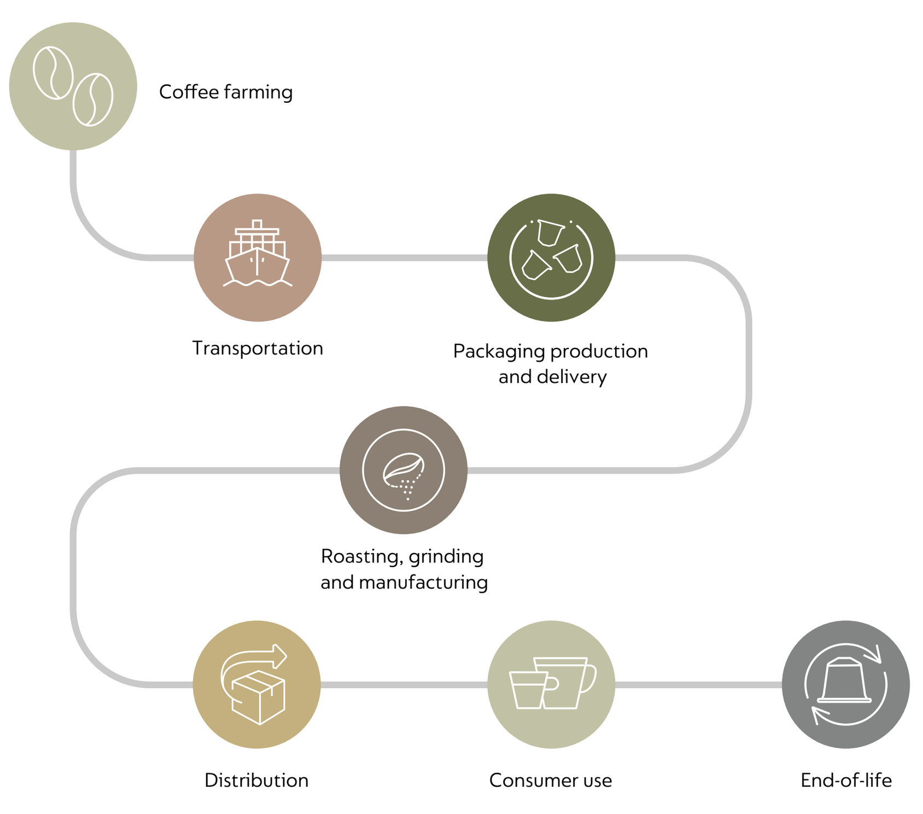
WHAT'S THE ENVIRONMENTAL IMPACT OF YOUR CUP OF COFFEE?

Lifecycle assessment (LCA) is a method of measuring environmental impact. For products, LCAs look at various environmental impacts, including the amount of carbon emissions from each stage of its lifecycle. The life of a product includes how it was grown, transported, produced, packaged, used, and disposed of.

The lifecycle of a cup of Nespresso coffee starts on the farm and ends with the used capsule.



One of our most extensive LCA studies was conducted across several European countries. It measured the impact of a lungo coffee (110 ml) made in a Nespresso machine.

You can read the LCA here:
Quantis lifecycle assessment: comparative LCA of Nespresso versus other coffee systems in Europe

The LCA shows us which parts of the coffee's lifecycle drive its carbon footprint.

WHAT'S BEHIND YOUR CUP OF COFFEE'S CARBON FOOTPRINT?

The main environmental impact of a cup of coffee is the green coffee supply* – followed by the machine use at home. This adds up to two thirds of the carbon footprint.

The **European LCA** shows that cup production and washing accounts for 25% of a cup of Nespresso coffee's carbon footprint. Most of this is the energy used by a dishwasher.

To offer a simplified view of the impact focusing on the aspects over which Nespresso has influence, we removed cup production and washing. This chart gives a breakdown of the remaining drivers:

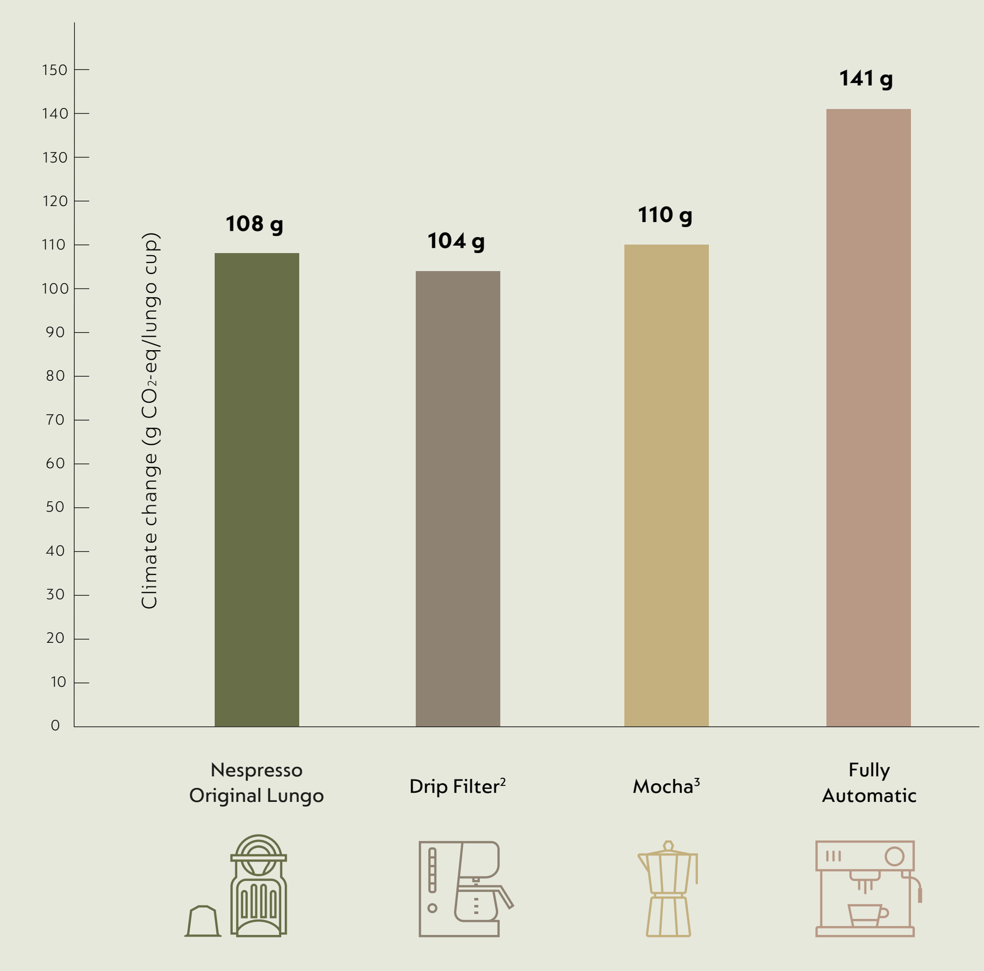
This LCA also allows us to compare the carbon footprint of a Nespresso Original lungo to the same size coffee made in other coffee systems. This comparison takes into account all lifecycle stages, including those beyond the company's influence such as cup washing.

A lungo made in the Nespresso Original system has a carbon footprint of 108 g CO_2-eq. This is a similar carbon footprint to the lungo coffee made in the drip filter or mocha. A lungo made in the full automat has 141 g CO_2-eq. **This means that the Nespresso coffee has a –23% lower carbon footprint.**

No peer-reviewed comparative LCA has been conducted for products made using Vertuo because the range of possible cup sizes within the system make it not directly comparable with other methods of preparing coffee.

We have also carried out separate LCAs to measure the footprint of an espresso (40 ml) coffee prepared in the Nespresso Professional system. That comparison also showed the Nespresso system is more efficient than a full-automat.[1]

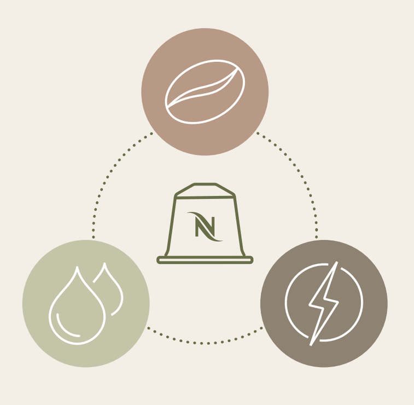
What is CO_2-eq? A carbon dioxide or CO_2 equivalent is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.

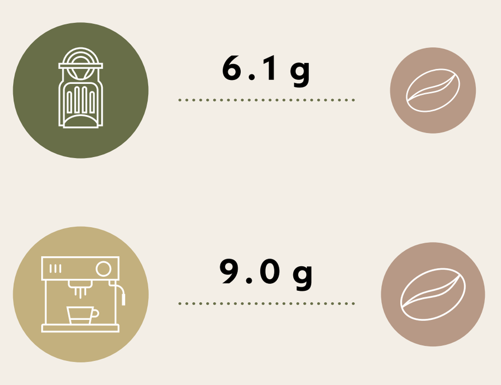


1. Quantis lifecycle assessment: comparative LCA of Nespresso versus other coffee systems in Switzerland.
2. Drip Filter 6.4 g/110ml. Data source: draft PEFCR coffee – 7 g roasted beans for a 120 ml coffee.
3. Mocha 8.5 g/100 ml. Data source: extrapolated from Vega Coffee website* – 25.5 g for 6 cups (300 ml) moka coffee maker.

WHY IS THIS?

THE BENEFITS OF PRECISION CONSUMPTION





In this LCA, the lungo made in the Nespresso system uses 6.1 g coffee.

The lungo made in the full automat uses 9 g coffee.[4]

The Nespresso system uses a precise amount of ground coffee, water and energy to make one cup, which minimizes food, water and energy waste. In many scenarios this more than compensates for the additional packaging used for portioned coffee.

Using a low amount of coffee grounds to make each cup is one key driver of Nespresso's lower carbon footprint.

According to this study, the Nespresso system gives you more coffee gram-for-gram than a full automat machine.

Nespresso machines tend to weigh less than full automat machines. This also helps to drive the lower carbon footprint per cup. When making coffee using other methods, there are variables which can impact the footprint.

For example, filling a kettle with too much water, using more coffee than is needed, or making too much coffee and throwing some of it away. A precision consumption system removes these variables and reduces food waste by making one cup at a time.

4. According to the EU Product environmental Footprint

When you recycle your Nespresso capsules, you lower the carbon footprint of your coffee. The recovered aluminium and coffee grounds are recycled, resulting in a positive benefit.

On the other hand, if capsules go into landfill, there is a negative impact and the footprint per cup increases. If capsules are thrown into general waste and are incinerated, the energy can be recovered. This has a positive impact on the carbon footprint.

This LCA takes the recycling and landfill / incineration rates of each country into account.

GREEN COFFEE

The amount of green coffee needed to make each cup is one of the biggest drivers of your coffee's carbon footprint, which is why we are working hard to reduce the carbon emissions generated by the coffee we source.

Through the Nespresso AAA Sustainable Quality™ Program, we're working directly with farmers to reduce the impact of coffee cultivation. Using primary data, we estimate that the coffee we source through AAA generates emissions of 3.9 kg per kg of green coffee. To put this figure in context, the average emissions for green coffee, according to the World Food LCA database, is 7 kg per kg of green coffee.

When comparing different methods of preparing coffee in an LCA, the study uses the same green coffee data as a baseline.

7.0

AVERAGE GREEN COFFEE EMISSIONS FACTOR

The average carbon footprint in green coffee is estimated at 7 kg of carbon per kg of coffee.[5]

3.9

AAA PROGRAM EMISSIONS FACTOR

The estimated emissions from coffee grown by farms as part of the AAA Sustainable Quality program are lower than the average emissions of growing coffee.[6]

5. Based on World Food LCA database as per Nespresso 2022 ESG report
6. The AAA green coffee emission factor is a weighted average emission factor for 11 AAA coffee origins, using tools like the Cool Farm Tool. The emission factor is made up of two elements: 3.0 emissions from cultivation, and 0.9 emissions from change of land use – as per 2022 Nespresso ESG progress report, to learn more: Nespresso_Global_ESG_Progress_Report_ThePositiveCup_2022_Progress_report.pdf
7. 2020 carbon footprint of a cup of 40 ml of Nespresso coffee (vs 2009 life cycle assessment study).

DID YOU KNOW?

IN THE PAST DECADE, WE HAVE REDUCED THE CARBON FOOTPRINT OF A CUP OF NESPRESSO COFFEE BY 24%.[7]

WHAT ABOUT COMPOSTABLE CAPSULES?

In 2023, Nespresso launched a new paper-based compostable capsule as a pilot in France and Switzerland. We carried out a new LCA comparing a 40 ml espresso made using the paper-based capsule with other portioned systems and a full-automat in Switzerland.

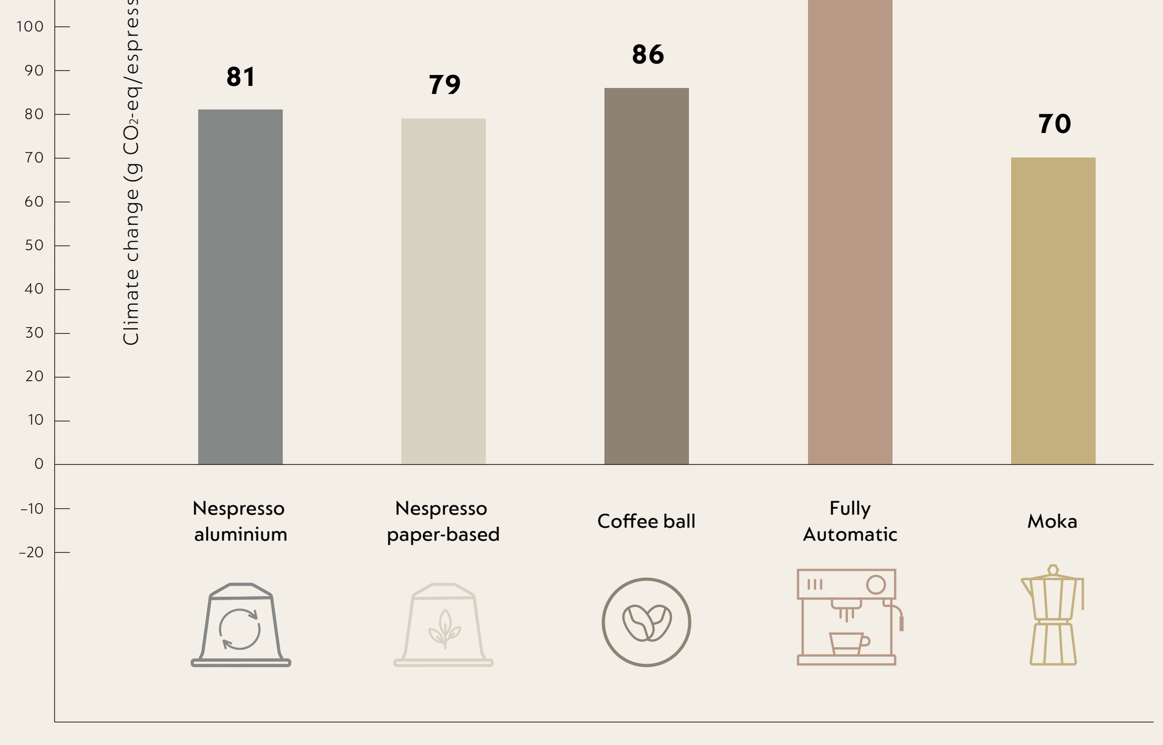
The results below show that the carbon footprint of a Nespresso paper-based compostable paper-based capsule is similar to one made using a Nespresso recyclable aluminium capsule. In fact, the footprint of coffees made in all the portioned systems in the study are similar, and all are significantly lower than one made in a full-automat machine.

WHY IS THIS?

The differences between these systems is largely driven by the amount of coffee needed to make each cup.[8]

For example, although a coffee ball does not have the packaging material of a capsule, the system uses more coffee to make each cup.

You can read the study here



8. The values differs from the previous graph as this shows the impact of an *espresso cup of coffee* and in *Switzerland*.

NESPRESSO