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A Better Brew: Drinking Beer Sustainably



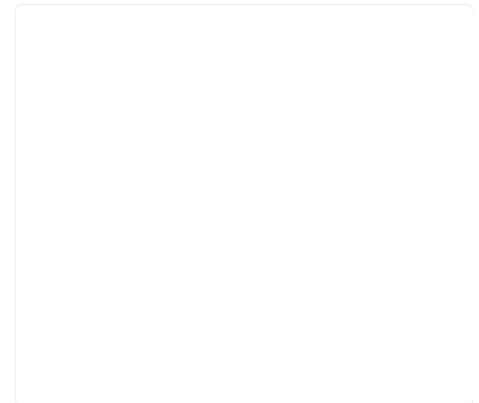
By [Gemma Alexander](#)

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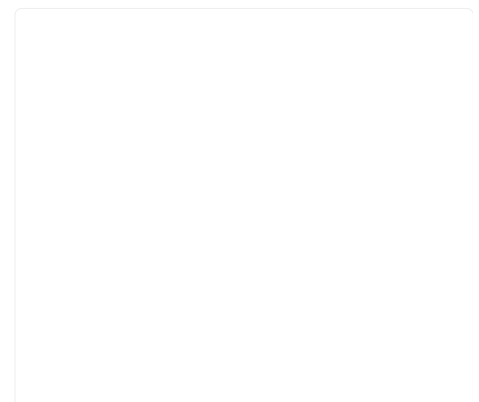
Let's look into the sustainability of our beer. [At least 5,000 years old](#), beer is the [fourth most popular](#) beverage in the world. We need to reduce the environmental impact of beer-making to prevent climate change, which threaten to [make beer taste bad](#) by making some ingredients less widely available.

Adult Americans drink, on average, about [28 gallons](#) of beer each year. Clearly, we treasure our beer, but how does our beloved barley-based beverage treat the environment? The beer drunk each year in Oregon alone is estimated to



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generate greenhouse gases equivalent to [42,817 passenger vehicles](#). Is that because beer is bad for the environment or because we drink so much of it?

Barley

In [a survey of brewing lifecycle analyses](#) (LCAs), growing and processing raw materials contributed 22% of beer's carbon footprint. Beer has very few ingredients; traditionally, only water, malted barley, yeast, and hops are used. Although water makes up most of the volume of beer, it is not the most significant ingredient. It takes at least [4 liters](#) of water to make 1 liter of beer, but a liter of hard alcohol takes [34 liters](#) of water and a single cup of coffee requires [140 liters](#).

Malted barley contributes the most to the footprint of beer's ingredients. Agricultural impacts of barley account for about two-thirds of its footprint, while the malting process accounts for most of the rest – primarily as a result of energy use.

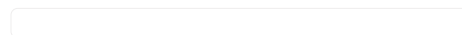
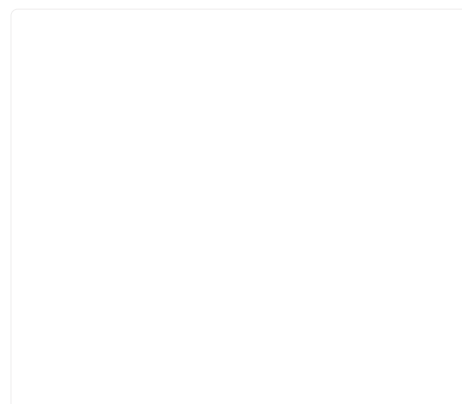
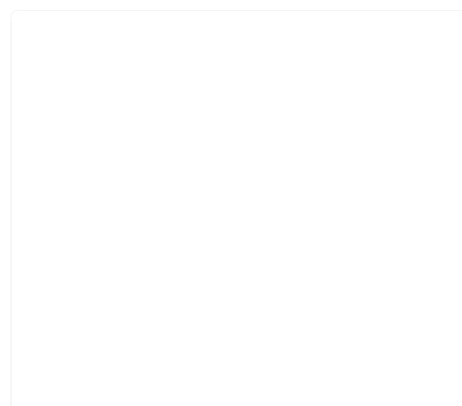
Hops are responsible for an insignificant share of beer's climate impact because they are used in such a small quantity relative to barley. For all agricultural products, [organic farming](#) methods can reduce carbon footprints, minimize impacts to soil and wildlife, and eliminate the use of industrially made petroleum-based agrichemicals and their attendant impacts.

Brewing

Brewing contributes on average around 10% of beer's environmental footprint, but depending on the brewery's [energy source](#) and the efficiency of its operations, it can be as high as 28%. In general, industrial beer manufacturers are [twice as efficient](#) as craft brewers, but they don't have to be. In August 2000, [New Belgium announced](#) that its Fat Tire Amber Ale was the first carbon-neutral beer and [BrewDog claimed](#) to be the first carbon-negative business.

Although not significant to the carbon footprint, [brewery waste](#) can be an important environmental impact. In addition to recycling traditional materials used in any industrial setting, sustainable breweries should compost spent barley or sell it for animal feed.

No life cycle analysis has been done to compare homebrewing to purchasing beer.





According to the lifecycle analyses surveyed, beer's packaging contributes the most to its carbon footprint, with bottled beer having the greatest impact. Beer on tap has the lowest – unless you drive to the pub. Image courtesy of [Caravel-Productions](#) on Pixabay.

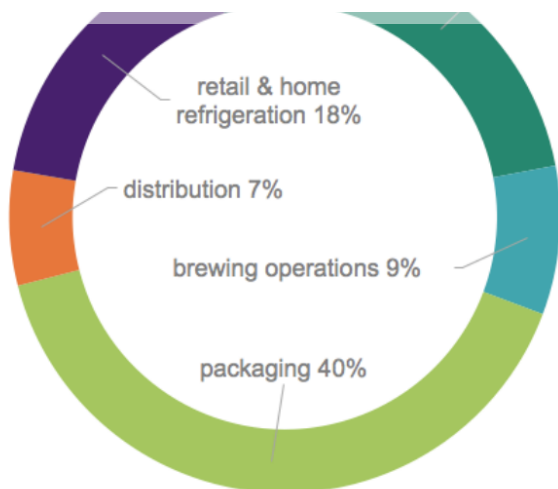
Bottling

What you put beer into matters most to the overall environmental cost of beer. Across 15 LCAs, packaging contributed the most to beer's footprint – on average, 40% – although it was also the most variable.

The most sustainable container is the keg because they hold a lot of liquid and are almost universally reused. Although kegs are impractical for most home use, assuming you don't drive to the pub, that makes drinking beer on tap the best choice for the planet. After kegs, the lowest impact container was the steel can, followed by aluminum cans.

While it may be dismaying to craft beer fans, glass bottles have the greatest negative impact due to the energy needed to make them. The impact of glass can be reduced by using recycled glass, and by reusing the bottles rather than recycling them. Although it was not included in the study, refilling [growlers](#) from home would further improve the impact of glass, since growlers not only hold more beer, but tend to be reused more times than bottles. Reusing a glass container three times puts greenhouse gas emissions on par with aluminum cans.





The average contribution of each life cycle phase to the overall carbon footprint of beer production. Image [source](#)

Bringing Beer Home

As is often true of food products, distribution is not as significant a factor as commonly believed. Despite being a heavy liquid often shipped in fragile glass containers, transport contributes on average only about 10% to beer's carbon footprint. That's good news if your favorite brew comes from far away, but if you have the option, [buying local](#) is better when other factors are equal.

Perhaps surprisingly, how you store beer makes a bigger difference than how you ship it. If both the retailer and the consumer refrigerate it, that can account for 18% of the beer's footprint. Drinking beer as the British do, at [cellar temperature](#) instead of chilled, can make your beer more sustainable and enhance its flavor. If you must drink your beer ice cold, consider purchasing it unrefrigerated and only put it in the refrigerator at home as you drink it.

Bottom Line

As far as eco-vices go, beer-drinking is need not be a major source guilt. Worry about your transportation footprint first, or even other beverages like tea. But drinking responsibly means more than just leaving the car parked.

Choose an organic-certified beer from a brewery that emphasizes sustainability in its operations, especially if the brewery is local. Drink your beer at cellar temperature on tap or from a growler. Reuse your containers, or if that is not an option, recycle them.