

# GREEN LIGHT

**In the wake of global warming and increased awareness, sustainability has become big business for brewers, finds JACOPO MAZZEO. But are measures going far enough?**

It is 2010. Kevin Systrom and Mike Krieger are soon to launch Instagram, the swine flu pandemic is in full swing, and I have just homebrewed my first beer. It was a West Coast-style IPA and, according to the authoritative judgement of thirsty peers, tasted potable enough. Given my very inefficient low-tech kit, a ridiculous amount of water went down the drain or evaporated during the process and the energy used would have probably powered my entire building for a week. Not to mention the carbon footprint of my raw materials, none of which were made locally.

At that time, however, none of this caused too much concern (although in my shameless defence, even back then I upcycled the spent grain for bread-making and packaged in second-hand bottles).

A decade later, any processes that are this resource-heavy give pause for thought, especially for beer, which, like a rising number of other sectors of the food and drinks industry, is already experiencing the effects of global warming.

Traditional Belgian lambic brewing, for example, relies on cold autumn and winter temperatures to cool the wort, which enables the wild yeasts to flourish. At the moment, the window during which temperatures allow lambic producers to brew – traditionally from October to April – is shrinking. As average temperatures keep rising, lambic brewing as we know it could become a thing of the past.

To complete such a grim picture of the future, according to a 2018 paper

published in scientific journal *Nature Plants*, heatwaves and droughts may damage the global barley crop, leading to a shortage of beer's basic ingredient.

In addition to all this, sustainability is now a key issue for consumers. According to on-trade data specialists CGA, 92% of UK consumers think it's important that the brands they use source environmentally-friendly ingredients and 91% say it's important they use sustainable packaging.

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## TANGIBLE MEASURES

Big or small, the brewing industry has finally begun to take serious action.

It's not that green initiatives were unheard of a decade ago, but it's only recently that the likes of Carlsberg and Heineken have adopted a more holistic approach to responsible brewing, with sustainability programmes that now encompass the entire supply chain as well as the social and economic impacts of their business.

As an answer to worrying images of plastic-infested marine life, some of the most remarkable innovations came in

ILLUSTRATION: ANDY SMITH





LEFT: CARLSBERG'S  
PAPER BOTTLE  
RIGHT: HEINEKEN'S  
SMARTDISPENSE



the form of new packaging. In September 2018, Carlsberg replaced the plastic rings that hold multipack cans together with recyclable glue. The following March, it reduced the weight of its glass bottles by 10g, thus saving 63 tonnes of glass in the first six months following the launch. By collaborating with its can supplier, the business has also introduced a lighter aluminium can across six of its key markets, which, according to sustainability manager Peter Statham, saves over 1,000 tonnes of metal and a considerable amount of carbon emissions each year. There's more.

'In 2015 we developed our vision of creating a paper bottle for beer and last year we launched two prototypes,' says Statham. 'The final bottle will be fully biodegradable and fully recyclable.' Both prototypes are made from wood fibres and have a waterproof inner barrier, made with a PET polymer in the case of one prototype, and a bio-based PEF (polyethylene furanoate) polymer in the other. Carlsberg is hoping to avoid any use of polymers in the final paper bottle, which Statham says won't see the light until next year at least.

Of course, Carlsberg isn't the only brewer making improvements in this area. Budweiser Brewing Group UK&I (BBG) has vowed to remove all plastic rings from its

multipacks by the end of 2020, replacing them with paperboard clips and boxes. Corona – a BBG-owned brand – is now trialling paperboard-based pack rings and stackable cans, while Diageo is also introducing cardboard boxes for its Guinness multipacks, set to roll out this year.

Earlier last month, Heineken announced it has equipped its Manchester site with a new production line which will eliminate four-pack plastic rings, as part of a wider £22m green investment.

## BEYOND PLASTIC

Plastic is certainly the most marketable of all green initiatives, hence it's unsurprising that global brands are shouting about it. However, it's but a fraction of the beer industry's new responsible approach. Water wastage issues, for instance, are less immediately communicable to the general public, but they've received both large and small breweries' attention nonetheless. Water is a key brewing ingredient: it's crucial for the cultivation of beer's raw

ingredients, and a significant amount is required during or after the brewing process, from cleaning to cooling.

With scarcity of water representing a further, frightening effect of the warming climate, avoiding its overuse is becoming paramount.

'We know that we won't be able to brew without water,' Statham tells me. 'Our aim at Carlsberg's Danish brewery is to reduce our water to beer ratio down to 1.4hl

per each hl of beer. In the UK we were at a 2.9/1 ratio last year, while the industry average is now 3.5/1, and by 2030 our goal is to achieve 1.7/1.'

In its effort to reduce water wastage, Heineken is looking at the entire supply chain, from working with farmers to production and dispensing. The company is responsible for some 2,700 pubs around the UK, where a significant amount of H<sub>2</sub>O goes towards line cleaning. To address the issue, Heineken has developed SmartDispense, a technology that helps save on both water and energy by focusing on improving cooling and insulation,

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PETER STATHAM

# DRTY

HARD SELTZER



WHITE CLAW'S BETTER LOOKING BRITISH COUSIN

4% ABV

0 SUGAR, 0 CARBS & 90 CALS



so beer lines can be cleaned only once. Chelsey Wroe, senior partnerships and sustainability manager at Heineken claims that SmartDispense has saved 57m litres of water as well as 69,000 of CO2 since it was rolled out in 2013.

All these initiatives seem to be yielding positive results. A recent report published by the British Beer and Pub Association (BBPA) highlighted how British breweries have managed to cut water usage by half since 1992. Meanwhile carbon emissions fell 42% between 2008-2018.

### SIZING UP

When it comes to green investments, size matters. Some once-independent breweries have actually developed or significantly boosted sustainability programmes as a result of being acquired – a positive impact of buyouts that is often overlooked for mere partisanism.

BBG-owned Camden Town Brewery's new Enfield site, for instance, has been designed with energy efficiency in mind, while Fuller's parent company Asahi has recently installed meters at Chiswick's Griffin brewery to 'break our uses down to smaller and smaller areas so that we know where we're wasting water and target our

actions accordingly', as brewery manager Guy Stewart told me on a recent visit. Stewart also mentioned that Fuller's new spray jets, installed following the arrival of the new owners, 'consume a lot less water than the old spray balls we used to have for the cleaning of our coppers, which we're also going to insulate soon, saving us energy'.

For smaller independent businesses, addressing the need to be greener can be trickier, an issue that James Calder, chief executive of the Society for Independent Brewers (SIBA) is keen to address.

'What's good for the environment is often quite good for your business as well,' he says. Calder plans to release an official guide that will help independent

breweries become more environmentally

responsible by acting on the entire supply chain, from sourcing raw ingredients to packaging, to waste management.

'It's been on the cards for quite a while,' Calder says, 'but now we're working with

an academic in Sweden to inform our guide. Also, part of our work will be to talk to people like Adnams, Wye Valley and Good Things Brewing Co to understand what [works] and what does not work.'

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 JAMES CALDER

Indeed, several businesses are inspiring the brewing industry with their unconditional commitment to sustainability. Small Beer co-founder James Grundy is able to reduce water wastage by adopting a 'dry floor'. 'By using a combination of solids separation and industrial vacuum, we're not only able to save vast quantities of fresh water but also reduce our effluent load,' he explains. Moreover, 'we capture the heat from the boil into the exact amount of water required for the next brew. Any further cooling capacity is generated by a heat exchanger run using 100% renewable electricity from wind, water and solar.'

### FOOD FOR THOUGHT

Meanwhile, Suffolk-based Adnams brewery has managed to achieve a remarkable – and lower than national average – 3.1/1 of water-to-beer ratio. Additionally, and among other tangible green initiatives, it supplies Marks & Spencer with surplus bread-based beer. In Britain, an estimated 44% of all bread goes to waste (what has the knobby end ever done to us?), so these initiatives are crucial to help the industry and consumers develop a more mindful approach towards food waste.

Unsurprisingly, Adnams isn't alone in the fight against food waste. Making the most of craft beer drinkers' welcoming attitude towards unusual ingredients, sustainability campaigner Tristram Stuart's Toast Ale is entirely based on the use of leftover bread from London bakeries. Good Things Brewing goes one step further, focusing on



LEFT TO RIGHT: SMALL BEER CO.; WATER USAGE CLEANING BEER BOTTLES; ADNAMS BREWERY

closed-loop brewing by sourcing its own water, creating its own power and even turning spent grain into upcycled flour.

Toast Ale and Good Things Brewing – both created by sustainability campaigners – can’t truly speak for the brewing sector as a whole, while examples such as Adnams and Small Beer are few and far between. Their commitment is laudable, but their uniqueness is alarming. ‘I think there is little to no information on how to go about building a sustainable brewery,’ explains Good Things Brewing’s Chris Drummond. ‘I come from a sustainable engineering background and therefore have a good understanding of this sector, but sharing this across all breweries is a vital next step.’

For the beer industry to really become a responsible one, sustainability should be part of a brewer’s or brand’s mindset, informing all steps of the process, from sourcing to dispensing.

By working in partnership with their stakeholders, for instance, breweries can actively reduce their environmental impact at little or even no cost to their business. ‘Without being on the same page,’ says Drummond, ‘there is not a chance [that] you will see eye-to-eye on where you choose to invest money.’

To undertake the first steps towards a greener future, he also suggests recording the process: ‘record everyday where and when you use water and during what process, then sit down with your team and come up with as many ideas as you possibly can to remove water required for each process recorded. You may not think

that you have a water issue where you are based but the energy to get that water to you, cleaned and in its correct condition will shock you. This [process] costs nothing, saves you a stack on your water bill and reduces your impact significantly.’

### CARBON WOES

Water aside, the negative impact of beer’s other ingredients is often neglected. Malt is generally thought to account for most of a pint’s carbon footprint (figures vary widely), but a 2019 study, which appeared in *Technical Quarterly* reported that hops have a much higher impact on the environment than negligible, as previously thought. The American-based study found that on average, each kilo of hops is responsible for about 3.5kg-5.5kg of CO<sub>2</sub>, compared to only 0.53kg-0.79kg of CO<sub>2</sub> per kilo of malt. For the sake of comparison, chicken clocks in at around 6kg of CO<sub>2</sub> per kilo of meat. According to these figures, in a heavily hopped US-made beer, hops’ carbon footprints would be as significant as those of the malts. The carbon footprints would be unquestionably higher in a UK beer made with the same hops, as the study is American-based and doesn’t account for intercontinental shipping-derived carbon emissions.

Hoppy styles like imperial IPAs are key contributors to today’s beer renaissance, but the environmental impact of trendy ingredients such as hops and exotic adjuncts (eg tropical fruits or coffee beans) can no longer be underestimated.

Sourcing choices should be mindfully evaluated and the environmental impact of each pint carefully monitored.

‘This is a super tough one, a massive problem and we should all work together as a collective to create better solutions,’ says Drummond. ‘It’s not just about the distance travelled, there is the impact of farming, irrigation, chemical use, the list goes on. There are little solutions and fixes all over, however without doubt the hardest goal to reach is zero impact.’

If we hope to be able to enjoy the world’s most popular alcoholic drink in the future, a wider shift in attitude is needed.

However, pioneering initiatives from some of the biggest and smallest breweries are encouraging the entire drinks industry to adopt a greener approach to making, sourcing, distributing and dispensing.

Admittedly, there is still a long way to go when it comes to making the beer industry sustainable. Today, though, beer is already greener than it’s ever been – and that’s something to raise a glass to. ♻️

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