RAINFOREST ALLIANCE

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The Rainforest Alliance's Regenerative Agriculture Approach

A Strategic Investment for Biodiversity, Climate, Farmer Prosperity, and Resilient Supply Chains

The Rainforest Alliance is creating a more sustainable world by using social and market forces to protect nature and improve the lives of farmers and forest communities.

Photo: Nu Image Communications

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SUMMARY

Global agriculture is under growing pressure. Climate change, biodiversity loss, soil degradation, water stress, and market volatility are eroding productivity and threatening the livelihoods of millions of farmers—especially smallholders, who produce more than 70 percent of the world's coffee. In this context, food and agriculture companies urgently need strategies that enhance resilience, restore ecosystems, and ensure long-term profitability.

Regenerative agriculture offers a compelling path forward. Grounded in agroecological principles, it improves soil health, strengthens climate resilience, and has the potential to raise farm income. Scientific studies underscore the benefits of regenerative agriculture practices such as agroforestry, cover cropping, and reduced reliance on synthetic inputs; these practices enhance soil health, water retention, biodiversity and ecosystem services, and long-term productivity, potentially increasing farmer profitability, and strengthening climate resilience.

To support this transition, the Rainforest Alliance will be launching a new Regenerative Agriculture Standard focused on coffee (with cocoa, tea, and oranges to follow). This practical, science-based framework sets measurable requirements for soil health, input efficiency, water stewardship, biodiversity, and farmer well-being. It builds on decades of experience and aligns with global sustainability frameworks and corporate ESG goals.
Now is the time to act. Coffee companies, donors, and investors are called upon to adopt the regenerative standard in their sourcing and investment strategies, fund the transition through farmer training and technical support, and engage in collaborative, landscape-level efforts to scale regenerative outcomes. With the right investment and commitment, regenerative agriculture can shift from ambition to reality—delivering resilience, prosperity, and sustainability for people, nature, and the global food system.

Cover crops on a mechanized farm in Mexico

INTRODUCTION

Global agricultural systems are approaching a critical tipping point. Warming temperatures, erratic rainfall, and soil degradation are steadily reducing yields and, along with volatile markets, threaten the livelihoods of millions of coffee farmers, mostly smallholders[1].

As these challenges deepen, agricultural value chains are seeking scalable, science-backed strategies to future-proof production and create shared value. Regenerative agriculture practices have emerged as one of the most promising approaches: They restore natural systems, strengthen climate resilience, and have the potential to increase farmer profitability over time.

Findings from Ethiopia and Honduras confirm that regenerative practices can raise farm net income by 20 to 30 percent while improving soil health, water retention, and long-term productivity[2]. In Brazil and Colombia, emerging field data and pilot programs show that regenerative practices such as diversified agroforestry, cover cropping, and organic soil amendments can significantly improve coffee farm performance. Early results from initiatives in Brazil's Minas Gerais region and Colombia's Cauca and Huila departments indicate that regenerative approaches can increase net farm income by 15 to 25 percent while enhancing soil fertility, reducing erosion, and strengthening climate resilience over the long term.[3]

For decades, the Rainforest Alliance has been a leader in implementing agroecology principles via sustainable agricultural practices. Now, with the upcoming launch of our new Regenerative Agriculture Standard, we offer a powerful, credible, and actionable pathway to accelerate this global transformation.

In this paper, we highlight the Rainforest Alliance's tools for catalyzing measurable change at scale—for people, nature, and the future of coffee.

BUILDING MOMENTUM FOR REGENERATIVE AGRICULTURE

The urgency for transforming agricultural systems has never been greater. Climate change, biodiversity loss, and the increasing vulnerability of smallholder farmers are pushing the global food and agriculture sector toward more resilient and restorative models. In response, companies, investors, and governments around the world are accelerating their efforts to embed regenerative principles into mainstream agricultural supply chains. Across continents and commodities, organizations are setting science-based targets, adopting regenerative sourcing commitments, and prioritizing nature-based solutions to meet their climate, ESG, and sustainability goals.

Nestlé, for example, has pledged to source 50 percent of its key ingredients through regenerative agriculture by 2030 as part of its Net Zero Roadmap. This includes investments of more than CHF1.2 billion (approx. US$1.3 billion) to support farmers in adopting regenerative practices across supply chains like coffee, cocoa, dairy, and cereals. The company is piloting regenerative transition programs with thousands of farmers, focusing on techniques like composting, crop diversification, and soil health restoration. Nestlé's regenerative sourcing goals are directly tied to its climate targets and ESG commitments, illustrating how large agrifood players are using regenerative agriculture as a strategic lever to drive systemic change and improve supply chain resilience. The Rainforest Alliance works with Nestlé on this journey, supporting its coffee and cocoa producers and running annual monitoring and evaluation campaigns that enhance our collective learning on regenerative agriculture. Nowhere is this momentum more visible than in the coffee sector. Dozens of leading brands have embraced regenerative agriculture as a central pillar of their ESG strategies. Thousands of producers are already implementing agroecological practices—from diversified agroforestry and composting to integrated pest management and erosion control. These activities are supported by a growing body of scientific and economic evidence demonstrating that regenerative systems in coffee offer a viable path toward both environmental resilience and farm profitability.

Annual crops planted as cover crops

1 https://www.fao.org/newsroom/detail/adverse-climatic-conditions-drive-coffee-prices-to-highest-level-in-years/en

2 https://www.technoserve.org/wp-content/uploads/2025/04/TechnoServe_Regenerative-Coffee-Investment-Case_Brief.pdf

3 Coffee and agroforestry alliance (re)generates impact for post-conflict farmers in Colombia - Volcafe

Among the most compelling contributions to this evidence base is TechnoServe's 2025 report, which presents a robust case for multi-stakeholder investment in regenerative coffee systems. Drawing on fieldwork in Ethiopia and Honduras, the study reveals that regenerative practices can raise net farm income by 20 to 30 percent while also improving soil health, water retention, and long-term productivity. These findings reaffirm what other emerging data is already indicating: that regenerative approaches not only restore natural systems but also deliver tangible benefits for farmers and supply chains alike.

As momentum continues to build, the opportunity to scale regenerative agriculture through coordinated investment, technical support, and aligned standards has never been more critical—or more achievable.

REGENERATIVE AGRICULTURE IN COFFEE

Regenerative agriculture in coffee, as defined by the Rainforest Alliance, is a holistic farming approach that aims to restore natural ecosystems, improve soil health and water stewardship, and enhance the well-being of farmers, all while maintaining crop productivity and resilience. Within coffee systems, this approach involves implementing agroforestry and diversifying shade trees, applying organic fertilizer and mulching to maintain soil cover, adopting integrated pest and nutrient management strategies, and incorporating water harvesting and erosion control measures. It also emphasizes reducing reliance on synthetic inputs like fertilizers and pesticides. Collectively, these practices help mitigate climate risks while delivering long-term benefits such as cost savings, yield stability, and improved farm resilience.

A long-term study published in *Nature Communications* found that conservation agriculture practices, including cover cropping, led to a 21 percent increase in soil health over eight years. These practices improved soil organic carbon and microbial biomass, contributing to higher crop yields under warming conditions (Teng et al., 2024). And specifically on coffee, a comparative study in Vietnam's Lâm Đồng province analyzed soil samples from a regenerative shade-grown coffee farm and two conventional sun-grown farms. The regenerative farm, enriched with organic manure, exhibited soil health comparable to or better than the conventional farms using chemical fertilizers. This suggests that regenerative practices can maintain or enhance soil fertility while reducing chemical inputs (Le at al., 2021).

Another review by Schreefel et al., 2020, emphasizes that regenerative agriculture techniques like composting and integrated pest management reduce the reliance on synthetic fertilizers and pesticides, thereby decreasing input costs and environmental pollution.

And finally, a 2024 study by Zhou et al., found that regenerative practices like cover cropping and reduced tillage significantly increase soil carbon sequestration—by up to 0.58 and 0.30 Mg C ha^{-1} yr^{-1}, respectively. These methods enhance soil health, resilience, and productivity while mitigating climate impacts. Combining practices further amplifies benefits. The study emphasizes the need for policy support and standardized carbon verification.

The Rainforest Alliance Regenerative Agriculture Standard for coffee, which builds on our 2022 regenerative coffee scorecard, provides a robust, performance-based framework to drive continuous improvement in sustainability and regenerative outcomes by promoting practices. It assesses farm performance across key areas such as soil health—through practices like organic fertilization, erosion control, and building soil organic matter; agroforestry—by promoting shade cover, native tree species, and natural vegetation on farm; and input efficiency—by reducing reliance on synthetic pesticides and fertilizers. These regenerative practices are widely supported in the scientific literature for their ecological and economic benefits. For instance, studies show that agroforestry systems in coffee enhance biodiversity, improve soil fertility, and increase resilience to climate variability (Jose, 2009; Tscharntke et al., 2011). Likewise, improved soil management through organic inputs and cover crops contributes to higher carbon sequestration and water retention (Lal, 2020; Reganold & Wachter, 2016).

SCALING REGENERATIVE COFFEE: CATALYZING SYSTEMIC CHANGE THROUGH STANDARDS, SUPPORT, AND INCENTIVES

Unlocking the full potential of regenerative coffee requires a holistic strategy that integrates credible standards, localized technical support, performance-based incentives, company commitments, and landscape-level collaboration. The Rainforest Alliance's upcoming Regenerative Agriculture Standard serves as a cornerstone for this transformation. It establishes clear, measurable requirements around soil health, agroforestry, reduced use of synthetic inputs, water stewardship, and biodiversity—closely aligned with pathways as outlined by several studies and reports (Goaverts et al., 2009; Titonell et al., 2014, TechnoServe, 2025; WBCSD, 2021).

Building on decades of sustainability leadership, the Rainforest Alliance designed this standard to meet today's urgent climate, social, and economic challenges. While regenerative principles have long been embedded in its Sustainable Agriculture Standard (SAS), the new framework goes further by:

- Focusing on both outcomes and practices, with five core targets: healthy soils, thriving biodiversity and ecosystem services, efficient water use, resilient crops, and farmer well-being.
- Stepping up the compliance levels of the most critical farm practices as mentioned above, using independent, third-party auditors to verify that standard requirements are met. (Upcoming EU legislation will require third-party assurance for sustainability seals.)
- Enabling verified market claims through an advanced traceability system and a tiered performance structure that incentivizes continuous improvement.

Critically, the Rainforest Alliance complements certification with targeted agronomic support, equipping farmers to implement regenerative practices adapted to their local ecological and economic realities. Our field staff of almost 130 delivers both face-to-face and online trainings, as well as e-courses. This approach reflects evidence from Govaerts et al. (2009) and Tittonell (2014), which emphasizes the need for site-specific strategies in sustainable intensification. Beyond the farm, the Rainforest Alliance engages in landscape-level initiatives, connecting regenerative agriculture with broader ecosystem services such as watershed protection, carbon sequestration, and biodiversity restoration. These integrated models align with global best practices, including guidance from the Food and Agriculture Organization (2021) and the Intergovernmental Panel on Climate Change, reinforcing regenerative agriculture as a nature-based solution to climate and development goals.

For companies, donors, and investors, regenerative sourcing offers a powerful mechanism to:

- Strengthen supply-chain resilience by reducing production risks, increasing productivity, stabilizing sourcing, and supporting farming communities.
- Drive climate and biodiversity outcomes through practices that increase soil carbon, enhance canopy cover, and support native species—metrics aligned with carbon accounting and nature-positive reporting.
- Meet evolving ESG and regulatory requirements, including the EU Regulation on Deforestation-Free Products, Science-Based Targets, and corporate net-zero and regenerative sourcing commitments.

Through its new Regenerative Agriculture Standard and multi-level engagement, the Rainforest Alliance enables diverse stakeholders to translate regenerative agriculture from ambition into action—delivering long-term value for people, nature, and resilient food systems.

JOIN THE REGENERATIVE COFFEE MOVEMENT - ACT NOW FOR PEOPLE AND NATURE.

Now is the time to champion regenerative agriculture—across all crops, and especially in coffee. Our holistic approach to regenerative agriculture has the power to deliver climate resilience, farmer prosperity, and business continuity—all in one solution. With Rainforest Alliance's practical tools, including the new Regenerative Agriculture Standard, the path to transformation is clear.
We call on coffee companies, donors, and investors to:

1. **Adopt** the Regenerative Agriculture Standard.
2. **Fund** the transition by supporting farmer training, technical assistance, and initial costs.
3. **Collaborate** across landscapes to scale regenerative benefits beyond individual farms.

With the right investment and commitment, regenerative coffee can be more than an aspiration—it can become the new norm.

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