

Environment: Shifting from small to medium plastic bottles could reduce PET waste

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A 20% shift in beverage sales from small to medium-sized plastic bottles could reduce the production of polyethylene terephthalate (PET) waste in the USA by over 9,000 tonnes annually, a study in *Scientific Reports* suggests.

PET is the dominant material used in [plastic bottles](#) containing non-

alcoholic beverages. Rafael Becerril-Arreola and Randolph Bucklin weighed 187 differently sized PET bottles sold by the best-selling beverage brands in Minnesota, USA, to identify which bottles sizes were the most efficient at delivering the highest volume of beverage for the lowest packaging weight. To validate their findings, the researchers combined data on sales of different sized PET bottles and the weight of PET waste in Minnesota from 2009 to 2013. These data were used to estimate the effect that changes in the sales of certain PET [bottle](#) sizes could have on PET waste.

The authors found that medium-sized bottles delivered the highest volume of beverage for the lowest packaging weight, compared to small and large-sized bottles. The most efficient bottle capacity was approximately 2,265 millilitres. When the proportion of midsize PET bottles sold was relatively high, the weight of PET waste was lower. By simulating the effects of a 20% shift of sales from small to medium-sized PET bottles, the authors estimate that the amount of PET used could be reduced by 1% each year, leading to a potential reduction of 9,052 tonnes of PET waste across the USA per year.

The findings indicate that encouraging consumers to switch from small to medium-capacity beverages could help reduce plastic [waste](#) by over nine thousand tonnes per year in the USA, according to the authors. Bottling companies could print a scale that depicts volume on medium-sized bottles to help consumers regulate their portion sizes of beverages without relying on small bottles, they suggest.

More information: Beverage bottle capacity, packaging efficiency, and the potential for plastic waste reduction, *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-82983-x](https://doi.org/10.1038/s41598-021-82983-x)

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