

COMMODITY LIVING INCOME STRATEGY

WHITE PAPER

A Data-Forward Living Income Strategy for Commodity Supply Chains
SUPPORTING FARMER LIVELIHOODS THROUGH HOLISTIC EFFICIENCY AND
INCOME INTERVENTIONS



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FAIRFOOD

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 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.

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- Heifer International
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DEFINITIONS

Cooperative price

The price for a product that covers the farmgate price of the cooperative members plus the costs of running the cooperative, including cost of processing, marketing and equipment depreciation.

Cost-Yield Efficiency (CYE)

A new complementary tool to LIP designed by Heifer International and Fairfood International, that evaluates and categorizes the efficiency of production and operational activities within commodity value chains. By considering both costs and yields, the CYE provides a nuanced assessment of efficiency levels among farmers and cooperatives.

Farmgate price

“The price for a product at the point in time in which a produce leaves the farm; hence not covering any costs beyond the farmgate, such as transportation or subsequent handling costs.” (FAO) ¹

Free on Board (FOB) price

“[the] Price that buyers pay to an exporter when the product is ready to be shipped out. That includes the price of the product itself, plus the logistics costs that the exporter incurs for transporting and preparing the product for shipment.” (Sustainable Harvest) ²

Living Income Benchmark

“The net annual income required for a household in a particular place to afford a decent standard of living for all members of that household. Elements of a decent standard of living include food, water, housing, education, healthcare, transport, clothing, and other essential needs including provision for unexpected events.” (Living Income Community of Practice) ³ Reliable sources of living income benchmarks include the Living Income Community of Practice, the Global Living Wage Coalition/Ankers Research Institute, the ALIGN tool, Heifer International, and NewForesight.

Living Income Price (LIP)

A new instrument designed by Heifer International and Fairfood International to provide a structured approach for calculating the price per unit of a commodity based on its true costs of production at various supply chain stages: farmgate, cooperative, and FOB.

Open-Source Toolkit

An upcoming collection of publicly available resources that support the data collection, analysis, and calculation of a Living Income Price (LIP) and Cost-Yield Efficiency (CYE) Analysis, in addition to a number of open-source software tools that enable data visualization, price verification at origin, and consumer storytelling related to these efforts.

1. FAQ [FAQ price and data analysis](#)

2. Sustainable Food Harvest (2021) [What is FOB pricing](#)

3. Living Income Community of Practice [Living income concept](#)

4. The LIP Toolkit is currently under development, see Section 5 for more details.

INTRODUCTION

In the contemporary agri-food sector, a profound challenge undermines the socio-economic stability of smallholder farmers globally: the pervasive inability to secure a living income.⁵ The primary obstacles to achieving this are multifaceted: limited arable land, suboptimal agricultural productivity, over-reliance on monocultural practices, constrained access to essential agricultural inputs, and weak integration with profitable market systems. Moreover, the inequitable distribution of value within agricultural supply chains exacerbates these issues, marginalizing farmers and curtailing their ability to influence market trends, which perpetually ensnares them below a living income threshold.

This White Paper outlines a data-first intervention strategy, designed by Heifer International and Fairfood International, aimed at achieving living incomes in commodity supply chains. It is founded on principles of fair value distribution, transparency, and data-driven decision-making. It advocates a two-pronged approach: first, assisting producers, organized producer groups (or “cooperatives”), and their supply chain partners in understanding their cost-efficiencies and living income gaps; second, leveraging this data to design holistic intervention strategies tailored to local sustainability needs. To implement this approach, Heifer International and Fairfood International have developed two key instruments: the Living Income Price (LIP) and Cost-Yield Efficiency (CYE) methodologies.

The Living Income Price (LIP)⁶ methodology is informed by the collective expertise and findings of the 2020 Verified Living Income White Paper and 2022 practitioner’s guide on How to Calculate Living Income Reference Prices of Agricultural Commodities.⁷ It offers a structured approach for calculating the price per unit of a commodity based on its actual costs of production across various supply chain stages. Moreover, it enables supply chain actors to implement pricing adjustments that align with the LIP-established price floor for already efficient production levels, identified by the CYE methodology.

The Cost-Yield Efficiency (CYE) methodology evaluates and categorizes producers’ efficiency by considering both their costs and yields. The CYE offers a nuanced assessment of efficiency levels among farmers and cooperatives. This analysis not only identifies areas for improvement but also provides a foundation for developing tailored intervention strategies that enhance overall productivity and sustainability, addressing the specific needs and challenges of each group.

By reconciling cost-yield efficiency disparities and transcending traditional market pricing structures, this White Paper advocates for a strategy designed to foster a more equitable and sustainable agri-food sector, wherein producers can secure a livelihood that affords them a decent standard of living. It is transparent, prioritizes the needs of farmers, and adheres to ethical economic practices, all grounded in the real-life situation of those who grow our food.

5. For an in-depth analysis of how poverty affects various commodities, including both upstream & downstream consequences and pinpointing inequitable value distribution as its root cause, please refer to one or more of the following recent publications: [Coffee Barometer 2023](#), [Cocoa Barometer 2022](#), [Palm Oil Barometer 2022](#).

6. Heifer International, Bellwether Coffee, Sustainable Harvest (2020). [Verified Living Income White Paper - Transforming Procurement for Improved Farmer Livelihoods](#)

7. Living Income Community of Practice, Fairtrade, GIZ (2022) [How to calculate \(Living income\) reference prices of agricultural commodities](#)

The following are the anticipated outcomes of this strategy:

The establishment of robust, mutually beneficial relationships throughout the supply chain, characterized by open dialogue and a comprehensive understanding of production costs.

The facilitation of access to more equitable pricing mechanisms that accurately reflect the intrinsic value of sustainably, efficiently, and ethically produced commodities

The empowerment of market actors to collaboratively invest in targeted efficiency and quality interventions, facilitated by improved access and utilization of detailed cost-yield efficiency data.

This strategy serves as a foundational step towards reimagining and actualizing a sustainable, equitable, and just agri-food system that genuinely supports the livelihoods of smallholder farmers.



1. BACKGROUND

1.1 The Living Income Challenge

The intersection of fair pricing and operational efficiency challenges underscores a nuanced, multifaceted dilemma within the agricultural sector, significantly affecting smallholder farmers. Operational inefficiencies—characterized by limited farm sizes, suboptimal yields, and restricted access to vital resources—amplify the vulnerability of smallholder farmers to the caprices of market volatility, thereby destabilizing their income streams. Concurrently, the agricultural industry's reliance on pricing models dictated by global commodity market fluctuations fails to adequately compensate for the actual costs and risks borne by farmers. This significant misalignment between market-determined prices and the realities of agricultural production not only jeopardizes the economic security of farmers but also poses a substantial risk to the sustainability of agriculture on a global scale. Without adequate income, farmers are unable to invest in essential areas such as climate-resilient practices, technological improvements, and soil health, further exacerbating their vulnerability and threatening long-term agricultural viability.

To secure sustainable living incomes for farmers, a dual-focused approach is essential: addressing structural inefficiencies inherent in production operations and rectifying prevailing market pricing mechanisms' shortcomings through interventions that are designed to increase the per-unit price of a commodity at farmgate.

By 2027, the European Union's Corporate Sustainability Due Diligence Directive (CSDDD) will mark a transformative moment for global supply chains, mandating higher standards of social responsibility for international commodity buyers. While concerns about potential market disruptions are merited, these regulations should be viewed as an opportunity to create a level playing field, where all producing countries benefit equally. Central to this transformation is the strategic use of data. Defensible, accurate data is essential for enhancing producer bargaining power, advocating for equitable value distribution along the supply chain, and ensuring transparency in decision-making processes for all stakeholders, including farmers. This transparency is vital not only for tailoring interventions that improve production efficiency, reduce costs, and increase yields but also for empowering producers to make informed decisions about their own production processes.

Addressing the living income challenge requires greater transparency and more data. Key questions must be answered: When should efficiency and quality interventions be prioritized? What do they entail? What is the minimum viable price for a commodity, and how is it determined?

This White Paper introduces the Living Income Price (LIP) and Cost-Yield Efficiency (CYE) methodologies, laying the groundwork for a forthcoming series of case studies. These case studies will examine the intervention strategies and data employed in collaborative efforts between NGOs, the public sector, and private supply chain stakeholders to achieve living incomes for producers in commodity supply chains. Additionally, it seeks to advance the dialogue on data-driven sustainable practices and uncover responsible pricing that reflects the realities of production on the ground.



1.2 Existing Pricing Initiatives for Living Income

Building on the foundational work of Fairtrade International, Heifer's Verified Living Income White Paper⁸, and True Price,⁹ Heifer International and Fairfood International are introducing the Living Income Price (LIP) methodology. This methodology employs a living income benchmark and agricultural metrics (yields, farm sizes, production costs) to calculate the minimum viable price floor for a commodity, offering a sustainable alternative to its market price, at the farmgate, cooperative, and exporter levels. Table 1 examines two other methodological approaches: Fairtrade International's Living Income Reference Price (LIRP) and True Price and the University of Wageningen's True Price. The Living Income Reference Price is summarised in a Practitioner's Guide¹⁰ endorsed by the Living Income Community of Practice (LICOP), and co-authored by representatives of both Fairtrade and GIZ. True Price offers several methodological documents, notably, the True Price Living Income Module,¹¹ and complementary modules for Natural Capital Assessment¹² (to measure and value the environmental impacts of agri-food products) and Human Capital Assessment¹³ (to measure and value the social impacts of agri-food products). All methodologies presented here can be used as an advocacy tool to used as an advocacy tool to elevate farmers out of poverty.

This section offers a high-level comparative review of these methodological approaches, highlighting areas of alignment, unique innovations, and complementarity in uses.

Table 1: High-Level Review of Methodologies by Heifer and Fairfood International, Fairtrade International, and True Price.

	Fairtrade's Living Income Reference Price (LIRP) (2019) ¹⁴	True Price Living Income Module, Natural Capital Module, Human Capital Module (2022) ^{15, 16, 17}	Heifer & Fairfood's Living Income Price (LIP) (2024)
Root Data	Calculations are based on a Sustainable Production System, establishing realistic target values attained when "good agricultural practices" are applied within a given context, using validated data of feasible yields and required implementation costs (model data) at farm, and where available, at FOB levels. ¹⁸	The True Price Living Income Module and Heifer and Fairfood Farmgate LIP are nearly identical, with slight calculation differences (see Key Parameters). True Price's Natural Capital and Human Capital Modules allow for calculations based on the sum of the market price (the price at which a product is offered) and the true price gap (the social and environmental costs caused by its production and consumption based on footprint indicator per product and a monetization factor).	Calculations are based on Prevailing Production System, described as "business as usual" using actual values (primary data) based on yields and costs data at farmgate, cooperative, and FOB levels.

8. Heifer International, Bellwether Coffee, Sustainable Harvest (2020). *Verified Living Income White Paper - Transforming Procurement for Improved Farmer Livelihoods*.
 9. van Veen, B., Galgani, P., BioNext, True Price, Wageningen University & Research (2022). *True pricing method for agri-food products*.
 10. Living Income Community of Practice, Fairtrade, GIZ (2022) *How to calculate (Living income) reference prices of agricultural commodities*
 11. van Veen, B., Galgani, P., BioNext, True Price, Wageningen University & Research (2022). *Living income- Impact-specific module for true price assessment - True pricing method for agri-food products*.
 12. True price (2024) *Natural Capital Modules for True Price Assessment*
 13. True price (2024) *Social and Human Capital Modules for True Price Assessment*
 14. Living Income Community of Practice, Fairtrade, GIZ (2022) *How to calculate (Living income) reference prices of agricultural commodities*
 15. van Veen, B., Galgani, P., BioNext, True Price, Wageningen University & Research (2022). *True pricing method for agri-food products*.
 16. True price (2024) *Natural Capital Modules for True Price Assessment*
 17. True price (2024) *Social and Human Capital Modules for True Price Assessment*
 18. This production scenario is applied in Fairtrade International's Living Income Reference Price (LIRP) methodology. This framework calculates prices based on a living income benchmark and attainable farming parameters, such as yields from sustainable practices and farm sizes that fully utilize household labor. Fairtrade (2024). *Living Income Reference Price*.

	Fairtrade’s Living Income Reference Price (LIRP) (2019)	True Price Living Income Module, Natural Capital Module, Human Capital Module (2022)	Heifer & Fairfood’s Living Income Price (LIP) (2024)
Unique Use Case	Establishing a standardized benchmark price for a typical farmer household in a given context to earn a living income, based on a viable farm size and sustainable productivity levels. Results can be used by Fairtrade to inform price setting, by cooperatives and businesses to negotiate sustainable prices, and to guide pricing policies that align with living income benchmarks across different regions and commodities.	The True Price Living Income Module can be used similarly to the Heifer and Fairfood Farmgate LIP. The Natural Capital and Human Capital Modules can provide transparency on external costs in the value chain. Results can be used for advocacy towards consumers or by businesses to inform their strategy on reduction or remediation of externalities, or the living income gap.	Providing transparency on actual production costs, yields and pricing gaps within a supply chain at farmgate, cooperative, and FOB levels. Results can be used by producers, cooperatives, and businesses to advocate for living income gap-reducing interventions along efficiency and productivity improvements and/or sustainable pricing that reflects actual costs assumed by producers in a given season plus a livelihoods margin.
Types of Approaches	One approach at multiple levels: a. Farmgate (country/ commodity benchmark) b. Free-On-Board (FOB)	One approach at farmgate level (individual and typical) specific to a given supply chain or country, considering multiple externalities: a. Human Capital externalities b. Natural Capital externalities	One approach at multiple levels: a. Farmgate (individual and typical, specific to a given supply chain) b. Cooperative c. Free-On-Board (FOB)
Key Parameters	<ol style="list-style-type: none"> (Living Income) Benchmark Cost of production (at farm and FOB levels) including cost of producer equipment depreciation Feasible Target Yield (calculated per unit area) Viable crop area or prorated area based on percentage of available household labour utilized in target crop 	<ol style="list-style-type: none"> (Living Income) Benchmark Cost of production (at farm level) Total Yield (calculated per unit area) Diversification Ratio <ul style="list-style-type: none"> Time Investment Revenue For Human Capital and Natural Capital modules: retail price plus social and environmental costs, inclusive of any income/ wage gaps 	<ol style="list-style-type: none"> (Living Income) Benchmark Cost of production (at farm, cooperative, and FOB levels) including cost of farm and cooperative equipment depreciation Total Yield (calculated per unit area) <ul style="list-style-type: none"> Total area used for growing primary commodity Diversification Ratio <ul style="list-style-type: none"> Revenue

Heifer International and Fairfood International’s Living Income Price (LIP) methodology is built on the foundational work of Heifer International’s 2020 Verified Living Income White Paper¹⁹ and the pricing initiatives discussed in the previous section. It shares similar principles with the mentioned approaches while introducing a subtle yet impactful element: Its scope is broadened to encompass multiple stages of the supply chain, notably including producer organizations (cooperatives).

This approach bolsters the sustainability and viability of cooperatives by enabling more comprehensive negotiations that factor their operational costs (Section 2.3) in FOB price negotiations (Section 2.4). This inclusion supports cooperatives’ capacity to manage their value-added services sustainably, which is crucial for the long-term formalization and sustainability of their supply chains.

19. Heifer International, Bellwether Coffee, Sustainable Harvest (2020). *Verified Living Income White Paper - Transforming Procurement for Improved Farmer Livelihoods*.

1.3 Why a New Approach to Pricing for Living Incomes

The Living Income Price (LIP) is specifically designed to provide insights into a specific supply chain, using actual (primary) data on yields and costs at producer, cooperative, and FOB levels. The LIP is not intended to be a benchmark. It does not establish a fixed price for a commodity in a given country. Instead, it functions as a dynamic price discovery methodology that answers the question: *What is the minimum viable price that needs to be paid for producers and cooperatives to continue to provide adequate supply to downstream actors? What is the price for breaking even and generating enough surplus for a decent living²⁰ or sustainable business operations, respectively?*

The addition of the Cost-Yield Efficiency (CYE) methodology introduces an additive, actionable layer of analysis. It offers a detailed understanding of the cost factors influencing the LIP within a given season. It helps answer critical questions such as: *What are the key drivers of the LIP price this season? What accounts for the differences in cost-to-yield ratios among farmers in various segments? and, Where should efforts to improve efficiencies end and improve pricing begin?*

The strategy presented within this White Paper encapsulates both the LIP and CYE methodologies, providing an approach to help supply chain stakeholders understand the productivity and efficiency aspects of pricing, and identify the necessary interventions to bridge living income gaps. It addresses the critical question: *Where is this supply chain currently, and how far do we need to go to achieve sustainability?* It promotes data-driven, defensible decision-making involving both efficiency and pricing interventions, strategically co-created with supply chain stakeholders, and, most crucially, with farmers themselves.

Moreover, a complementary Open-Source Toolkit is being designed to support collective action and facilitate the practical applications of both LIP and CYE methodologies. By providing producers, cooperatives, and supply chain partners with the necessary resources and knowledge, the toolkit enables effective implementation. It promotes broader adoption of data-driven discussions, programs, and advocacy efforts. This includes ensuring that the specific parameters used for each use case are accessible and that all tools developed to support LIP and CYE analyses are open source. The Toolkit answers the question: *How can I get started in my supply chain and share my Living Income journey?*



2. CALCULATING A LIVING INCOME PRICE (LIP) AT FARMGATE, COOPERATIVE, AND FOB

2.1 Introducing Living Income Pricing

The LIP methodology is designed to calculate living income prices at multiple points 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.

2.2 Farmgate Living Income Price Calculation

Farmgate Living Income Price (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. This can be distinguished between a LIP for an individual farmer and a typical farmer.

Calculating the Farmgate LIP for an **individual farmer**, reflective of the unique production realities of their farm, serves several key functions:

- It enables farmers to assess their production costs against the price per unit required to secure a living income from their primary commodity. For instance, “Given my current costs, I require \$x per kilogram to support my household.”
- It allows farmers to compare their costs per unit of commodity with those of a typical farmer (see below), fostering insights such as, “My costs/price per unit are below, similar to, or above that of the typical farmer.” This comparison can prompt behavioral changes and encourage the adoption of new technologies or agricultural practices that improve production efficiencies.
- It provides cooperatives and downstream actors who purchase directly from farmers with valuable insights into how individual farm-level indicators, such as yield and production costs, influence the farmgate price necessary for each farmer to earn a living income from the commodity.

Calculating a LIP for a typical farmer involves estimating the mean and median Farmgate LIP. Section 3.1 provides further insight into mean and median values. The typical farmer calculation serves several key functions:

- It enables cooperatives to ascertain the farmgate price per unit that a typical cooperative member needs to earn a living income from their primary commodity. This helps align the cooperative’s pricing and intervention strategies with the economic realities of its members, where sustainable.
- It provides downstream actors, who engage in direct transactions with a defined group of farmers or cooperatives, with valuable insights into the farmgate price per unit necessary for a typical farmer within their supply chain to secure a living income from the commodity.
- It assists cooperatives and downstream actors in comparing the typical LIP within a given supply chain to current market prices, national averages, or other recognized living income reference prices, such as Fairtrade’s Living Income Reference Price (LIRP).

To calculate a Farmgate LIP, the following formula is applied:

Equation 1. Formula to calculate a Farmgate LIP for an individual or typical farmer. In the formula, f1 = farm depreciation cost.

The formula relies on the following components:

- Living Income Benchmark** It is recommended to use the most contextually specific benchmark available. For resources on Living Income Benchmarks, please consult the Living Income Community of Practice’s Guidance manual on calculating and visualizing income gap to a Living Income Benchmark.²¹ Heifer International also provides public Living Income Benchmarks for select countries.²² When applying a Living Income Benchmark it is recommended to make the following adjustments:
 - Adjust for household size: The living income benchmark is calculated based on a specific household size, necessitating adjustment to match the individual, mean or median household sizes in the calculation of the farmgate LIP.
 - Adjust for potential inflation: Adjust the living income benchmark for inflation using the Consumer Price Index (CPI) data for the relevant country and month. This ensures the benchmark reflects the value during the farming production data period, allowing for accurate comparison and analysis. Calculate the inflation rate between the benchmark and target periods with the formula:

$$\text{Inflation rate} = \frac{(\text{CPI period data was collected} - \text{CPI benchmark year})}{\text{CPI benchmark year}} \times 100$$

- Diversification ratio:** The diversification ratio measures how a household’s income is distributed across various sources, including non-farming activities. This measure is crucial because the living income gap associated with a specific product represents only a portion of the household’s overall financial picture. Income from the primary commodity alone does not need to cover all living expenses, as other economic activities can supplement household income. The diversification ratio is applied to accurately account for this additional income.

Various methods are available for determining how much of the living income gap should be attributed to a primary commodity. The most accurate approaches would involve time-based allocation, which measures the proportion of time invested by the household member in each income source, or net income-based methods, which assess net income contributions from each source. However, from our own experience, as well as in line with the reflections provided by the True Price method,²³ we have found that labor-based and net income-based methods are particularly challenging to measure due to data constraints and the complexity of accurate assessment.

Therefore, we recommend using a revenue-based allocation approach. While it may not offer the same level of precision

21. The Committee on Sustainability Assessment (COISA) and KIT Royal Tropical Institute (2020) *Guidance manual on calculating and visualizing income gap to a Living Income Benchmark*

22. To explore Heifer’s work on living incomes, visit: heifer.org

23. True price *True Price Assessment Method for Agri-Food Products* (2022)

as the labor or net income methods, it is more practical and feasible. Revenue-based allocation is easier to estimate and for triangulation through various approaches. This method provides a more accessible solution for estimating the contribution of the primary commodity to the overall household income.

$$\text{Diversification ratio (revenue)} = \frac{\text{Household income coming from primary commodity}}{\text{Total household revenues}}$$

Considering that the diversification ratio significantly impacts the calculation of the Farmgate LIP, it is important to complete a parameter screening. This means checking the data for outliers that could disturb the calculation of the diversification ratio. Parameter screenings are explained in more detail in Section 3.5.

- **Production costs:** Production costs encompass the actual expenses incurred by an individual farmer to produce the primary commodity. These costs include payments for hired labor, purchases of inputs like fertilizer and crop protection, and the costs associated with renting or purchasing equipment. For a detailed breakdown of these production cost categories, refer to Section 3.3, which provides a specific example from coffee in Honduras. This example was developed in collaboration with local producers and expert agronomists.
- **Farm depreciation cost (f1):** Farm depreciation costs represent the average annual expense of establishing a farm over its expected productive lifespan. These costs should only be considered for farmers who own their land. 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,²⁴ suggested a lifespan of 20-35 years. However, after detailed consultations with local experts from Heifer International and IHCAFE,²⁵ it was concluded that a more realistic average lifespan is 15 years.
- **Yield:** Yield refers to the commodity amount harvested per unit of land area, typically measured in pounds, kilograms, or quintal per acre or hectare.
- **Productive farm size:** Productive farm size is the land area available for cultivating the primary crop.

2.3 Cooperative Living Income Price Calculation

The **Cooperative Living Income Price (Cooperative LIP)** is defined as the price paid for a commodity that adequately covers both the Farmgate LIP for cooperative members and the operational costs associated with cooperative activities and processing capabilities.

The Cooperative LIP calculation serves the following functions:

- It enables cooperatives to negotiate fair terms and prices with exporters, ensuring that the benefits or fair share of the FOB price are distributed equitably, ultimately securing a living income for farming households while also supporting sustainable business operations.
- It provides cooperatives, who purchase directly from farmers, with valuable insights into the individual factors—such as yields and production costs— that affect the farmgate price required for each farmer to earn a living income from the commodity.

24. Maximizando Oportunidades en Café y Cacao en las Américas (MOCCA) (2021) *Manual de recomendaciones Renovación y Rehabilitación para un café rentable*

25. To learn more about IHCAFE work visit: ihcafe.hn

To establish a LIP at the cooperative level, the following formula is applied:

$$\text{Cooperative LIP} = \left(\text{Farmgate LIP}_{(\text{mean / median})} \times p1 \right) + \left(\frac{\text{Cooperative cost} + f2}{\text{Total production}} \right)$$

Equation 2. Formula to calculate a living income price at a cooperative level. In the formula, p1 = commodity weight conversion factor (as applicable per commodity type), f2= equipment depreciation costs

The formula relies on the following components:

- **Farmgate LIP (mean or median):** The Farmgate LIP (mean or median) represents the LIP value for a typical farmer in a specific location and time, as previously calculated. Refer to Section 3.6 for further insight on mean and median values.
- **Commodity weight conversion factor (p1):** The commodity weight conversion factor is a numerical value used to convert the weight of a commodity from one state to another, like from wet to dry or from dry to another form. If the weight of the commodity remains unchanged, the conversion factor will be equal to 1. These conversion factors are commonly used in agriculture, food processing, and manufacturing, where commodities undergo changes in moisture content or state during processing or storage.
- **Cooperative costs:** Cooperative costs encompass the expenses associated with handling, processing, and selling the primary commodity by the cooperative, alongside relevant administrative expenses. For a detailed breakdown of these cooperative cost categories, refer to Section 3.3, which provides a specific example from coffee in Honduras. This example was developed in collaboration with local cooperatives and expert agronomists.
- **Equipment depreciation costs (f2):** Equipment depreciation costs refer to the reduction in equipment value over time due to factors like wear, obsolescence, and age. To estimate equipment depreciation costs, the following formula is used:

$$\text{Equipment depreciation cost} = \frac{(\text{Initial cost} - \text{End of life value})}{\text{Lifespan}}$$

‘Initial cost’ refers to the purchase price of the equipment. ‘End-of-life value’ refers to the estimated resale value of the equipment at the end of its useful life. ‘Lifespan’ refers to the expected number of years the equipment will remain operational.

- **Total production:** Total production refers to the amount of output (processed commodity) obtained by the cooperative from the cumulative production of all members of the cooperative combined during a specific period, typically a harvest season.

2.4 FOB Living Income Price Calculation

FOB Living Income Price (FOB LIP) defines the price an exporter sets for a commodity when selling to an importing entity, encompassing all costs incurred up to the point of shipment. For producers and cooperatives, a pivotal aspect is the price that exporters commit to paying for their commodity. This pricing dynamic does not typically involve FOB terminology for producers, as their involvement does not extend to shipping logistics. Nevertheless, the negotiation terms and pricing between producers and exporters are shaped by the anticipated FOB prices in international markets. Essentially, FOB price negotiations mainly occur between exporters and buyers in destination markets, yet these discussions have a ripple effect, influencing the financial returns to producers at the start of the supply chain. The overarching objective is to align the FOB price with the principle of fair and equitable income distribution throughout the supply chain.

The purpose of establishing an FOB LIP encompasses two main objectives:

- It empowers cooperatives that engage in direct exports to negotiate with importers effectively. This negotiation ensures they can afford to meet the Farmgate LIP for their members while covering value-added services (such as processing), and their operational costs.
- It is designed to help exporters secure a price from importers that enables the payment of a Living Income Price at both Farmgate and Cooperative levels, promoting a model of more equitable value distribution throughout the supply chain.

The following approaches have been identified to estimate an FOB LIP.

Use a ratio to extrapolate FOB LIP from Farmgate LIP: this method employs historical or secondary data to establish a ratio for calculating the FOB LIP from the Farmgate LIP. For instance, if historical data indicates that FOB prices are, on average, 20% higher than farmgate prices, a ratio of 1.2 will be used to estimate the FOB LIP from the Farmgate LIP.

$$\text{FOB LIP} = \text{Farmgate LIP (mean / median)} \times p2 \times \text{FOB/Farmgate ratio}$$

Equation 3. Formula to calculate the FOB LIP for direct purchasing from producers, using the ratio method. In the formula, p2 = product weight conversion factor (as applicable per commodity).

Calculate actual exporter costs per unit: this approach entails working directly with exporters to determine the average costs associated with exporting each unit of the focus commodity. It is recommended that all available actual costs be aggregated and that costs be estimated where there are data gaps.

The following formulas are distinguished between producer-level and cooperative-level transactions:

$$\text{FOB LIP} = \text{Farmgate} \times p2 + \text{Export cost}$$

Equation 4. Formula to calculate the FOBLIP for direct purchasing from producers using the estimation or actual method. In the formula, p2 = product weight conversion factor (as applicable per commodity).

$$\text{FOB LIP} = \text{Cooperative LIP} \times p2 + \text{Export cost}$$

Equation 5. Formula to calculate the FOBLIP for direct purchasing from cooperatives using the estimation or actual method. In the formula, p2 = product weight conversion factor (as applicable per commodity).

Where possible, it is recommended to use the actual cost approach to establish the FOB LIP for both producer-level and cooperative-level transactions. The ratio approach can be effective when export cost data is limited and farmgate prices are relatively stable or regulated. However, its accuracy diminishes in contexts with significant fluctuations in farmgate prices, as the applied ratio may not accurately reflect the actual costs and margins required to move the commodity from farmgate to FOB status amid high volatility. Additionally, this method is not recommended for transactions involving cooperatives that process the commodity before to sale, as a farmgate-based ratio fails to account for the cooperative's processing value.

The formula relies on the following components:

- **Farmgate LIP (mean or median):** The Farmgate LIP (mean or median) represents the LIP value for a typical farmer, as previously calculated. Refer to Section 3.6 for further insight on mean and median values.
- **Product Weight Conversion Factor (p2):** Product weight conversion factor is a numerical value used to convert a product's weight from one state to another. For example, coffee conversions from dry parchment to exportable green. If the product's weight remains unchanged, the conversion factor will be equal to 1.
- **Export Costs (actual or estimated):** this is the aggregated costs per unit necessary for exporting the commodity, including handling, transportation, and all other associated expenses up to the point of into the shipping container.



3. BEST PRACTICES FOR DATA COLLECTION, CALCULATION, AND REPORTING

Several best practices should be consistently applied at various stages of calculating the LIPs described above, including the data collection process, data cleaning, and when reporting results.

3.1 Data Collection: Selection of the Production Scenario

The process of estimating a LIP requires the definition of a production scenario, which determines the source of data you feed into the calculation. This entails specifying the scope and assumptions related to the production conditions. Following the categorization outlined within LICOP's Practitioner's Guide,²⁶ the following three main types of production scenarios can be considered:

- **Prevailing production system:** is based on current farming conditions and utilizes actual yields, production costs, and farm sizes derived from a substantial sample of farmers. It relies on both primary data collected directly from farmers and secondary data from existing sources.
- **Improved production system:** This scenario utilizes data from the most profitable group of farmers. It draws upon primary data gathered from top-performing farmers and secondary data from various sources to identify best practices and optimal performance benchmarks.
- **Model production system:** This scenario is based on validated data representing attainable yields, production costs, and farm sizes. It utilizes model data derived from research and analysis to establish realistic and achievable parameters for farming operations.

The production scenario directly impacts assumptions about yields, diversification ratios, production costs, and farm sizes, all of which influence price calculations. The LIP methodology outlined in this White Paper is carefully designed to be grounded in the prevailing production system, utilizing primary data collected from farmers and, where necessary, supplemented by secondary data from existing sources. This approach ensures that the LIP accurately reflects the actual costs of production within a given season and determines the price per unit required for farmers to maintain a decent living based on their real-life experience.

3.2 Data Collection: Sample Selection

Various methods exist for calculating sample size, and this methodology employs a statistical formula that considers factors like the total population size, desired confidence level, margin of error, and the expected variability within the population. Targeting a 95% confidence level with a margin of error ranging from 5% to 7.5% is recommended.

3.3 Data Collection: Production and Cooperative Costs

Production costs refer to the expenses a farmer incurs to produce the primary commodity. These include payments for hired labor, costs of inputs such as fertilizer and crop protection, and expenses related to renting or maintaining equipment. These costs are typically gathered through primary data collection methods, such as surveys. Cooperative costs cover the expenses related to the handling, processing, and selling of the primary commodity by the cooperative, in addition to the necessary administrative expenses. These costs are typically gathered through primary data collection methods or by extracting data from information management software, if available.

Collaborating with local producers, cooperatives, agronomists, and partners is crucial to accurately define and calculate these costs. Table 3 and Table 4 below present a detailed example for coffee in Honduras. This example was produced through a collaborative effort involving local producers and experts.

Table 3: Example of Production Costs for a Single Coffee Farm

Category	Description
Inputs	Seeds and seedlings
	Fertilizers (organic and chemical)
	Pesticides (Insecticides and fungicides)
	Water for irrigation
Equipment	Backpack sprayer
	Hoe
	Machete
	Axe
	Farm machinery
	Scales
	Pruning shears
	Rake
	Shovel
	Pickaxe
	Bags
	Coffee baskets
	Chain saw
	Cherry hoppers
	Manual bander
	Depulper
	Fermentation tanks
Dryers	
Labor Activities	Land preparation
	Planting
	Crop maintenance (weed control, shade control, crop renewal)
	Pruning
	Irrigation and water management
	Fertilizer application
	Nursery management
	Pest and disease management
	Harvesting
	Post-harvest processing
	Quality control and grading (as applicable)
	Storage and transportation
	Transport to get inputs
	Transport to deliver coffee
	Energy, Electricity and/or fuel
	Storage
	Interest on agricultural loans (as applicable)
Administrative	Cooperative membership fee

Table 4: Example of Operational Costs for a Coffee Cooperative

Category	Description
Operational costs	Rent, purchase cost or other cost for administrative and operational offices
	Laptops, cell phones
	Rakes and carts
	Water
	Light
	Internet
	Operation permit
	Office supplies
	Communication
	Land and air travel tickets
	Export expenses (i.e. logistics, certificates, etc)
	Licensing, Insurance, and Others
Equipment	Purchased equipment for coffee processing (from coffee storage to drying)
	Purchased equipment for coffee dry milling
	Purchased equipment for coffee roasting
	Purchased equipment for sealing roasted coffee bags
	Materials for store parchment coffee
	Materials for store green coffee beans
	Materials for store roasted coffee
	Purchased spare parts
	Purchased equipment and materials for coffee cupping laboratory
	Rental equipment
	Maintenance of equipment
	Contracted service for coffee dry milling to an external coffee mill company
	Depreciation of equipment
Transportation	Contracted service for coffee transportation (i.e. trucks)
	Fuel of vehicles of cooperative
	Purchase or rent of vehicles of cooperative
	Maintenance of vehicles of cooperative (i.e. Spare and parts, repair of vehicles)
Labour	Costs for permanent staff
	Costs for temporary staff
	Other contracted services
	Per diems for staff (transportation, food, accommodation)
	Training for staff
Certifications and verification fees	Certifications
	Field inspections
Financial services	Taxes paid
	Loan interests
	Audit
	Banking commissions and maintenance fees

While it's not feasible to skip primary data collection where data are scarce, as more data becomes available over time, it is possible to assume certain production and cooperative costs that show little variation. This approach allows for reduced reliance on continuous primary data collection, resulting in more efficient and cost-effective LIP calculations.

3.4 Data Collection: Farmer-Centric Data Governance

Farmer-centric data governance is crucial in ensuring that the agricultural community remains at the forefront of decisions regarding their data. Farmers should be empowered through genuine informed consent, where they are fully educated on how their data will be used, who will have access to it, the benefits they can expect, and their ability to withdraw their data at any time. Additionally, it is vital to allow farmers to opt-out, respecting their autonomy and the sensitivity of the information they share. A core tenet of this governance model is ensuring that farmers can easily access and retrieve their own data. This not only builds trust but also enhances transparency, enabling farmers to leverage their data to make better-informed decisions, optimize their practices, and ultimately drive innovation and efficiency in their operations. Such governance frameworks help balance power dynamics in the agricultural data ecosystem, protecting farmers from potential exploitation and contributing to more equitable and sustainable agricultural practices.

3.5 Calculation and Reporting: Outlier Detection and Data Cleaning

To accurately calculate a LIP, a three-step process is recommended to handle data points that significantly differ from the mean or median, potentially distorting calculations:

- Step 1 involves collaborating with local data collectors to identify and correct obvious mistakes, such as typos or inconsistencies in the data. This first step ensures the integrity of the dataset by refining data entries without removing any, preparing it for further calculations.
- Step 2 involves establishing context-specific criteria for acceptable ranges for key variables like farm size, yield, and the proportion of income from the primary commodity. This is achieved through collaboration with local cooperatives, farmers, and other representatives who help define these criteria, including setting ranges. Entries outside these established ranges are then removed from the dataset, ensuring the data accurately reflects the local agricultural context and remains relevant and precise for the LIP calculation. The following minimum parameters are recommended for identifying and managing data points outside these ranges:

Table 5: Description of Parameter Screening Elements

Parameter	Parameter description
Productive farm size	Define a range of productive farm sizes for the primary commodity with specified lower and upper range cutoffs.
Yield	Define a yield range based on local production data to determine a yield range that reflects the actual productivity in the area.
Commodity concentration	The target commodity should be a primary source of income or employment for the farming household, representing the majority (more than 50%) of the livelihood dependence.

If outliers persist after Steps 1 and 2, indicating that some variables still contain odd values, it's advisable to employ a standard procedure for further outlier detection:

- Step 3 (optional) involves applying a statistical method to further refine the dataset by identifying and addressing any remaining outliers. This involves using the three standard deviations rule, where data points lying beyond three standard deviations from the mean are considered outliers and marked as missing (NA). This final adjustment ensures that the dataset represents a normal distribution of the selected variables, eliminating extreme variations that could bias the LIP calculations.

3.6 Calculation and Reporting: Mean and Median Values

Estimating both the mean and median values for the Farmgate LIP is recommended. Reporting mean and median values in data analysis provides a comprehensive understanding of the central tendency and distribution of data. The mean reflects the average, while the median represents the middle value. Comparing them helps detect asymmetries, evaluate outliers, and interpret data dispersion. This approach improves transparency and allows stakeholders to make informed decisions based on a deeper understanding of the dataset. In the case of the Farmgate LIP, if the mean and median are quite different, the median LIP is considered more representative of the typical farming household because it is less affected by extreme values.

3.7 Calculation and Reporting: Final Sample Selection and Disaggregation Variables

This step complements the sample selection process described in Section 3.2, offering an opportunity to further refine the sample selection for the Farmgate LIP calculation. It may be beneficial to group farmers by key variables, such as gender, education levels, or other relevant criteria identified in collaboration with local partners. One approach, advocated by the True Price Methodology,²⁸ is to base calculations solely on farmers who are not yet earning a living income.

3.8 Calculation and Reporting: Time Frame Consistency

It is important to ensure that both the living income benchmark and the actual farming production data are aligned to the same period for accurate comparisons and analysis. For example, when the living income benchmark is set for a yearly period, the farming production costs should similarly reflect annual data to maintain consistency in the calculations.

27. Investopedia (2022) *Three Sigma Limits Statistical Calculation, with an Example*

28. Van Veen, B., Galgani, P., BioNext, True Price, Wageningen University & Research (2022). *True pricing method for agri-food products.*

4. PREVIEW OF THE COST–YIELD EFFICIENCY (CYE) METHODOLOGY

The Cost-Yield Efficiency (CYE) methodology comprehensively analyses costs and yields within a specific supply chain. It enables stakeholders to assess performance in relation to peers and how variations in performance influence LIP calculations. This nuanced approach provides deeper insights into the interplay between efficiencies and price, enabling more targeted strategies.

Providing an example at the Farmgate level, the analysis would begin by calculating the cost per unit of production, establishing a baseline for comparing efficiency across farmers. Understanding the drivers of production costs and yields is crucial, as higher yields and lower production costs generally contribute to a lower Farmgate LIP. Key cost drivers often include labor, fertilizer, and other inputs. Identifying challenges farmers face in managing these costs and improving yields is essential for designing effective support strategies.

After analysing these factors, farmers are segmented based on their cost-yield ratios. Categorizing farmers into different efficiency groups allows for a comparative calculation of the Farmgate LIP for each segment. This segmentation reveals how various groups impact the overall Farmgate LIP. Farmers with higher costs relative to their yields may elevate the mean or median Farmgate LIP, potentially making it less accessible for other groups. In contrast, more efficient farmers might require a lower Farmgate LIP, providing a more nuanced view of pricing needs.

The CYE methodology is being developed in close collaboration with supply chain partners, using real data from case studies. This collaborative approach ensures that practical insights and technical details from real-world testing are incorporated. Following the publication of this White Paper, an addendum will be released to provide a deeper exploration of the CYE methodology. This addendum will include suggested assessment indicators, guidance on segmentation methods, and detailed instructions for conducting cluster analysis and applying various statistical techniques.

5. PREVIEW OF THE OPEN-SOURCE TOOLKIT

To encourage broader adoption of the LIP and CYE methodologies across supply chains, a complementary Open-Source Toolkit is being developed. This toolkit is designed to be user-friendly, immediately valuable, and easily accessible, enabling producers, cooperatives, and supply chain partners to effectively implement these methodologies.

The toolkit addresses the question: How can stakeholders implement these methodologies within their supply chains and contribute to the broader Living Income movement?

This section provides a preview of the toolkit, outlining its intended resources to facilitate the practical application of the LIP and CYE methodologies and to promote more equitable and sustainable commodity value chains.

5.1 Resources in Support of the Living Income Price and Cost-Yield Efficiency Analysis

- Data sharing and informed farmer consent contract templates
- Commodity-specific cost of production data collection surveys,
- Commodity-specific cost of operation data collection survey at cooperative level
- Guidelines to contextualize cost of production and sample selection parameters
- Living Income Price calculator and analysis tool
- Cost-Yield Efficiency analysis tool

5.2 Complementary Open-Source Traceability Tooling

- Living Income Price and Cost-Yield Efficiency dashboard
- Price verification tool for first-mile price data collection
- API suite for interoperability with existing systems



6. CALL TO ACTION

This initiative by Heifer International and Fairfood International aims to transform how we think about commodity pricing. Our goal? To democratize access to methodologies and tooling that enable broader adoption of fairer pricing strategies and data-informed sustainability interventions. We're doing this through the development of open-source methodologies and accompanying software tools that help **identify Cost-Yield Efficiency (CYE) gaps** and **calculate a Living Income Price (LIP) for any commodity**, tailored to the actual conditions of producers worldwide.

Our commitment extends beyond creating tools; it's about fostering a community of informed stakeholders. This strategy is designed to improve dialogue among all parties in the supply chain—from farmers to retailers—enhancing understanding of actual production costs, the potential (and limitations) for efficiency gains, and the crucial moments when price adjustments are essential to genuinely benefit producer livelihoods. By closely collaborating with all supply chain stakeholders, including producers and cooperatives, and by empowering them with data, we aim to make discussions more inclusive, **treating all partners equally**.

Moreover, this strategy is based on the principle of using **data** to inspire **defensible decisions** around sustainable interventions. It equips us to engage in critical discussions about situations where neither efficiency improvements nor pricing interventions alone can lift a producer to a sustainable living income. The data gathered will help design targeted interventions where they are most needed and explore additional areas, such as income diversification, to provide comprehensive support where conventional methods fall short. This approach ensures that **all possible solutions** are considered to achieve sustainable living incomes for producers.

Living incomes are not just about compliance or corporate responsibility. They are about recognizing the human side of supply chains and committing to a future where every worker can live with dignity. It's a story worth telling, and even more, it's a story worth being a part of. Our call to action is clear and uncompromising: Utilize real, **verifiable** data to support claims about living incomes, and invest in **robust** living income interventions.

