Volcafe Honduras' Living Income Commodity Strategy: a blueprint for sustainable sourcing

Developed in collaboration with

FAIRFOOD

HEIFER INTERNATIONAL

Akvo.

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This case-study is a derivative work of the
[Commodity Living Income Strategy White Paper]
co-authored by Heifer International and Fairfood International.

Volcafe Honduras

Founded in 1960 as Molinos de Honduras, Volcafe's subsidiary in Honduras is also the oldest coffee exporter in the country and a leading coffee exporter dedicated to delivering high-quality, traceable coffee while ensuring fairer prices for producers. Since 2013, the company has prioritized direct sourcing from individual coffee farmers and producer organizations, reducing reliance on middlemen and strengthening supply chain transparency. With 90% of its coffee sourced directly, Volcafe Honduras collaborates with different NGOs to provide technical assistance, sustainability training, and support through the Volcafe Way method.

Fairfood International

Fairfood International is a Dutch NGO building innovative solutions that improve the socio-economic position of farmers and food workers. In collaborative projects, involving various stakeholders along the supply chain, Fairfood sparks awareness and drives action on (social) sustainability risks. Their unique approach lies in delivering holistic solutions to agri-food companies, offering farm-to-fork traceability, expert guidance, and services geared towards equitable value distribution throughout the supply chain.

Heifer International

Heifer International is a global development organization that believes ending global hunger and poverty begins with agriculture. Since 1944, Heifer International has worked with more than 46 million people around the world to end hunger and poverty in a sustainable way while caring for the Earth. Heifer currently operates in 19 countries across Africa, Asia, and the Americas, including the United States, supporting farmers and food producers to strengthen local economies and build secure livelihoods that provide a living income.

Akvo

Akvo Foundation, established in 2007, is a non-profit organization working to bring data and digitalisation to the forefront of the development sector. Akvo's services span a comprehensive range of digital and data solutions aimed at fostering data-driven decision-making. Akvo leverages field and mobile data collection, data management, and data sharing, along with open-source technologies, to promote responsible data practices and enhance transparency and collaboration in the development sector.

Volcafe Honduras facility. The company buys coffee from producers in 9 key regions: Comayagua, Copán, Cortés, El Paraíso, Francisco Morazán, Intibucá, La Paz, Santa Bárbara and Yoro.

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Definitions

CYE (Cost-Yield Efficiency)
A methodology that evaluates and categorises the production and operational activities within commodity value chains. It delivers a nuanced assessment, identifying key areas for productivity and cost optimizations.

LIP (Living Income Price)
A data-driven pricing mechanism designed to calculate the minimum price required for smallholder farmers to achieve a living income, accounting for production costs, yields, and a decent living margin.

Living Income Benchmark
A location-specific measure of the net annual income needed for a household to secure a decent standard of living, including costs for food, housing, healthcare, education, and unexpected expenses.

Farmgate Price
The price received by farmers for their commodity when it leaves the farm, excluding transportation and post-harvest handling costs.

Median LIP
The midpoint value in the calculated Living Income Price data, representing the price at which half of the farmers would earn a living income based on their production conditions.

Cost Drivers
Key factors that influence the cost of production, including labour, fertilisers, and equipment. Understanding cost drivers helps identify areas where efficiencies can be improved.

Efficiency Segments
Categories of farmers grouped based on their cost-to-yield ratios, enabling comparative analysis of productivity and efficiency levels.

Income Diversification
The process of generating income from multiple sources, such as alternative crops or non-agricultural activities, to reduce dependency on a single commodity and mitigate risks.

Gender Disaggregation
The analysis of data by gender to identify disparities in productivity, costs, and income levels between male and female farmers.

Farm Depreciation
The annualised cost of farm establishment over its productive lifespan, used to calculate accurate production costs.

Commodity Weight Conversion Factor
A numerical value used to convert a commodity's weight from one state to another (e.g., wet to dry), essential for calculating production costs and pricing.

Implicit Labour Costs
The value of unpaid family labour, often excluded from production cost calculations, but critical for understanding the true cost of farming.

Living Income Gap
The difference between the actual income earned by farmers and the income required to meet the Living Income Benchmark.

Sample Screening
The process of refining data by excluding outliers and ensuring that sample characteristics align with the local agricultural context.

Regional Productivity Benchmark
A reference yield level used to assess the productivity of farmers in a specific region against expected standards.

Farmer-Centric Data Governance
A framework that prioritises farmer participation and ownership in data collection and analysis, ensuring transparency and trust in decision-making processes.

Open-Source Toolkit
A collection of resources, including tools for data collection, analysis, and reporting, designed to facilitate the implementation of LIP and CYE methodologies across supply chains.

Volcafé Way
A reference productivity benchmark specific to the coffee supply chain, used for regional comparisons in the analysis.

A Honduran coffee farmer who supplies Volcafe Honduras.

1. Introduction

Despite a decade of sustainability efforts, poverty remains a persistent reality for many smallholder farmers and agricultural workers. A wealth of methodologies, benchmarks, and reference prices are available, providing valuable guidance on fair compensation. However, these tools do not always fully capture on-the-ground realities such as variations in yield, land size and local cost structures, as well as external pressures like soil depletion, climate volatility, rising input costs and labour shortages. This misalignment between producer realities and buyer strategies has led to fragmented sustainability efforts and well-intended programs failing to deliver long-lasting impact.

In 2025, coffee and cocoa prices reach record highs, surpassing living income thresholds[1]. For some farmers, this offers a rare opportunity to save or invest. For most, however, it simply means recouping losses from poor harvests that drove prices high in the first place[2]. With extreme price fluctuations threatening business operations across the supply chain, there's an urgency for strategies that bring **procurement and sustainability teams together** to build long-term supply chain resilience.

Recognising this, **Fairfood International**, **Heifer International** and **Akvo** have partnered with **Volcafe Honduras**, to pioneer the **Living Income Commodity Strategy**. Rather than focusing solely on closing the income gap, this strategy shifts towards a more holistic approach, grounded in data, that strengthens farm-level resilience through sustainable production while ensuring fair and stable pricing mechanisms. The goal is to **bridge the disconnect between producer and buyer countries** by equipping private-sector actors with data to inform targeted sustainable farming interventions and responsible procurement practices.

1.1 A Dynamic approach: Operationalising sustainability strategies based on data

Sustainability efforts in agribusiness have traditionally prioritised agronomic improvements. While this is important, historically, **better productivity alone has not closed the living income gap**– putting supply chains at continual risk. While governance reforms

1 Fairtrade International (2025). Fairtrade announces new Living Income Reference Prices for cocoa in West Africa.

2 Confectionery Production News (2024). Back with source Tony's Chocolonely confirms need for retail price rises as cocoa sector supply challenges continue.

and sustainability frameworks are essential, purchasing practices remain the most immediate and impactful lever for fair farmer compensation[3]. At the core of responsible sourcing is a **Farmgate Living Income Price**—the minimum viable price required to cover production costs while ensuring producers can afford a basic but decent living standard.

However, **price alone does not ensure resilience**. Emerging regulations, particularly in Europe, demand greater transparency and accountability. Currently under discussion, laws such as the EU Deforestation Regulation (EUDR) and the Corporate Sustainability Due Diligence Directive (CSDDD) require companies to assess and mitigate social and environmental risks in their supply chains. Responding to these demands calls for a shift beyond compliance towards **meaningful stakeholder engagement with farmers, tailored intervention strategies based on their specific needs**, and all combined with transparent reporting supported by measurable KPIs. Coordinated, data-informed action will be essential to ensure credibility in this evolving landscape.

This approach combines two data-driven methodologies:

- **Living Income Price (LIP):** Establishing a minimum viable price based on real production costs and living income needs.
- **Cost-Yield Efficiency (CYE):** Identifying cost-efficiency gaps and optimizations that supports targeted intervention strategies.

By understanding this data, companies can move from national benchmarks to **practical and responsive sustainability models** that improve both long-term supply chain resilience and profitability on all sides.

1.2 A blueprint for action

This study presents how Fairfood International, Heifer International, Akvo and Volcafe Honduras are implementing these principles in practice. It explores how **segmented farmer data** can inform procurement strategies, strengthen supplier relationships, and guide sustainability teams in designing targeted interventions. The goal is simple: **provide precision and replicability in addressing the root causes of inequities and inefficiencies across different commodities and regions.**

Volcafe Honduras' commitment to **transparent, fair pricing** sets a precedent for the industry, demonstrating that profitability and genuine sustainability are not at odds. By documenting this journey, procurement and sustainability teams are equipped with actionable insights, enabling them to adopt and scale these methodologies within their own supply chains.

3 Fountain, A.C. (2023): Good Purchasing Practices in Cocoa, a Barometer Consultation Paper.

This initiative is a collaborative partnership between Fairfood International, Heifer International, Volcafe Honduras, and Akvo, combining their expertise to address systemic barriers faced by smallholder farmers and create a scalable, replicable model:

- **Heifer International** specialises in efficiency analysis, diversification strategies, and sustainable development. Heifer is responsible for implementing the mapped interventions.
- **Fairfood International** specialises in open source traceability and analytics tooling, which translates impact monitoring into actionable insights for business partners.
- **Akvo** provides data services, including collection, cleaning, and analysis. Akvo ensures data integrity, enabling robust insights into cost drivers, efficiency segments, and income disparities.
- **Volcafe Honduras** fosters long-term relationships with farmers and is responsible for scaling the methodologies explored in this study.

The partnership between Fairfood and Volcafe Honduras was initiated in 2021 as part of the RECLAIM Sustainability! programme, funded by the Dutch Ministry of Foreign Affairs.

2. Methodology

The approach detailed in this case study combines the **Living Income Price (LIP)** and **Cost-Yield Efficiency (CYE)** methodologies to analyse and address living income gaps among a sample of coffee farmers supplying Volcafe Honduras. Developed collaboratively by **Fairfood International and Heifer International, with support from Akvo**, these methodologies provide a comprehensive framework[4] for analysing the interplay between production costs, yields, and sustainable pricing.

2.1 Introducing Living Income Price (LIP)

The LIP methodology is designed to calculate living income prices at multiple stages along the value chain. It aims to establish a minimum viable price floor for commodities, offering a sustainable alternative to its market price, for farmgate, cooperative, and FOB transactions. It does not account for quality, certification, or other areas of necessary compensation that may be warranted for specialty products. The analysis conducted for this case study was limited to the **Farmgate Living Income Price (Farmgate LIP)** assessment.

The Farmgate LIP refers to the price a farmer receives from the sales of its primary commodity, enabling the farming household in a particular location and period to earn a living income in accordance with their actual farming circumstances. The Farmgate LIP methodology incorporates the following components:

- **Living Income Benchmark:** A location-specific measure of the net annual income needed for a household to secure a decent standard of living, adjusted for household size and inflation.
- **Diversification ratio**: The proportion of total household income derived from the commodity, reflecting its importance in generating the income needed to cover production costs and achieve the living income benchmark.
- **Production costs:** Actual expenses incurred during the production of the commodity, including inputs (e.g., fertilisers, pesticides), labour, and equipment depreciation.
- **Yield and farm size:** Production data collected at the farm level, to understand total production capacity as well as productivity.

4 Marie, A, Gilman, C, Miralles, I., (2024): The Commodity Living Income Strategy White Paper.

The results of the Farmgate LIP analysis answers what is the **minimum viable price** that needs to be paid to producers for them to break-even–which means equalising the total cost and total revenue–and generate enough surplus for a decent living, based on their **current and actual** production scenario.

2.2 Cost-Yield Efficiency (CYE) analysis

The CYE methodology complements the Farmgate LIP calculation by evaluating the efficiency of farming operations. It begins by analysing total production costs to identify key cost drivers and grouping them into manageable categories, typically three to five. These segments form the foundation for tailored approaches to intervention strategies. While fully segmented strategies present their own challenges, they also offer **actionable insights** into the most effective practices for each group, ultimately improving outcomes across all farmer segments.

The results of the CYE analysis answers the following questions:

- What are the key cost drivers influencing the Farmgate LIP per segment?
- How do current productivity levels compare with benchmarked levels per segment?
- How do efficiency and productivity levels per segment affect the Farmgate LIP?

In this case study, **farmers are grouped into four segments based on their production costs and productivity levels.** Using regional productivity benchmarks (measured in dry parchment coffee) and median cost values, farmers were segmented as either high or low in both dimensions. These four efficiency segments will be described in more detail in Section 3.2. **These insights are crucial for understanding the broader relationship between production costs, productivity, and Living Income Pricing.**

2.3 Data collection and farmer sampling

Volcafe Honduras directly sources their Arabica coffee from 7000 farmers working in 9 regions–Comayagua, Copán, Cortés, El Paraíso, Francisco Morazán, Intibucá, La Paz, Santa Bárbara, Yoro. For this study, Francisco Morazán and Comayagua were selected and represent two major coffee-producing regions in Honduras. Both present distinct flavour profiles and body thanks to the cultivation of nine Arabica varieties, as well as unique productivity patterns.

Primary data collection was carried out in July 2024 by Akvo, in collaboration with local enumerators sourced by Heifer International and Volcafe Honduras. 272 farmers were surveyed (244 male, 28 female), with the majority producing conventional coffee (<15 organic).

2.4 Data quality monitoring

Data quality was monitored using a real-time tracking dashboard that provided supervisors with key insights, including GPS locations, survey durations, and the volume of data collected by each enumerator. Visualisations, such as plots comparing the coffee farm size to kilograms produced, highlighted outliers and flagged potential issues. Data collection supervisors could then contact enumerators directly to clarify or resolve unusual data entries, ensuring accuracy and consistency.

After data collection, a series of standard data cleaning rules were applied to ensure accuracy and relevance for analysis. Any data points from original variables that fell beyond three standard deviations from the mean were flagged as missing (NA), addressing potential outliers and ensuring the data remains robust and reliable for analysis.

In addition to the standard rule, specific cleaning thresholds were implemented for certain insights. For instance, farmers reporting production costs above 15 USD/kg were excluded. Similarly, farmers with Farmgate LIP values exceeding 10 times the previous season's reported farmgate price were removed. These extreme values, often caused by low coffee revenue or small farm sizes, could significantly skew the LIP results if included.

2.5 Informed consent

Ensuring that farmers consent to data collection and understand how their data will be used is a core principle of this approach. Prior to data collection, each participant, or the household's primary decision-maker, was read a statement explaining the purpose of the data collection and its intended use. After hearing the explanation, farmers could decide whether they wanted to proceed. Informed consent was recorded only if they chose to continue, and no data was collected if they opted out. The principles guiding ethical data management and farmer trust can be consulted here.

2.6 Limitations

While the data was considered consistent, good quality and provided relevant insights, several limitations were noted:

- The low share of female farmers in the sample (only 10%) limits the generalizability of gender-specific findings. Despite the small sample size, statistically significant differences were identified between male and female farmers. If gender is a key focus, the full farmer list must include a sufficient number of women, as the ability to include female farmers in the sample depends directly on how many are listed. In our case, we interviewed all listed farmers, but few were women, as noted in **Section 2.3**.
- Implicit labour costs: Implicit costs, such as unpaid family labour, were not measured, affecting the total production cost calculation. Future data collection will aim to incorporate these implicit costs.
- Remittance underreporting: Remittances are common in the region, and many farmers acknowledged receiving them but were often reluctant to confirm or disclose amounts. This likely led to an underestimation of total revenues and an overestimation of the reliance on coffee production as a revenue source, thereby affecting both the diversification ratio and Farmgate LIP calculations.
- Data collection period: The analysis offers only a snapshot of conditions during the data collection period and may not capture long-term variations in costs and revenues.

Volcafe Way is the company' farmer support programme developed since 2014 to provide a holistic response to the challenges faced by coffee farmers. The results of this study will inform upcoming trainings and interventions.

3. Data analysis and findings

This section presents key findings from the data analysis, highlighting critical cost drivers, productivity trends, and income disparities—and their implications for sustainable farming interventions. The analysis quantifies the gap between the Farmgate LIP and farmgate prices reported for the 2023 season (in USD per kilogram of dry parchment coffee), while examining gender-based disparities and structural inequalities that affect income potential.

Next, farmers are categorized by cost and productivity levels through Cost-Yield Efficiency (CYE) Analysis to illustrate how these factors shape profitability and define distinct farmer efficiency segments. Building on an understanding of the economic pressures farmers face and the structural inefficiencies that exacerbate income disparities, this analysis then models interventions—such as productivity improvements, labor cost optimization, and income diversification—to gauge their potential for closing the living income gap. By systematically examining these variables, this section provides a basis for developing sustainable procurement strategies and living income interventions (see Section 4).

Key research questions guiding this analysis include:

- What is the current gap between the reported farmgate price for the previous season and the Farmgate LIP, and how does it vary across different farmer groups?
- How do cost and productivity levels interact to shape farmer profitability, and what farmer segments emerge from this analysis?
- What role do specific cost drivers, such as labour and fertiliser, play in determining income disparities across these segments?
- Are there farmers already achieving an annual living income based on the previous season's reported prices?
- What targeted interventions, such as productivity improvements, cost reductions, and income diversification, could most effectively close annual living income gaps?

3.1 The Farmgate LIP gap

To calculate the Farmgate LIP for each farmer, a living income benchmark of $4.20 USD per person per day was used, following Heifer International's 2024 guidelines.[5] Annual depreciation costs for farming inputs and equipment were estimated at $75 USD[6].

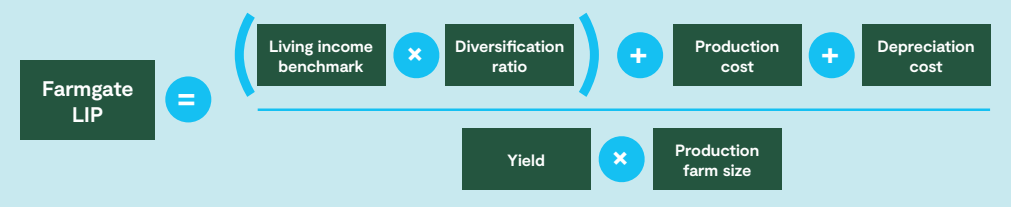


Figure 1: Formula to calculate a Farmgate LIP for an individual or typical farmer.

To gain a clearer understanding of the current landscape, the disparity between the Farmgate LIP and the prices reported by farmers in the previous season was analyzed.

Key findings:

- The median Farmgate LIP was calculated at $4.92/kg, compared to a median farmgate price as reported by farmers of $3.07/kg for July 2024. This revealed a notable **price gap of $1.85/kg, requiring a 60% price increase to meet the LIP**.
- Female farmers required a median **Farmgate LIP of $7.44/kg**, compared with **$4.70/kg for male farmers**. Although female farmers represented just 10% of respondents, this pronounced difference underscores critical gaps in training access, fertiliser efficiency, and productivity– issues already suspected by the team at Volcafe Honduras.

For comparison, see **Figure 2 & 3** on the next page.

5 Heifer International Living Income Benchmark - Honduras, Updated in 2024.

6 Farm depreciation costs represent the average annual expense of establishing a farm over its expected productive lifespan. It is calculated by dividing the total cost of establishing the farm by the number of years the farm is expected to remain productive for the primary commodity. Several factors influence farm depreciation, including the age and condition of the plants, physical attributes such as plant height, and the prevalence of diseases and pests. Information on farm establishment costs and lifespan can be obtained from secondary sources or through local expertise. For example, initial estimates for a coffee farm depreciation in Honduras, based on a USDA and Technoserve study, suggested a lifespan of 20–35 years. However, after detailed consultations with local experts from Heifer International and IHCAFE, it was concluded that a more realistic average lifespan is 15 years.

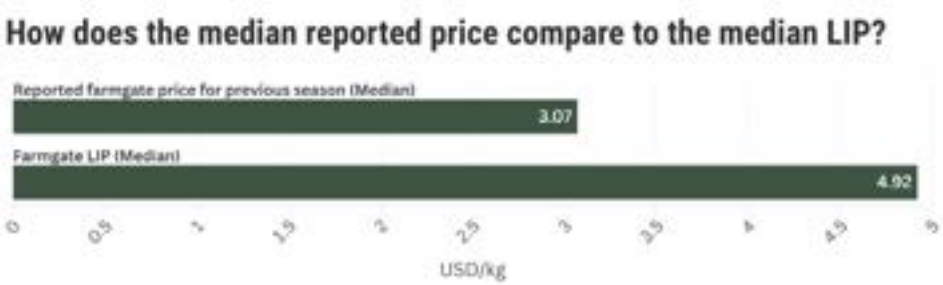


Figure 2: Comparison of dry parchment farmgate price reported for the 2023 season and the median Farmgate LIP.

Figure 3: Comparison of median Farmgate LIP per gender

3.2 Cost-Yield Efficiency (CYE) analysis and segmentation results

The following findings emerged from segmenting farmers by **productivity (kg/hectare) and production cost-efficiency ($/kg)**. This segmentation provides a structured method to analyze cost and yield patterns across diverse farming profiles.

Using regional productivity benchmarks for Francisco Morazán (904.93 kg/ha) and Comayagua (1115.85 kg/ha), along with each region's median production cost, four distinct efficiency segments were identified:

- Low Cost, Low Productivity (LCLP)
- Low Cost, High Productivity (LCHP)
- High Cost, Low Productivity (HCLP)
- High Cost, High Productivity (HCHP)

Farmers from both regions populate these segments based on their productivity and cost levels relative to their regional benchmarks. As a result, LCLP farmers exist in both Francisco Morazán and Comayagua, even though their absolute productivity and costs may differ. The same applies to the other three segments.

The chart below illustrates the segmentation process by showing how median production costs intersect with productivity levels in each region.

Median values of production cost and productivity per segment per region

	Production Cost (USD/kg)		Productivity (kg/ha)	
	Francisco morazán	Comayagua	Francisco Morazán	Comayagua
LCHP	0.66	0.49	1971.43	1642.86
LCLP	0.71	0.52	635.24	854.29
HCHP	2.52	1.99	1634.64	1807.14
HCLP	3.64	1.89	525.71	657.142

Figure 4: Comparison of median values of production costs and productivity

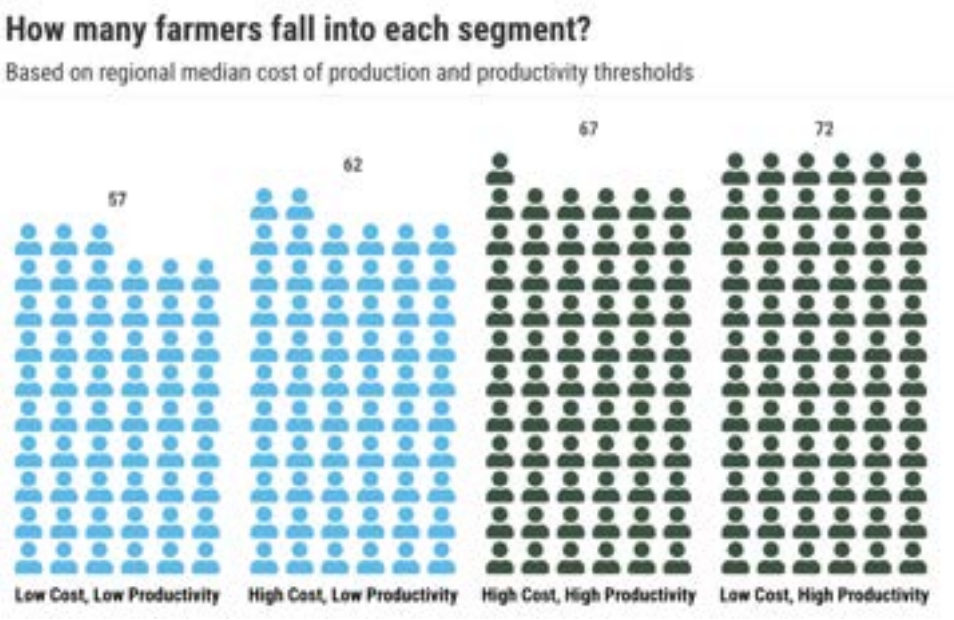


Figure 5: Number of farmers per segment in our sample.

Segmentation initially focused solely on production costs, but this approach raised important questions about interpreting cost efficiency, especially from a cost-yield perspective. For instance, a farmer producing at $0–$1 per kilogram may not be truly efficient but instead operating at low yields. Similarly, low investment paired with low productivity might be inadvertently rewarded. In contrast, higher investments often correlate with better outcomes, emphasizing the need for an approach that evaluates efficiency through both costs and yields.

The role of the Volcafe Way benchmark

The Volcafe Way productivity benchmark, set at 3,788 kg/ha, serves as a supply chain-specific reference for feasible productivity levels. However, **98.83% of surveyed farmers did not meet this target**, indicating a significant gap between expected and actual productivity. This discrepancy raises questions about whether the benchmark accurately reflects on-the-ground conditions. Several factors may explain this gap.

Some farmers are still in the early stages of implementing Volcafe Way, meaning that productivity improvements will take time to materialize. Others may face challenges beyond agronomic practices, such as environmental conditions that limit yields. As illustrated in **Figure 6**, regional benchmarks offer a more balanced distribution of farmers into high and low productivity categories. In Comayagua, 46.9% of farmers meet the regional threshold, while 59.3% achieve the lower threshold in Francisco Morazán.

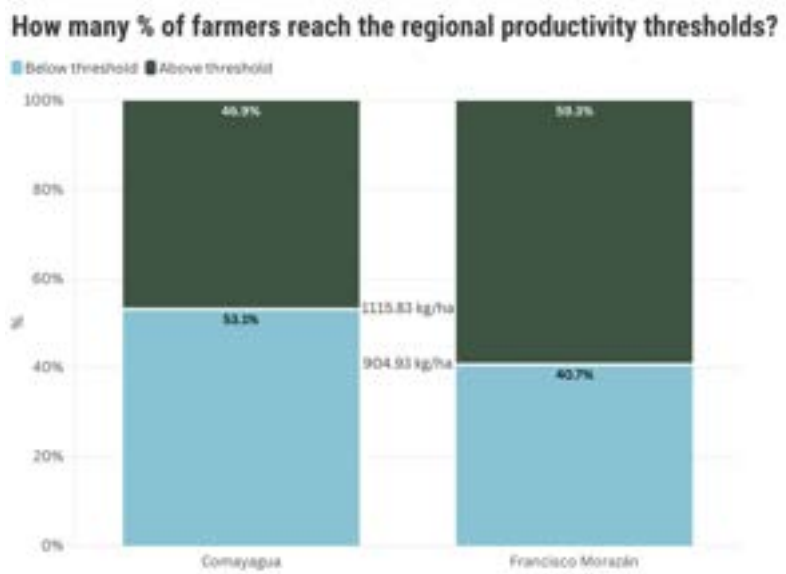


Figure 6: Percentage of farmers reaching regional productivity thresholds

Following this study, farmers supplying Volcafe Honduras were part of a Living Income Lab (Laboratorio de Ingreso Digno), where they validated the findings and reflected on recommendations. You can read more about that here.

3.3 Farmer segment results

This section examines how farmer segmentation affects the analysis of individual farm data. By exploring yield variability and its relationship to production costs, segment-specific interactions between these factors become clear. This relationship is further analyzed through the main cost drivers. The Farmgate LIP breakdown by segment and the subsequent modeling of the Annual Living Income Gap underscore the importance of segmentation in evaluating how cost-yield efficiencies influences income.

Yield and production costs across segments

To deepen the analysis, median productivity and production costs were compared within each segment, as illustrated in **Figure 7**. Clear differences emerge among the groups:

- **High-productivity segments (LCHP and HCHP)** generally report lower production costs compared with low-productivity groups (LCLP and HCLP).
- **Among High-cost segments (HCLP and HCHP)** HCLP shows notably lower productivity than HCHP, reinforcing the connection between cost inefficiency and reduced output in underperforming farms.

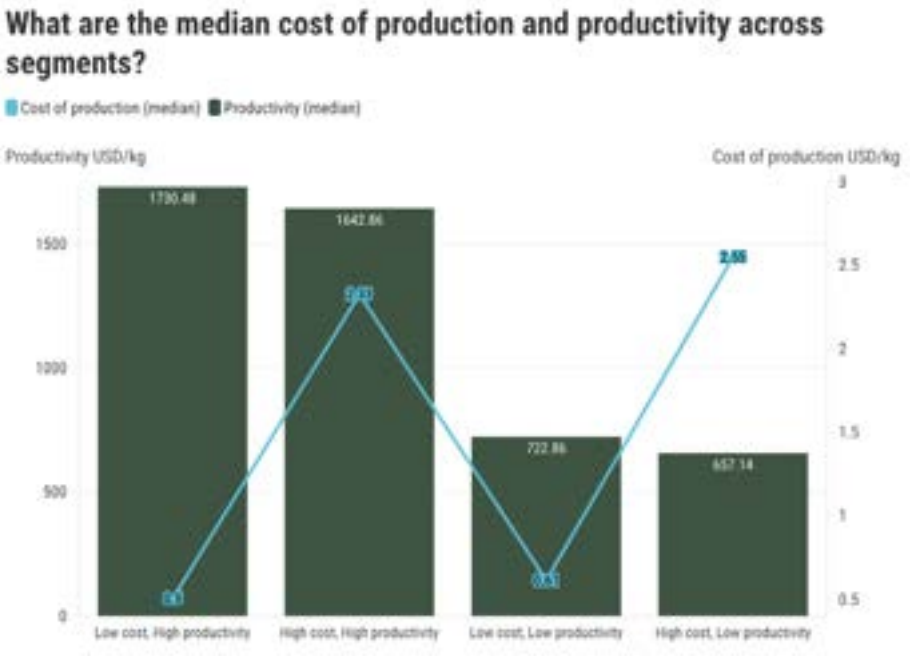


Figure 7: Comparison of segment specific productivity levels (median) and cost of production (median)

Main cost drivers per segment

Analyzing cost drivers across segments reveals how cost patterns and productivity interact, highlighting potential efficiency gains. Understanding these differences is crucial for designing interventions that address the realities of each farmer segment.

Multiple cost components were mapped, with **Figures 8-11** highlighting the four largest cost drivers in each segment in the following pages. The data shows clear variations in spending allocations, reinforcing the importance of tailored improvements at the farmer level.

1. **High-cost segments (HCHP and HCLP)**
   - **Temporary labor dominates:** In both segments, temporary labor accounts for nearly three-quarters of total costs (USD 1.8–1.84/kg).
   - **Fertiliser as second-largest expense:** Fertiliser follows labor in overall cost, while spending on chemicals and other inputs remains minimal.
2. **Low-cost segments (LCHP and LCLP)**
   - **Fertiliser as main driver:** Among LCHP farmers, fertiliser costs stand at USD 0.23/kg, whereas temporary labor drops to USD 0.10/kg. In LCLP, fertiliser remains the top expense at USD 0.29/kg, with near-zero spending on both temporary labor and chemicals.
   - **Minimal external inputs:** LCLP farmers spend the least overall, indicating a reliance on unpaid family labor or low-input farming practices.

These findings underscore the need for **segment-specific approaches** that account for distinct cost structures and opportunities for efficiency in each group.

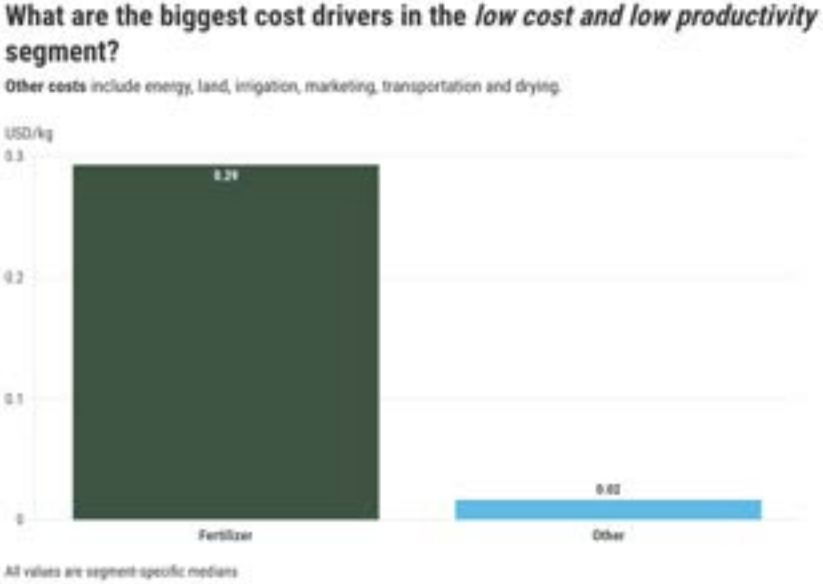


Figure 8: Comparison of cost drivers in segment "high cost and high productivity".

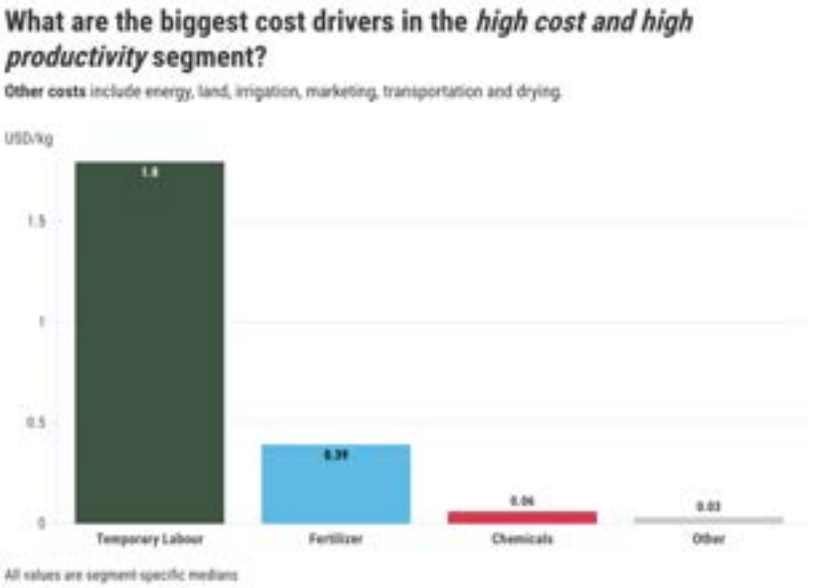


Figure 9: Comparison of cost drivers in segment "high cost and low productivity".

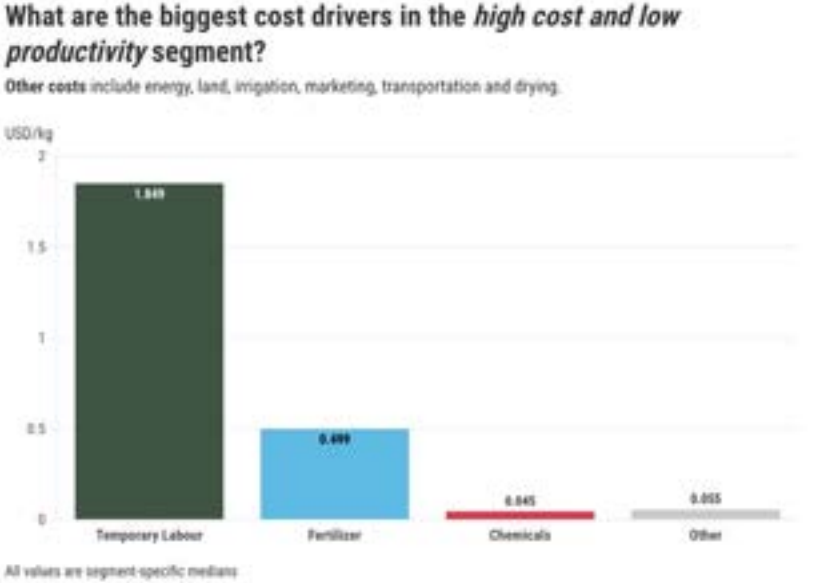


Figure 10: Comparison of cost drivers in segment "low cost and high productivity".

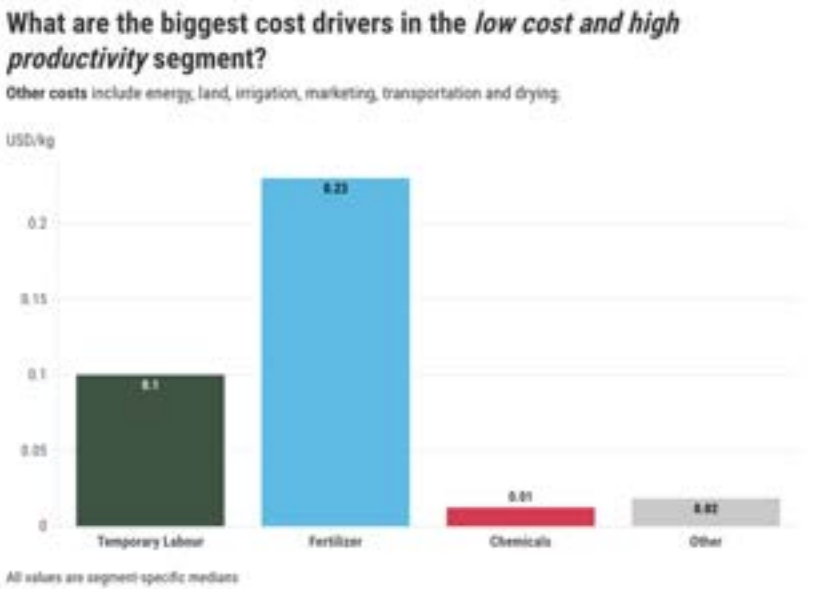


Figure 11: Comparison of cost drivers in segment "low cost and low productivity".

Farmgate LIP by CYE segments

Using these segmented groups, Farmgate LIPs were calculated for each farmer, revealing noteworthy trends. **Figure 12** presents Farmgate LIP values per CYE segment. In the most cost-efficient segment, the Farmgate LIP falls below the reported 2023 season price. However, for all other segments, the Farmgate LIP is higher than that price. Interestingly, farmers who exceed their regional productivity benchmark have a Farmgate LIP below the 2022 Fairtrade Living Income Reference Price, regardless of their cost segment.

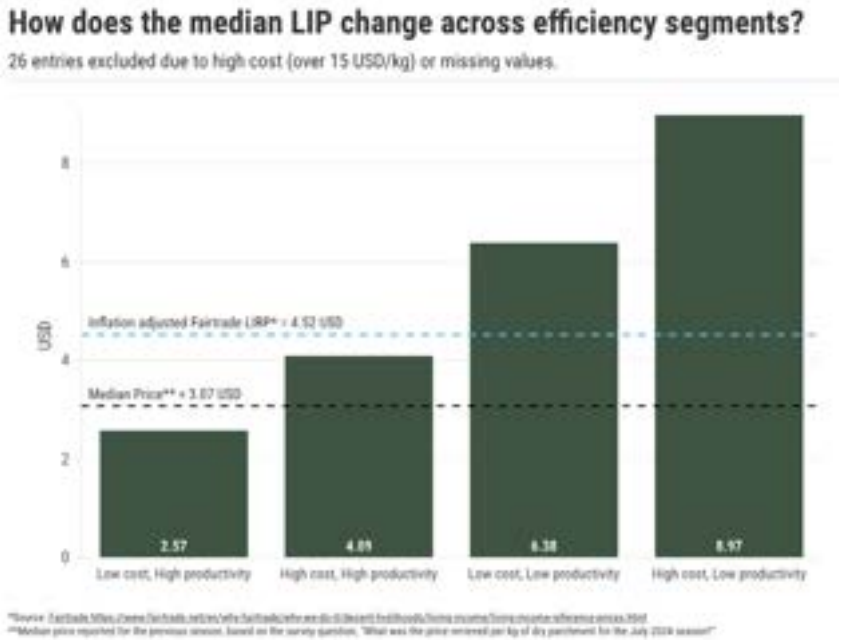


Figure 12: Comparison of the Farmgate LIPs across the Cost-Yield Efficiency (CYE) segments

Comparison of reported prices and Farmgate LIPs

Comparing the median reported price with each segment's Farmgate LIP underscores how critical productivity is to closing the price gap. Farmers in low-productivity segments tend to be further from reaching the Farmgate LIP than their higher-productivity counterparts, regardless of cost efficiency. The breakdown of share of farmers per segment already receiving the Farmgate LIP is shown in **Figure 13**.

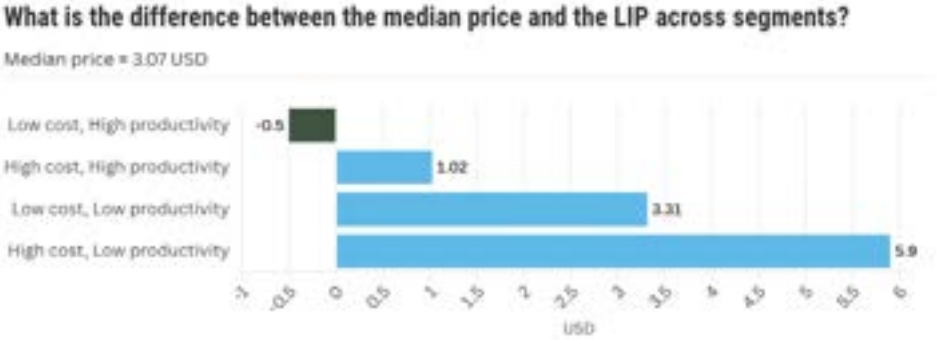


Figure 13: Difference between the median 2023 reported price and the segment-specific Farmgate LIP

Figure 14: Percentage of farmers per segment already receiving the Farmgate LIP

Annual living income gap analysis

The following section details an analysis of total household income, where current earnings from all sources was compared to required annual earnings to reach the Living Income Benchmark. In addition, a scenario was examined in which farmers receive the Farmgate LIP defined for their respective cost segments, provided the calculated Farmgate LIP exceeds the 2023 season price (e.g., $4/kg in the, “high cost, high productivity,” segment, as shown below:

1. **Current situation (Figure 15):** Farmers in lower-cost segments generally do not face an annual Living Income Gap, whereas, those in higher-cost segments exhibit a substantial gap, reflected by the need for Farmgate LIPs above prices received in the 2023 season.
2. **Farmgate LIP payment scenario (Figure 16):** Where farmers are paid a Farmgate LIP, the annual income gap is nearly eliminated across all segments, largely due to coffee being the primary income source for most farmers. Since the Farmgate LIP is designed around coffee’s share of total household income, meeting this benchmark enables farmers to achieve a living income.

While segment-specific Farmgate LIPs would more accurately reflect the diverse realities of farmers, this would come with the extra complexity of administering multiple price structures and the associated financial risks s. A single Farmgate LIP across all segments is therefore a more practical option. While setting a Farmgate LIP minimum may be feasible for higher-productivity segments, implementing a $8.97/kg minimum for the high-cost, low-productivity segment is especially unlikely, given the significant cost implications.

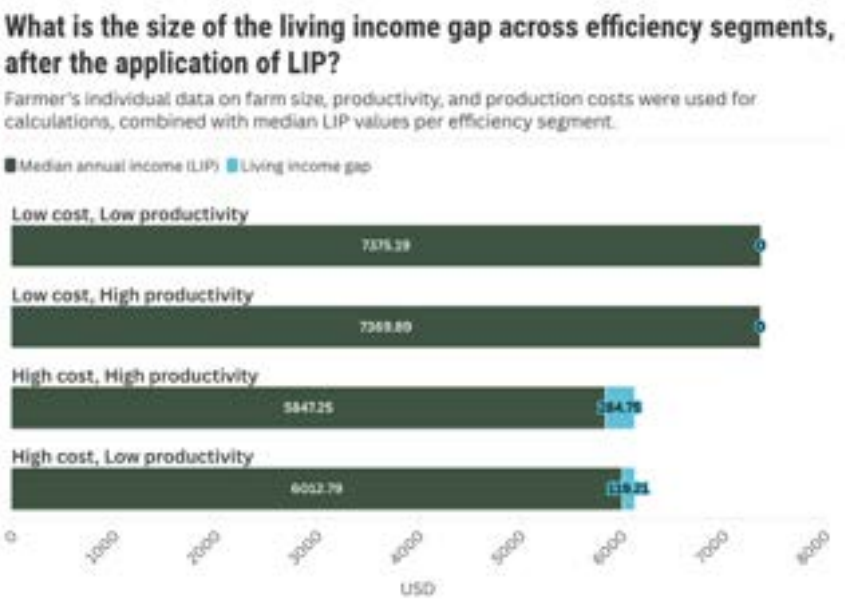


Figure 15: Comparison of annual income (based on reported price for the previous season– $3.07/kg dry parchment) and the annual LI Gap across segments

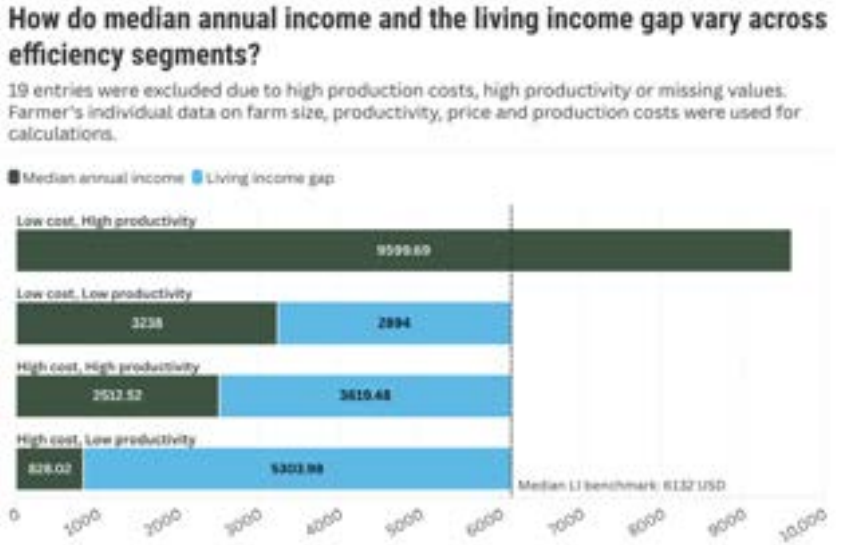


Figure 16: Comparison of annual income (based on median LIP) and the LI Gap across segments

Key findings:

1. **Farmers already at LIP:** Comparing each farmer's reported price from the previous season with the calculated Farmgate LIP revealed that approximately 26% of farmers already receive a Farmgate LIP price. In the Low Cost, High Productivity (LCHP) segment, the majority meet—or exceed—this threshold.
2. **High productivity advantage:** Farmers in high-productivity segments have Farmgate LIP requirements below the Fairtrade Living Income Reference Price, illustrating that greater productivity can significantly reduce the price gap.
3. **Cost-productivity imbalance:** In the High Cost, Low Productivity (HCLP) segment, farmers face disproportionately high fertiliser costs, yet the 56% decline in productivity is not proportional to fertiliser cost reductions, which decline by only 26%.
4. **Productivity's role in closing the gap:** The difference between the median reported price and each segment's Farmgate LIP highlights the critical impact of productivity. Low-productivity segments generally remain further from reaching the LIP than high-productivity groups, regardless of costs.
5. **Significant gap reduction:** In a scenario where farmers receive a segment-specific Farmgate LIP, the overall annual living income gap decreases by 96.58%.

3.4 Modeling interventions

Income diversification, productivity levels, and fertiliser and labor costs are key factors influencing Farmgate LIP outcomes across segments[7]. This section examines how targeted interventions can shift these variables, thereby affecting LIP values. By adjusting factors such as productivity or labor costs, the analysis identifies which interventions hold the greatest potential for improving farmer's financial positions–gaining deeper insights into potential intervention strategies.

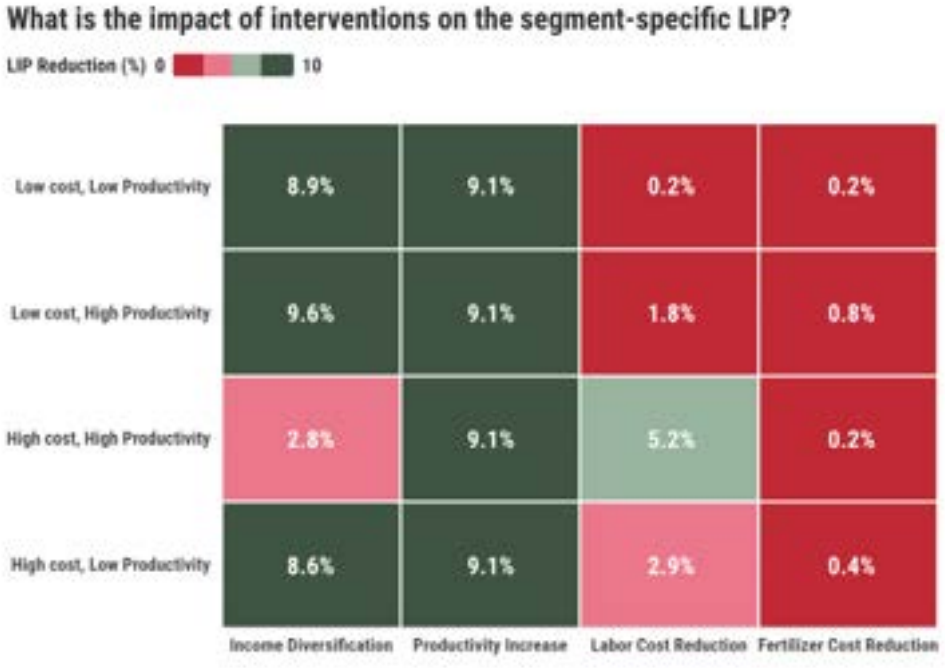


Figure 17: Comparison of modelled impact of interventions per segment.

7 Detailed graphs per segment showing break-even points for each intervention scenario are available in the appendix. These complement the heatmap by illustrating price or cost thresholds separately for each intervention.

High-cost, High-productivity (HCHP)

- Productivity increases have the largest impact, reducing LIP by 9.1%. The improvements in yields provide a significant enhancement to cost-efficiency.
- Labor cost reductions have the second largest impact, reducing LIP by 5.2%. Since temporary labor is the dominant cost driver, lowering it significantly reduces production costs.
- Increased diversification brings about a 2.8% reduction to the LIP by providing farmers with alternative income sources.
- Fertiliser cost reductions have the lowest impact (0.2%). Given the relatively small share of fertiliser in total costs, cutting these expenses has little effect.

High-cost, Low-productivity (HCLP)

- A 10% productivity increase (9.1%) and income diversification (8.6%) have the largest effects on the LIP. Given the segment's low productivity, even modest improvements in productivity yield strong financial gains.
- Labor cost reductions lower LIP by 2.9%. Since labor accounts for a significant share of costs, reductions improve profitability.
- Fertiliser cost reductions (0.4%) have minimal impact.

Low-cost, High-productivity (LCHP)

- Income diversification has the largest effect, reducing LIP by 9.6%. This segment benefits most from additional income streams, strengthening financial resilience.
- A 10% productivity increase follows closely with a 9.1% reduction. Even for already efficient farmers, further gains enhance financial stability.
- Labor and fertiliser cost reductions have minimal impact (1.8% and 0.8%). With already low costs, further reductions offer limited improvement.

Low-cost, Low-productivity (LCLP)

- A 10% productivity has the largest effect, reducing LIP by 9.1%. Improving yield is key for financial stability in this group.
- Income diversification follows with an 8.9% reduction. With low productivity and minimal costs, new income sources provide the most tangible financial benefit.
- Labor and fertiliser cost reductions have the lowest impact (0.2%). Given already minimal input spending, further cuts provide little benefit.

Volcafe Honduras is the oldest coffee exporter in the country and buys 90% of their coffee directly from producers.

4. Recommendations

This section outlines opportunities to advance a sustainability strategy anchored in the Farmgate LIP and CYE analyses. The first section focuses on both data collection methods and the specific variables that could strengthen current approaches and the second proposes targeted activities to address the distinct challenges and opportunities of each farmer segment. Developed collaboratively with Fairfood International, Heifer International, Akvo, and Volcafe Honduras, the guidance reflects a collective expertise that aligns with both local realities and overarching industry objectives.

4.1 Recommendations for further data analysis

As the preceding findings make clear, closing the living income gap and improving yield efficiency requires a nuanced understanding of the many variables shaping farmers' operations. Building on these insights, the following recommendations outline priority areas to refine data collection methods and enhance the analytical framework provided by the Farmgate LIP and CYE.

Future data collection should explore how **financing structures**, such as interest rates and collateral requirements, affect production costs. Greater **gender representation in sampling** is also needed to understand disparities in access to training, inputs, and labour. Additionally, more detailed data on **agronomic practices** like pruning, soil conditions, and shade management could help identify practical efficiency gains. Finally, accounting for **informal labour**, including unpaid family contributions, would offer a more complete picture of farm-level cost structures and resource use. Together, these insights would support more targeted and context-appropriate interventions for each farmer segment.

These gaps were anticipated, as this was the first application of the methodology. Based on experience, we are already refining the intake tools and optimising the scoping and sampling strategies for future rounds.

4.2 Interventions to reduce the Farmgate LIP gap

The modelling results presented in Section 3.4 provide clear guidance for prioritising interventions based on each farmer segment's characteristics. The most effective strategies vary across groups, depending on cost structures, productivity levels, and existing income diversification.

Several of the most promising interventions involve income diversification. These are summarised in **Figure 18**, along with practical examples already implemented by Volcafe Honduras and its partners. These cross-cutting strategies apply across segments but have varying degrees of relevance depending on land size, location, and resource access. In the sequence, we list the gender-specific challenges and recommendations that apply across all segments and are essential for ensuring inclusive and effective interventions.

High-cost, High-productivity (HCHP)

- **Productivity improvements reduce the LIP by 9.1%,** and are the most effective intervention in this segment
  - Despite the higher productivity levels of these producers, they are not meeting the levels of the demonstration plots managed through the Volcafé Way program. Volcafe Honduras offers support for farmers to adopt a specific tissue management system and pruning technique that is likely to further increase productivity levels. This could be further elaborated according to different factors from the farmers farm (hectares, plants, etc.) with extra support provided through Farmer Management Training.
  - Record keeping in Farm Notebooks usiness notebooks are used to systematically record key farm data, including costs, coffee quality, coffee sales, and other essential information. Adequate training and encouragement to the adoption of this practice are needed. By layering this data over recently identified farmers segments, new tailored evaluations aimed at reducing costs and improving productivity can take place. Maintaining these records encourages farmers to track their financial performance, providing valuable insights into their profit and loss for each harvest.
- **Labour cost reductions reduce the Farmgate LIP by 5.2%**.
  - Temporary labor is the dominant cost driver here. While mechanisation is impractical due to the region's steep terrain, labour efficiency can be improved by increasing tree spacing from 2m to 3m, which reduces the labour needed for input application. This option was leveraged by Volcafe Honduras before to increase the coffee tree spacing from the average 2m to 3m. As the spacing increases efficiency for applying inputs, less workers are needed to cover more space. This aligns with recommendations from the Volcafé Way program.
  - Farmer Management Training can also increase on-farm efficiency. The company can leverage existing initiatives, such as the recent introduction of Farm Notebooks for record keeping to help farmers to more efficiently monitor labor, as well as productivity, as discussed below.
- **Income diversification offers a 2.8% reduction**.
  - These strategies can enhance household income without reducing coffee productivity. See Figure 18 for strategies and real-world examples.
- **Fertiliser cost reductions have the lowest impact (0.2%).**
  - Given the relatively small share of fertiliser in total costs, cutting these expenses has little effect. Volcafe Honduras provides fertiliser to farmers through financing options. This mechanism is implemented once the farmer commits to a specific volume of coffee, which helps determine the amount of financing and fertiliser they will receive. The terms are structured with a fair interest rate, fostering a sustainable finance model that supports both the farmers and the partnership.

These cross-cutting strategies can support farmers in all segments, with varying degrees of impact based on land size, location, and resource access.

Strategy	Description	Considerations	Volcafe Honduras' examples
Agroforestry	Intercropping with trees (e.g. citrus, avocado, honey production) to improve shade, soil health, can provide secondary income from timber, fruit or by-products, while supporting biodiversity.	Training and initial setup is required, and Volcafe Honduras identified strong alignment with existing interventions. Success now depends on available land and ongoing support so that farmers can monetise alternative production.	Volcafe has been working with CATIE, a research and training institute specialising in sustainable agriculture and biological conservation, to replicate successful agroforestry approaches from other supply chains in Costa Rica and Peru. To date 1.5 million trees have been distributed to 3,000 farmers as part of a reforestation initiative now targeting 5 million trees. Honey production, for example, emerged as a complementary income opportunity. While many farmers grow fruit or forest trees (e.g. lemon, orange, avocado), income generation depends on producing at sufficient scale, and the research findings will now help guide next steps.
Ecotourism	Developing off-season revenue through activities like guided tours, farm stays, or tastings.	May be viable for farms with unique environmental features or proximity to tourism infrastructure. Not widely replicable across most Honduran farms. Many farms are located in remote rural areas with limited accessibility, making large-scale ecotourism initiatives more challenging to implement.	In the region of Lepaterique (Francisco Morazán), one farmer turned a natural water source on his property into a small-scale ecotourism site by building reservoirs and offering guided tours. While promising, such initiatives require good accessibility and may not be replicable in remote areas.
Youth Brigades	Organised youth groups that offer labour support and gain income or training.	Requires coordination and input support but offers productivity gains and rural youth engagement.	Volcafe Honduras has piloted a youth brigade model where young farmers travel between farms, supported by input providers and the company' technical guidance. Inputs are provided in kind, and participating farmers contribute labour. The model shows promise for boosting both productivity and rural employment.
Carbon Initiatives	Long-term potential through agroforestry or biochar for carbon removal.	Legal frameworks for voluntary carbon markets in Honduras are still developing, so such interventions are excluded from the primary recommendations until enabling conditions improve.	

Figure 18: Income diversification strategies

High-cost, Low-productivity (HCLP)

- **Productivity improvements reduce the LIP by a significant 9.1%.**
  - Given the segment's low productivity, even modest improvements yield strong financial gains. The most gain is expected in the organisation of GAP training on shade management, pruning, inputs applications and introduction to soil management practices, such as composting. In addition, farm renovations could increase productivity and yield in the long term, ensuring planting of resistant varieties and replacement of old trees giving low yields.
- **Income diversification causes an 8.6% reduction in the LIP.**
  - Farmers with low coffee yields require a larger LIP in order to cover the cost of decent living. Diversifying their income offers a viable option to decreasing the LIP which can be complementary to productivity increases.
- **Labor cost reductions (2.9%) and fertiliser cost reductions (0.4%) have minimal impact.**

Low-cost, High-productivity (LCHP)

- **Income diversification has the greatest impact in this group, reducing the LIP by 9.6%.**
  - These farmers are well-positioned to adopt complementary income sources without compromising coffee yields. Opportunities include agroforestry systems, beekeeping, and ecotourism where conditions allow. → Refer back to **Figure 18** for feasible options suited to this group.
- **Productivity improvements reduce the LIP by 9.1%, following closely.**
  - Even for already efficient farmers, refining practices—such as precision input use, business planning, and GAP training—are needed to increase profitability, and ensure financial stability. Further engagement with Volcafe Way protocols and record-keeping tools can help push performance closer to demonstration plot levels.
- **Labour and fertiliser cost reductions yield limited benefits (1.8% and 0.8%).**
  - This segment already operates efficiently, so further reductions are unlikely to be impactful unless supported by innovation or bundled services.

Low-cost, Low-productivity (LCLP)

- **Productivity improvements reduce the LIP by 9.1%.**
  - Improving yield is key for financial stability in this group, and affordable interventions are needed as new investment is a constraint. Basic input usage is already minimal, modest improvements in practices like pruning and soil management can unlock efficiency.
- **Income diversification follows closely, reducing the LIP by 8.9%.**
  - This segment has limited cost flexibility, so new income streams—such as intercropping, honey production, or small-scale ecotourism—can offer meaningful financial uplift. Yet, support is greatly needed. → Refer back to **Figure 18** for context-appropriate strategies.
- **Labor and fertiliser cost reductions have the lowest impact (0.2%).**
  - In this low-input context, additional cost-cutting offers minimal gains. Supportive services or subsidised input bundles may offer more promise.

Gender-specific challenges and recommendations

Despite not being a focus of the modelling, earlier findings revealed that **female farmers face disproportionately high Farmgate LIP values**, often due to lower productivity and limited access to critical services. These challenges are systemic, and addressing them is key to closing the income gap equitably. By integrating gender considerations from the outset, programmes can become more inclusive and impactful, helping to build equitable, resilient farming systems.

Key areas for action include:

- **Inclusive access to training and capacity building**
  Provide targeted training opportunities for women in farm management, quality control, financial literacy, and regenerative practices. Training delivery may need to be adapted to account for time, mobility, and caregiving constraints.
- **Labour and input support for women farmers**
  Investigate barriers faced by women in accessing seasonal labour or key inputs, and develop tailored service delivery models—potentially through cooperatives or local networks.
- **Support for women-led producer groups**
  Strengthen or co-develop women-led cooperatives or informal groups to improve access to credit, collective bargaining, and market visibility, while fostering leadership and autonomy.
- **Gender-responsive data collection**
  Future data collection rounds should go beyond proportional representation to capture women's distinct farming realities. Disaggregated data will enable more precise design and monitoring of interventions.

5. Conclusion

The findings from this case study highlight the potential of data-driven methodologies to reshape pricing mechanisms in a way that improves farmer livelihoods and consequently supply chain resilience. By calculating the minimum viable farmgate price needed for smallholder farmers to earn a living income, the LIP approach helps anchor pricing decisions in actual production realities. Meanwhile, the CYE methodology identifies operational inefficiencies and guides the design of targeted interventions to improve input use, boost productivity and reduce the LIP gap.

Although much was said about the importance of productivity improvements, this study reinforces that price plays a pivotal role in closing the living income gap. In the 2025 harvest - closest to the study's publication - high market prices enabled many farmers to achieve a living income. However, such favourable conditions may not persist; if prices fall next year, many farmers could again find themselves below the living income threshold. This highlights the importance of ensuring that internal support programmes, such as Volcafe Way, are not only positioned as yield-improvement initiatives but also as holistic approaches that, grounded in robust data, integrate productivity, market conditions, and farmer resilience. Equipped with the right information, all parties can better identify and monitor progress towards closing living income gaps over time.

This pilot was the first real-world application of the methodology. It served as an opportunity to explore what types of insights generate the most value for shaping interventions—whether by affirming existing priorities or revealing new needs across different farmer segments.

We often hear that "there's no silver bullet" for achieving living incomes. That's why segmentation is so powerful,it enables sustainability and procurement teams to go beyond averages and act with greater precision. The goal is to leave no farmer behind while optimising how current interventions are deployed. This supports proactive compliance and helps companies reduce dependency on national datasets or static benchmarks. But more importantly, it strengthens farmers' bargaining position, equipping them to show when sustainability is already happening and negotiate contracts based on that. Slowly moving to a scenario where all stakeholders understand that one-size-fits-all pricing, as well as GAP strategies, don't reflect reality.

Refinement of the methodology has already taken place, and the next phase will involve validating the findings in collaboration with stakeholders. This case study is an important milestone in Fairfood and Heifer's approach to achieving living incomes, in partnership with Volcafe Honduras. It demonstrates that meaningful stakeholder engagement must be grounded in farmer-level data, and monitor long-term impact from a household income perspective. This approach supports the financial stability and viability of coffee farming over time.

The broader implications extend to how supply chains operate at a global level. Reliable data not only enhance transparency and accountability but also enable more equitable value distribution among stakeholders, reducing vulnerabilities for smallholders and contributing to a more resilient supply chain. Aligning prices with farmers' real production challenges further supports international sustainability priorities, including the UN Sustainable Development Goals (SDGs). As scrutiny intensifies under directives like the Corporate Sustainability Due Diligence Directive (CSDDD), adopting methodologies such as LIP and CYE becomes a strategic imperative as much as an ethical one.

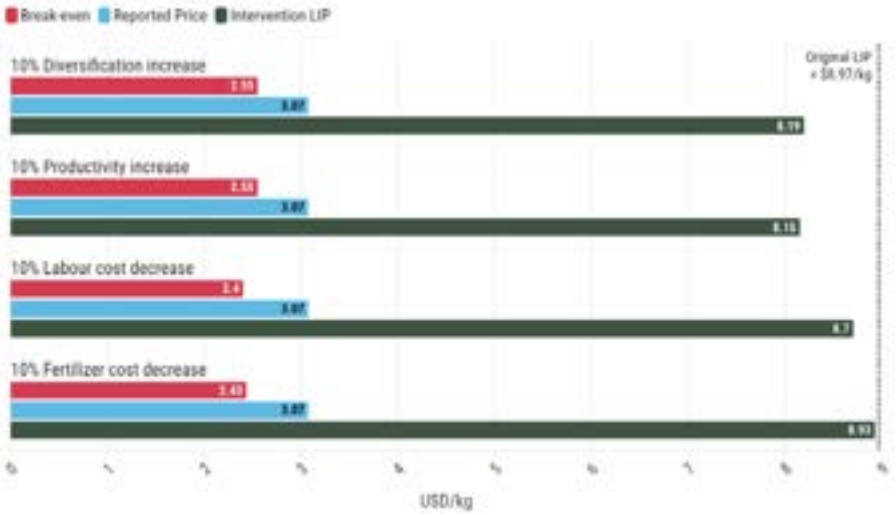
Ultimately, the results underscore an urgent need for collective, multi-stakeholder commitment to meaningful change. By incorporating LIP and CYE within procurement practices, supply chain actors can unlock the data and insights needed to close living income gaps and enhance efficiency. Realising these benefits at scale requires sustained collaboration, investment in data collection, and capacity-building to ensure widespread adoption.

Above all, fair pricing and inclusive approaches are essential for long-term viability and resilience, particularly when it comes to empowering marginalised groups such as women and youth. Achieving living incomes for smallholder farmers is more than a compliance target; it is a pivotal step toward a future where supply chains are truly transparent, resilient, and just.

Appendix *figure 19*

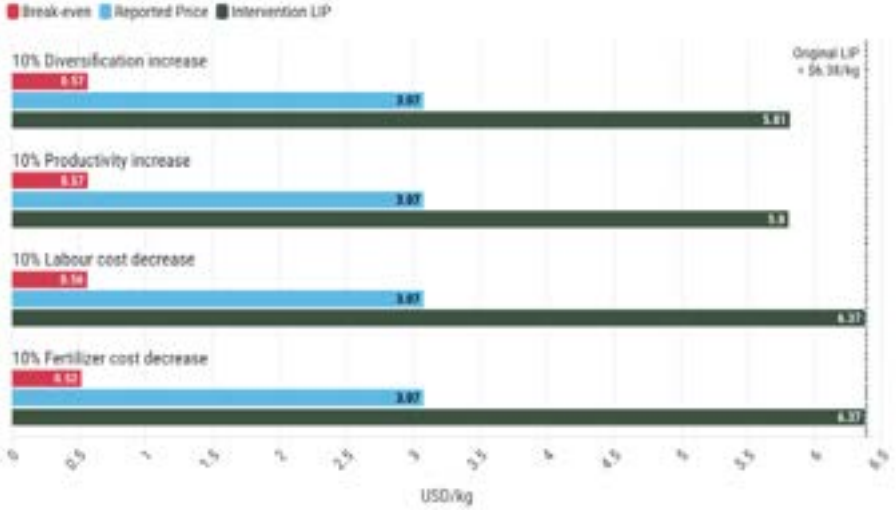
How do the break-even point, reported price and LIP for the *high cost and low productivity segment* compare across interventions?

26 entries were excluded due to high cost of production or missing values



How do the break-even point, reported price and LIP for the *low cost and low productivity segment* compare across interventions?

26 entries were excluded due to high cost of production or missing values



How do the break-even point, reported price and LIP for the *low cost and high productivity segment* compare across interventions?

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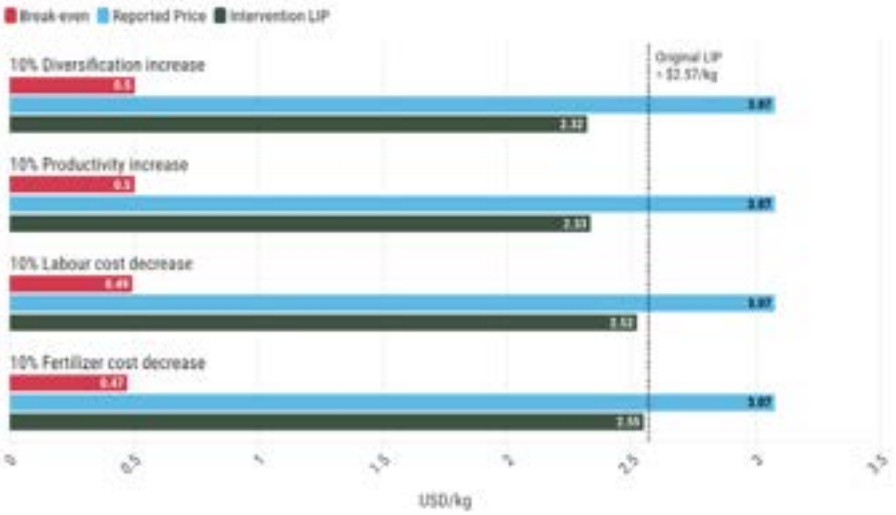

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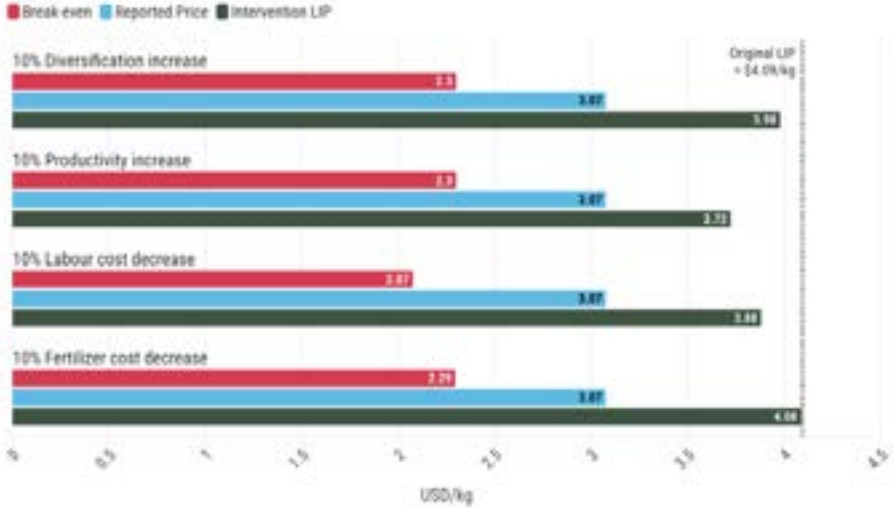
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