN UK
- Heron & Brearley Ltd
- Hogs Back Brewery Ltd
- Holden's Brewery Ltd
- Hook Norton Brewery Co Ltd
- Hydes Brewery
- Innis & Gunn
- Kingfisher Beer Europe
- J W Lees & Co
- Joseph Holt Ltd
- Liberation Group
- Marston's plc
- McMullen & Sons Ltd
- Molson Coors Ltd
- Palmers Brewery
- Punch Taverns
- R W Randall
- S A Brain & Co Ltd
- Shepherd Neame Ltd
- St Austell Brewery Co Ltd
- T & R Theakston
- Thomas Hardy Brewing & Packaging
- Timothy Taylor & Co Ltd
- Titanic Brewery
- Trust Inns
- Wadworth & Co Ltd
- Woodforde's Brewery
- Young & Co's Brewery

BBPA ASSOCIATE MEMBERS

- Black Country Ales
- Brimstage Brewery
- Broughton Ales
- Close Brothers Brewery Rental
- Coca Cola Enterprises
- CPL training
- Edinburgh Beer Factory
- First for Energy Group Ltd
- Hobsons Brewery & Co Ltd
- Isle of Skye Brewing Company Ltd
- John Gaunt & Partners
- Kegstar
- Kuehne & Nagel
- Lichfields UK
- Little Valley Brewery Ltd
- Matthew Clark
- Murphy and Son Ltd
- OXBREW
- Poppleston Allen
- University of Bath Student Union
- University of Nottingham Students Union
- Wold Top Brewery
- Zerodegrees

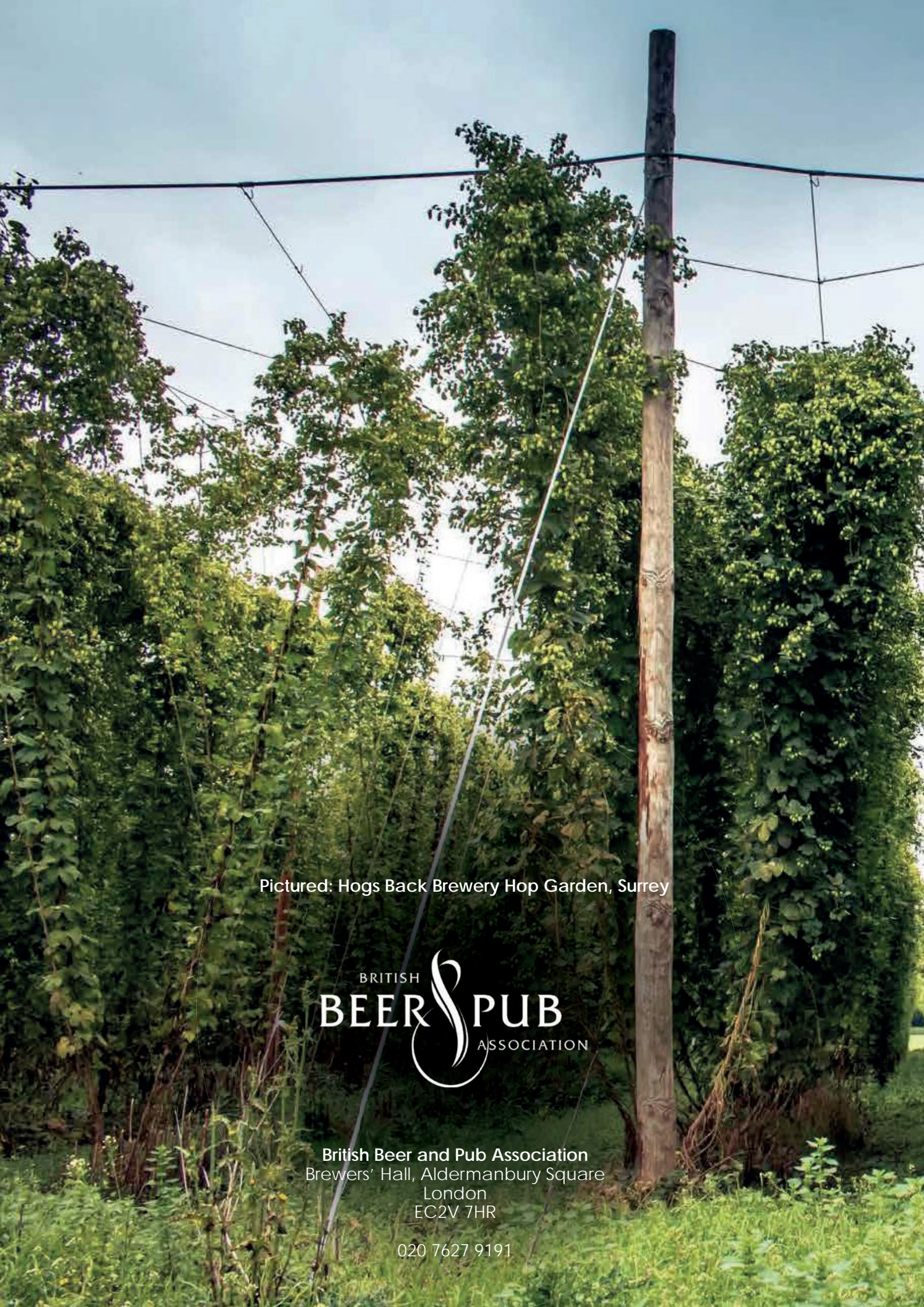
With thanks to Toast Ale, Freedom Brewery, WRAP and Pub is The Hub who also contributed.

BREWING GREEN DATA

Statistics were obtained through Brewing Green surveys to BBPA members as well as pre-existing data which we hold. Statistics on brewing account for over 90% of the beer brewed here in the UK. Statistics on pubs were obtained from a separate survey to pub operators, accounting for around 10,000 of the pubs in the UK.

ⁱ Statistics on waste production and recovery were provided to BBPA by the Environment Agency. This data is provided by individual operators, and it is therefore their responsibility for the accuracy for this data.

ⁱⁱ Source: British Hop Association



Pictured: Hogs Back Brewery Hop Garden, Surrey



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