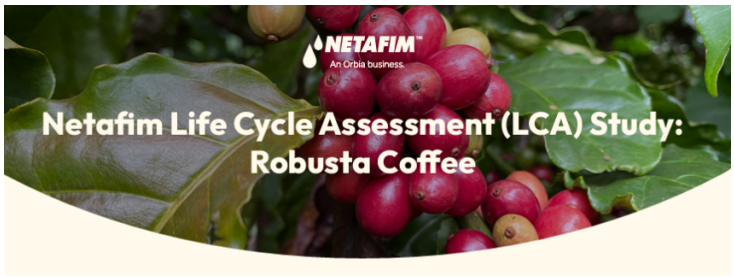
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OrbiaÂ Netafim study finds coffee grown with drip irrigation substantially reduces its environmental impactÂ

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Orbia Advance Corporationâ??s Precision Agriculture business group, the global leader in precision irrigation solutions, announced today the results of a new Life Cycle Assessment (LCA) study showing that coffee grown with drip irrigation demonstrates significant environmental benefits, particularly in reducing Global Warming Potential (GWP). The findings highlight higher yields and significant reductions in water use, energy consumption and overall carbon footprint compared with traditional overhead irrigation. The study, conducted in coffee plantations in Dak Lak province, Vietnam, one of the worldâ??s largest coffee producers, evaluated the environmental performance of drip irrigation in Robusta coffee cultivation.

One of the world's most traded agricultural commodities, coffee is grown across more than 10 million hectares and supports millions of farmers, most of them smallholders in countries including Brazil, Vietnam, Colombia, Ethiopia, and across Central America. Yet the sector faces mounting pressure from climate volatility, water scarcity, and rising input costs, making the efficient use of water, energy and agricultural inputs critical to its long-term sustainability. Record Robusta prices are further accelerating this shift, as growers expand into new regions where irrigation is essential to maintain viable yields.

At the same time, growing consumer demand for ethically and sustainably sourced coffee is driving farmers to improve cultivation practices, supported by large coffee producers seeking to ensure supply chain resilience, meet responsible business conduct standards and advance their ESG commitments.
This newest study builds on Orbia Netafimâ??s decades-long experience supporting coffee growers across Latin America, Asia, and Africa. LCA evaluated the environmental impacts of drip irrigation solutions across the full cultivation cycle, including water and energy use, agricultural input use (e.g. fertilizers and crop-protection products), and yield performance. The certified research conductedâ¯over a three-year period (2022-2024) compared drip irrigation with overhead sprinkler irrigation method commonly used in Robusta coffee cultivation.

Key findings from the study include:

Yield Performance: Drip irrigation supported more than 50 per cent higher yield per hectare, allowing farmers to produce more coffee beans with fewer resources.

Carbon Footprint: Advancing drip irrigation lowered the carbon footprint and GWP of Robusta coffee plantations by nearly 60 per cent driven by reduced energy consumption and more efficient input use.

Water Consumption: Drip irrigation reduced water use by approximately 56 per cent, less than twice the amount of water per ton of coffee beans produced by overhead irrigated plantations.

Chemical Use: Drip irrigation resulted in a 46 per cent reduction in chemical use per ton of coffee beans.
These results are driven by Orbia Netafim's Coffee Protocol, a comprehensive set of agronomically proven best practices for irrigation and fertigation, tailored to specific climate zones, terrains, and coffee varieties.

Developed over six decades of global field research, cross-country collaboration and continuous monitoring via advanced digital farming platforms, the Protocol translates precision irrigation into consistent, measurable outcomes for growers.

"Coffee growers today face mounting pressure to increase productivity while managing water scarcity, climate volatility, and rising input costs," said Ram Lisaey, head of Global Agronomy at Orbia Netafim. "Through decades of collaboration with farmers and leading coffee producers, Orbia Netafim has developed proven solutions that deliver more yield with fewer resources, reducing carbon footprints, cutting water use, and strengthening long-term farm resilience. This Life Cycle Assessment reinforces what we see on the ground every day: precision irrigation is a practical, scalable pathway for coffee growers and companies to achieve supply chain resilience, advance their ESG targets and bring more sustainably grown coffee to market."

Orbia Netafim has long partnered with coffee companies and the farmers who supply them, from Latin America and Southeast Asia to Africa, sharing agronomic expertise and irrigation protocols that align with quality standards, environmental commitments, and evolving consumer expectations. These partnerships give Orbia Netafim direct insight into market needs, enabling continuous refinement of its solutions in support of sustainable, high-value coffee production.

This LCA is part of Orbia Netafim's expanding portfolio of crop-specific Life Cycle Assessment research. Previously published studies demonstrated similarly significant environmental benefits of drip irrigation in corn and potato cultivation, reinforcing these findings across crops and geographies. Together, this body of evidence supports the industryâ??s path toward more resilient and responsible agricultural supply chains. As climate variability continues to challenge coffee-growing regions worldwide, scalable technologies that optimize water, energy and input use are becoming critical.