

Case study

Bottling wine in a changing climate

CO₂ emissions for wine imported to the UK can vary significantly, largely based on two key elements - transport and weight of packaging used.



Against a background of growing public concerns about climate changing CO₂ emissions, significant savings in emissions are possible by changing the way that we import wine.

The UK is the largest importer of wine in the world, a business worth £7.6 billion. Almost half of the wine we consume is now imported from the New World. Bottling and transporting wine contributes to the production of CO₂ emissions – the main greenhouse gas.

WRAP's study illustrates where reductions in the wine trade's carbon footprint can be made.

It contrasts the carbon footprint of wine imported from the Berri Estate in Australia and the Bordeaux region in France, and clearly demonstrates four areas which affect total CO₂ emissions:

- use of bulk containers instead of bottling at source;
- bottle weights;
- distance travelled; and
- method of transport.

Key Facts

- The UK consumes around one billion bottles of wine every year.
- The UK is the world's largest importer of wines, with a retail value of around £7.6 billion. Almost half of this wine is imported from the New World.
- On average, transporting wine to market contributes 35% of CO₂ emissions generated by wine.
- The majority of wine is filled in 75cl green bottles in the country of origin.
- The average weight of a wine bottle in the UK is currently 502g and the lightest bottle currently on the market weighs around 300g. This provides much opportunity for reducing weight and use of raw materials.
- Bulk exports of wine into the UK account for approximately 210 million litres. Bulk delivery is significantly more cost effective than bringing in bottled wine.



Bulk containers or bottled at source?

The use of ISO tanks and flexitanks for bulk transporting wine instead of importing in bottles can reduce emissions by a third. With the growth of a global market for wine and the expansion of wine production in the New World, the environmental cost of transportation has become a concern and traditional methods of delivery, such as bottling at source, are being reassessed.

The arguments in favour of bulk shipping and bottling at the destination are convincing. A single container can hold 10,584 litres of bottled wine, which compares to approximately 25,000 litres of wine in bulk tanks. That's more than twice the capacity for bulk shipping.

In fact, shipping wine from Australia in bulk reduces CO₂ emissions by 164g for each 75cl bottle, or approximately 40% when compared to bottling at source.

Substantial savings can also be made in shipping from Bordeaux in France. Transportation in bulk containers, using a combination of road and sea, cuts CO₂ emissions by almost 40g for each 75cl bottle, or just over 30% when compared to bottling at source.

Carbon savings – facts and figures

- The carbon footprint of alcohol consumed in the UK is 1.5% of the total UK greenhouse gas emissions, of which one quarter is attributable to wine.
- Shipping wine in bulk from Australia or France reduces CO₂ emissions by 30%-40% compared with bottling at source.
- In comparison to road freighting, transporting bottled wine by rail from France can reduce transport emissions by almost 30%, whereas transporting by sea can save about 20%.
- Minimising bottle weight to 300g could result in a 30% reduction in emissions during the packaging production and shipping stages from Australia.

Lightweighting the bottle

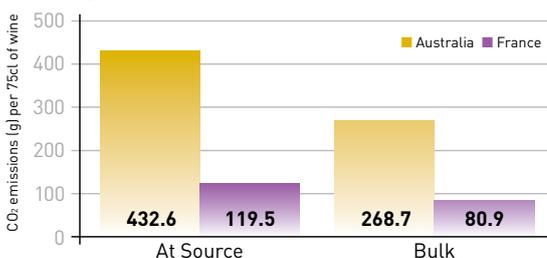
The average weight of a wine bottle sold in the UK is 500g. The lightest bottle currently on the market is around 300g. This illustrates that there is significant opportunity to reduce bottle weights, which will in turn lead to a marked reduction in CO₂ emissions both in the transportation and production of wine bottles.

WRAP has looked at the impact of two bottle lightweighting scenarios:

- a 20% weight reduction, which would bring the average weight down of a wine bottle down to 400g. This could save 100g of CO₂ emissions from packaging production and transportation, or 13% per 75cl bottle: and
- a 40% weight reduction, which would bring the average weight of a wine bottle down to 300g. This could save 234g of CO₂ emissions from packaging production and transportation, or 30% per 75cl bottle.

Distance travelled

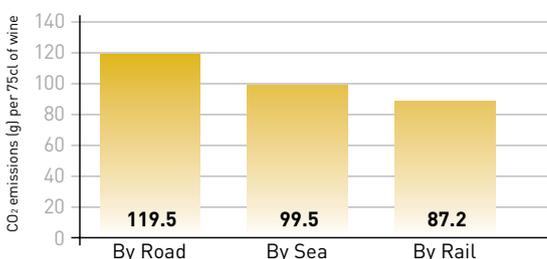
The choice of wine region will be made individually by consumers, who will balance their carbon concerns against traditional issues of quality, taste and price. No matter which country wine is imported from, bulk importing will generate considerable reductions in CO₂ emissions compared to bottling at source.



Road, rail or sea?

While wine from the New World comes by sea, wine from Europe is predominately transported by road.

However, for wine being imported into the UK from France there are a number of transport options. Wine can be shipped from the Port of Bordeaux to Bristol, or freighted in by rail.



Bottling wine and cutting carbon impact

The report suggests that important reductions can be made in CO₂ emissions by looking at converting to bulk importation of wine to the UK, consideration of transportation methods, lightweighting bottles at source or both bulk importing and bottling in the UK in lighter bottles.

Significant reductions in CO₂ emissions from the transportation of wine can be achieved by converting wine from shipping in the bottle to bulk importation. This can reduce emissions by 30% to 40%. In addition, lighter glass bottles can also achieve reductions of up to 30%.

However, even greater reductions are possible by combining these strategies. For instance, combining the benefits of bulk shipping and bottling in the UK into the lightest 300g bottles can result in 375g CO₂ savings for every 75cl bottle of wine. A ready reckoner of cost and carbon savings from adopting either or both of these options is available at <http://winebottles.wrap.org.uk>

More information:
The full report and more information on WRAP's Glassrite: Wine project are available from www.wrap.org.uk/retail

WRAP continues to work with the glass supply chain on projects to trial the lightweighting of wine bottles and bulk importation of wine into the UK.

To learn more about these initiatives, or to find out how WRAP can assist your business, please contact WRAP.

Tel: 01295 819686

Email: glassrite@wrap.org.uk

While steps have been taken to ensure its accuracy, WRAP cannot accept responsibility or be held liable to any person for any loss or damage arising out of or in connection with this information being accurate, incomplete or misleading. For more detail, please refer to our Terms & Conditions on our website - www.wrap.org.uk

**Waste & Resources
Action Programme**

The Old Academy,
21 Horse Fair,
Banbury, Oxon
OX16 0AH

Tel: 01295 819 900

Fax: 01295 819 911

E-mail: glassrite@wrap.org.uk

Helpline freephone

0808 100 2040

www.wrap.org.uk/retail

Printed on 80%
recycled content paper

