

LIFE CYCLE ASSESSMENT: UNDERSTANDING OUR ENVIRONMENTAL PERFORMANCE



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NESPRESSO®

Factsheet 4.2 | August 2012

AT A GLANCE

- Since 2005, *Nespresso* has used a scientific approach called life cycle assessment (LCA) to measure and understand the environmental impact across its entire business.
- LCA measures five key indicators of environmental performance. It is a valuable tool in making decisions about how to best optimise environmental impacts.
- The LCA for a cup of *Nespresso* coffee shows that biggest impacts for climate change come from using the *Nespresso* machine and growing the coffee.
- *Nespresso* is reducing the environmental impact in every aspect of its business, with a strong focus on machine innovation and sustainable agriculture.

ACTIONS & RESULTS

Since 2005, we have been using a process called life cycle assessment (LCA) to understand our environmental performance against five key indicators: climate change, water footprint, biodiversity, human health and energy. Today, in addition to our own in-house assessments, LCA studies have been conducted by the specialist environmental consultants Quantis.

LCA helps us optimise the carbon footprint of a cup of *Nespresso* coffee. Our studies show that across the value chain the highest volumes of greenhouse gases are produced when growing the coffee and using the *Nespresso* machine. As a result, our main focus has been to reduce emissions in these areas.

We have brought together specialists from our R&D team and machine manufacturers to design ever more innovative, high-performing and more energy efficient machines. For example, PIXIE, one of our recent machine innovations, automatically switches off after nine minutes of inactivity, consuming 40% less energy than A-ranked machines in FEA/CECED's measuring methodology.

We are also helping farmers reduce the carbon footprint of growing our highest quality coffees. Supporting coffee farmers to adopt sustainable agriculture practices is one of the three fundamental principles of the *Nespresso* AAA Sustainable Quality™ Program. It helps to improve the environmental performance of a cup of coffee.

Beyond this, our focus on reducing our carbon footprint has led us to support the launch of the Rainforest Alliance Climate Friendly farming training module. This education program was created by our partners including the Sustainable Agriculture Network (SAN), a local university and our sourcing partner EFICO. The module includes voluntary guidelines to help farmers mitigate their own greenhouse gas emissions and better prepare for the new challenges that climate change is already bringing to coffee growing regions. The guidelines help farmers benefit from optimising energy and water consumption, generating new products from agricultural waste, and ensuring more efficient use of fertilisers*. To find out more about the *Nespresso* AAA Sustainable Quality™ Program, read the factsheet "Protecting the Future of our Highest Quality Coffees".

LCA can also be used to measure the environmental impacts of specific parts of our value chain and operations. In 2011, we commissioned Quantis to conduct a new LCA to compare the environmental impacts of using different kinds of capsules to make an espresso coffee in a *Nespresso* machine. Their study showed that the *Nespresso* espresso product, with a capsule that is sent to recycling, is the option among the investigated alternatives that has the lowest overall environmental impact.**



ISO LCA approach used by Quantis

* <http://www.rainforest-alliance.org/newsroom/news/san-climate-module-release>

** There was a significant difference in terms of GHG emissions (climate change), resource consumption and human health, while ecosystem quality and water use showed similar impacts between the Nespresso Espresso recycled products and other best scenarios. You can find the study on www.nestle-nespresso.com/media/library/documents



Quantis, world-leading experts in environmental life cycle assessment

WHY WE HAVE CHOSEN THE LCA APPROACH

LCA is a solid, integrated and long-term approach for measuring and reporting our environmental performance. The methodology has been developed according to the recognised international standards, ISO 14040 and ISO 14044.

The process enables us to measure carbon dioxide and other greenhouse gas emissions that contribute to climate change and quantify progress in reducing our carbon footprint. In 2009, *Nespresso* made the commitment to reduce by 20% the carbon footprint of a cup of coffee by 2013. By the end of 2011, we estimate we had reduced by 16% the carbon footprint compared to 2009. LCA is also a holistic and efficient tool for investigating the environmental impact of our actions. It helps us understand how best to reduce our carbon footprint within all aspects of our business, from the cherry to the cup and beyond without creating negative environmental impacts elsewhere.

OUR APPROACH: HOW LCA WORKS

The LCA approach assesses key indicators across four components:

- **Scoping**
Defining the different activities that contribute to environmental performance: coffee growing, transportation, capsule production and other packaging, roasting and processing of coffee at our production centres, machine components and assembly, running our offices and boutiques, coffee brewing and disposal and the recycling of capsules.
- **Life cycle inventory**
Measuring the energy and raw material inputs as well as the environmental emissions associated with each stage of the life cycle, from the coffee cherry to the cup and beyond.
- **Impact analysis**
Assessing the impacts of *Nespresso* coffee at every stage, from cherry to cup on five key indicators.
 - Climate change: impacts of emissions of carbon dioxide and other greenhouse gases
 - Water footprint: quantity of water used
 - Biodiversity: impacts on quality of ecosystems and richness of species
 - Human health: effects on human health and wellbeing
 - Energy: quantity of energy and other inputs like natural resources used



Restoring ecosystems on coffee farms is a key part of the AAA Program.

■ **Improvement analysis**

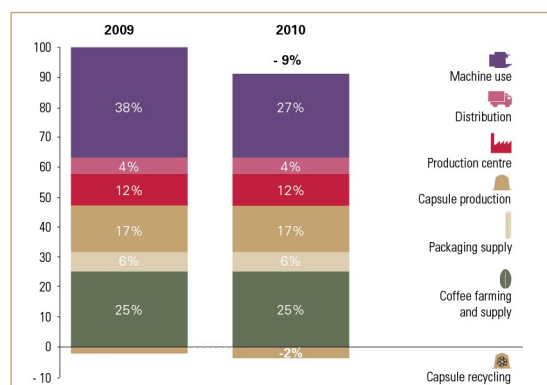
Evaluating opportunities to reduce energy, material inputs or environmental impacts at each stage of the lifecycle, with a focus on sustainable agriculture, developing high-performing energy efficient machines and collecting used capsules for recycling.

PLANNING FOR THE FUTURE

Having used the LCA approach since 2005, *Nespresso* has put robust systems in place to measure and report on the environmental impact of the parts of our business we manage directly. Now we are focused on gaining a better understanding of our environmental performance in other areas. For example, we are working with Quantis on a project to measure the qualitative and quantitative effects of TASQ™, our sustainability self-assessment tool for coffee farmers. TASQ™ includes criteria such as wastewater management and coffee replanting.

WHAT THE EXPERT SAYS

"Like any system, portion coffee has advantages and disadvantages. The production of the capsule has some impacts. However, the benefit of a portion system is actually that it reduces waste of brewed coffee and reduces the amount of green coffee needed by ensuring a better extraction. This means that depending on the different scenarios (for example, how much prepared coffee is wasted in a traditional system or if the capsule is recycled and an economic machine is used), a Nespresso coffee can have a lower impact than a traditional one."



Yves Loerincik,
CEO, Quantis



Capsule recycling: separating the coffee grounds from the aluminium



PIXIE: energy efficiency rating two levels better than "A" rating ***

LCA studies show that the highest volumes of greenhouse gases are produced when growing coffee and using the *Nespresso* machine. Our primary focus is to reduce emissions in these areas.

*** FEA/CELED's measuring methodology