



Fairtrade Living Income Reference Price for Coffee from Peru

EXPLANATORY NOTE

Introduction

This document explains the figures and validation process behind the Fairtrade Living Income Reference Price for organic arabica coffee from Peru. Living Income Reference Prices play a pivotal role within Fairtrade's holistic Living Income Strategy. They are instrumental for raising awareness around the fundamental need for sustainable pricing as part of a mix of interventions to enable living incomes, and they inform price setting mechanisms for Fairtrade and other actors committed to sustainable trade.

Fairtrade began to develop the first Living Income Reference Prices for coffee in a context of historically low futures market prices. In March 2019, the World Coffee Producers Forum condemned these and called for immediate action to avoid a humanitarian crisis for some 25 million smallholder families around the world. They warned that by allowing the impoverishment of producers, the coffee industry was compromising its own future. Later that year, the International Coffee Organization (ICO) committed to foster responsible sourcing of sustainably grown and traded coffee, enabling a living income for coffee producers.

A technical work stream on Living and Prosperous Incomes was set up as part of the ICO public private task force to operationalize these commitments. Living Income studies were commissioned to define commonly agreed benchmarks for the main coffee growing origins. Such a study was **published** for Peru in 2022.

Fairtrade builds on these benchmarks by establishing Living Income Reference Prices, in order to address the economic conditions for a sustainable coffee sector and to bring the true cost of socially just and environmentally sound production practices into the equation.

Following the completion of the multi-stakeholder price discovery processes in Colombia, Indonesia, Uganda, Honduras and Ethiopia, a Fairtrade Living Income Reference Price for organic coffee from Peru was determined in collaboration with the technical roundtable, set up for this purpose.

The Price Model

A Living Income Reference Price indicates the price needed for a typical farmer household with a viable farm size and a sustainable productivity level to make a living income from the sales of their crop.

The model is derived from the universal human right for everyone who works to a just and favourable remuneration, ensuring an existence worthy of human dignity. Hence, a full-time farmer should be able to make a living income from their farm revenues.

A Living Income Reference Price is based on the following key parameters:

1. Cost of a decent standard of living (living income benchmark)
2. Sustainable yields (productivity benchmark)
3. Viable farm size (to fully employ the available household labour)
4. Cost of sustainable production (in order to achieve above mentioned yields)

A price that allows an average farmer household with a viable farm size and a sustainable productivity level to earn a living income can be calculated with the following equation:

$$\text{living income reference price} = \frac{\text{cost of decent living} + \text{cost of sustainable production}}{\text{viable land area} \times \text{sustainable yields}}$$

Establishing Living Income Reference Prices

In order to assess the farm economic metrics, Fairtrade introduced farm record-keeping books among coffee farmers to track their farm investments and outputs throughout a year. These baseline data served as a primary source for subsequent analysis and establishment of Living Income Reference Prices.

In Peru, baseline data for organic coffee production were collected from a sample of approximately 450 farmers from 15 cooperatives distributed across four main coffee growing regions – Amazonas, Cajamarca, San Martin and Selva central – during the harvest cycle 2021/22.

A technical roundtable was set up, comprised of national coffee experts representing producers, industry, NGOs and research institutions. After a virtual presentation of the baseline results, a two-day in-person workshop was held in September 2023 to analyse the baseline results, pool local knowledge and expertise and agree on the values for each of the variables in the price model.

Based on these variables, a Fairtrade Living Income Reference Price for organic arabica coffee from Peru was established.

Variable 1: Living income benchmark

Living income is defined as **sufficient income generated by a household to afford a decent standard of living for the household members**. Elements of a decent standard of living include: a nutritious diet, decent housing, education, healthcare, transport, clothing and other essential needs, including a provision for unexpected events.

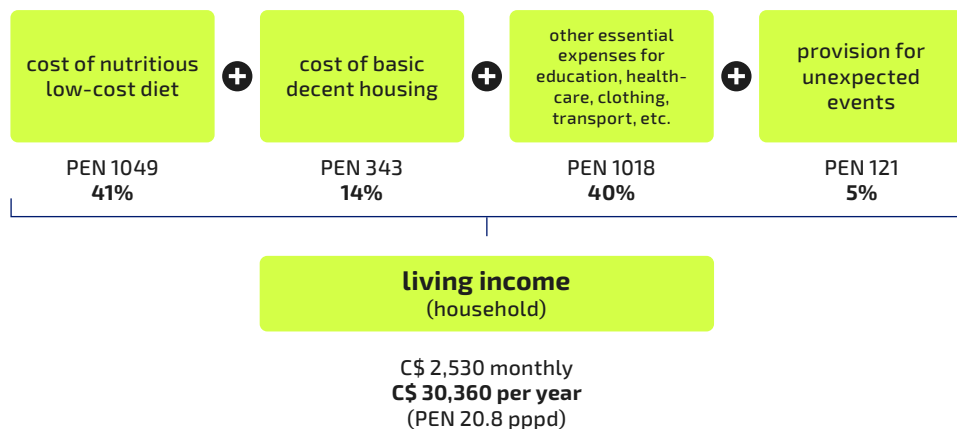
The Anker Research Institute conducted a [living income benchmark study](#) in coffee and cocoa growing regions of Peru in 2022. Through primary data collection, cross-checked with secondary sources, the costs of decent living for a typical four-member household with two adults and two children were estimated and validated by stakeholders. An inflation correction was applied to update the 2022 values to June 2023, as summarized in below table.

Table 1: Summary overview of costs of decent living for a standard family in coffee and cocoa growing regions of Peru, expressed in Peruvian soles, including the original values from 2022 and updated values with inflation correction to June 2023

Living income benchmark	Anker study (original 2022)				updated 2023
	San Martin	Cajamarca	Junin	Cuzco	Peru
region					
household size	4	4	4	4	4
# working-age adults	2	2	2	2	2
monthly costs per household*					
food (per person per day)	8.08	7.75	7.07	8.07	8.62
food	983	943	860	981	1,049
housing	321	328	324	371	343
other essential needs	954	773	817	893	1,018
provision (5%)	113	102	100	112	121
total per household per month	2,371	2,146	2,101	2,359	2,530
yearly cost of decent living	28,452	25,752	25,212	28,308	30,360
derived daily living wage	77	70	68	77	82

The average household in our baseline is composed of 3.7 members, with 2.4 adults of working age, which is close enough to the nuclear household size used for the benchmark study. The **benchmark of 30,360 Peruvian soles** (US\$ 8,205)¹ **per year**, equivalent to a daily cost of living of 20.8 soles per person, is therefore used for calculating the reference price.

Figure 1: Breakdown of monthly costs of decent living for a 4-member rural household in Peru, updated to June 2023 (source: Anker Research Institute)



The **living wage** for hired labour is derived from the living income benchmark by dividing the yearly cost of decent living by the number of full-time equivalent workers in a rural family. Assuming the equivalent of 1.5 full-time workers (this is 75% of the working-age adults in the average household) and 246 working days per year, a **daily living wage is estimated at 82 soles** (US\$ 22).

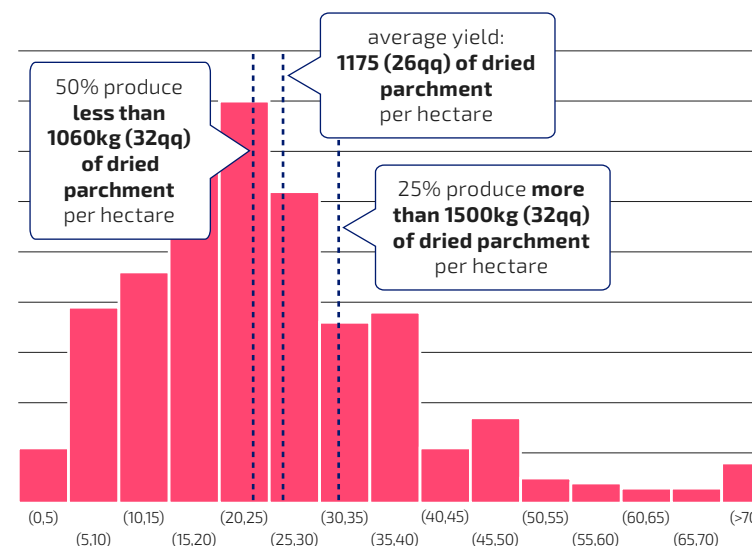
Variable 2: Sustainable yields

A sustainable productivity level is defined as a realistic target yield that can be attained when sustainable agricultural practices are implemented, considering the context, conditions and common practice in the country. By balancing the economic benefits of high yields with the medium- and long-term effects on natural resources and climate resilience, an optimum productivity target is determined. For Peru, we have focused on organic farming practices. Key factors affecting productivity are the coffee variety, tree density and shade management, applied rehabilitation practices (pruning and replanting) and fertilizer use.

As primary input, baseline results were analysed and best performing farmers within the sample were taken as a reference for determining feasible yield targets. Below graphs show a broad distribution of the results, which means that productivity levels vary significantly per region and from one cooperative to the next, as well as within cooperatives, with highest yields achieved in Cajamarca and San Martin. The differences are partly due to growing conditions, such as soil fertility, altitude, microclimates and hired labour costs, but also access to inputs, services and finance which vary across Peru.

The average productivity level was 1175 kg (26 quintals) of dried parchment per hectare. A quarter of all farmers in the baseline sample produced at least 1500 kg (32qq) of dried parchment per hectare. On the other hand, half of the farmers produced only 1060 kg (23qq) of dried parchment per hectare or less.

Figure 2: Baseline distribution of coffee yields in quintals (46 kg) of dried parchment per hectare



The roundtable agreed on an optimal tree density of 4000-4200 trees per hectare, allowing for adequate shade management. The yield that can be obtained per tree is approximately 350 grams of dried parchment coffee.

Sustainable target yield

Barriers to improving coffee productivity were also analysed in order to define a realistic target productivity level. The main obstacles faced by coffee growers in Peru are related to climate change and the associated pests and diseases, in combination with a lack of resistant coffee varieties needed to adapt. Access to affordable finance is another important limitation. Finally, the shortage of hired labour as a result of young people abandoning the rural areas was brought up.

Based on the above, it was agreed that by implementing good agricultural practices it is feasible to achieve a **yield of 1380 kg (30 quintals) of dried parchment coffee per hectare**, which was set as a realistic target sustainable productivity level for organic coffee.

Variable 3: Cost of sustainable production

The baseline results show a clear relation between investments in coffee production and the productivity per hectare. Sampled farmers spent on average 8000 Peruvian soles per hectare versus an average investment of nearly 13000 soles per hectare by the quartile of most productive farmers, with hired labour being the main cost driver.

Figure 3: Average cost breakdown per hectare for overall baseline sample versus best performing quartile with yields over 32 quintals per hectare



The costs of sustainable production were calculated based on the projected investments needed to reach and maintain the target yield. In order to maintain the coffee crop in healthy conditions, a crop life cycle of 7 years was recommended. The roundtable experts identified the following key agricultural practices:

- Selective pruning and adequate shade management
- Renovation / gap filling with certified seedlings of pest-resistant varieties
- Soil conservation through establishment of cover crops, living fences and drainage trenches and fertilization twice a year
- Mechanical weeding three times a year

The requirements in terms of agricultural inputs and other costs for each practice were determined throughout the seven-year crop cycle, after which the average costs per year were calculated as per table below. The depreciated costs for setting up the post-harvest infrastructure are added as a fixed cost.

Table 2: Breakdown of sustainable production costs (excluding labour) per hectare across a 7-year crop cycle

cost of sustainable production (conventional)								
yearly costs (excl. labour)	year 1	year 2	year 3	year 4	year 5	year 6	year 7	yearly average
coffee & timber seedlings	2,575			250	250	250	250	511
fertilizer (incl. soil analysis)	750	750	2,200	3,150	3,150	3,150	3,150	2,329
other agricultural inputs			100	300	300	300	300	186
materials & fuel		240	275	275	275	275	275	231
subtotal input costs	3,325	990	2,575	3,975	3,975	3,975	3,975	3,256
tools & equipment	200	1,520	165	210	210	210	210	389
transport	220	60	250	600	600	600	600	419
financial cost (interests)	7,200							1,263
subtotal other variable costs	7,620	1,580	415	810	810	810	810	2,071
total variable costs	10,945	2,570	2,990	4,785	4,785	4,785	4,785	5,327
fixed costs	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600

Table 3 provides an overview of the overall labour needs throughout the crop life cycle. The labour days were subsequently distributed between family and hired labour, with a focus on smallholder farmers whose livelihoods depend mainly on coffee production and who dedicate most of their time to coffee production. Table 4 shows the labour distribution in case family labour is primarily utilized.

Table 3: Overview of labour requirements per hectare across a 7-year crop cycle

labour occupation in sustainable production (7-year crop cycle)								
labour needs (days/ha)	year 1	year 2	year 3	year 4	year 5	year 6	year 7	yearly average
establishment	80							11.4
fertilization	8	12	12	12	12	12	12	11.4
pest control			2	6	6	6	6	3.7
weed control	18	32	24	24	24	24	24	24.3
pruning & shade management		1	2	10	10	10	10	6.1
renovation / gap filling				4	4	4	4	2.3
harvest		40	80	120	120	120	120	85.7
post-harvest		6	12	12	12	12	12	9.4
admin & misc	3	3	6	12	12	12	12	8.6
total # labour days	109	94	138	200	200	200	200	163

In above scenario nearly all the work outside harvest is carried out by family members and an average of 59 labour days (36% of the work) is outsourced per year, mainly for harvesting.

Hired labour remuneration is factored in at a living wage, so that the Living Income Reference Price not only allows coffee farmers to earn a living income, but also to pay their workers a living wage. At a daily living wage of 82 Peruvian soles (see variable 1), the average yearly hired labour costs amount to 4817 soles per hectare.

Table 4: Distribution of labour days per hectare when family labour is optimally utilized

labour distribution			
labour needs (days/ha)	yearly average	family labour	hired labour
establishment	11.4	5.4	6
fertilization	11.4	11.4	0
pest control	3.7	3.7	0
weed control	24.3	24.3	0
pruning & shade management	6.1	6.1	0
renovation / gap filling	2.3	1	1.3
harvest	85.7	34.3	51.4
post-harvest	9.4	9.4	0
admin & misc	8.6	8.6	0
total # labour days	163	104.3	58.7

Variable 4: Viable land size

In accordance with the universal right to remuneration for work that provides a decent living,² a hired worker is entitled to a 'living wage'. Consistent with this logic, self-employed farmers should earn the equivalent of a living wage for their work on the farm. Hence, full-time farmers should be able to make a living income from their farm revenues. Following this guiding principle, a farm that is big enough to fully absorb the available household labour should generate a living income. This is considered a viable farm size or a 'full-employment farm size'.

Likewise, producers with smaller plots of land would earn a share of a living income proportional to their time invested in farm work. In those cases, the household would have time available to supplement their income with other activities.

The viable or full-employment coffee area is calculated by dividing the available household labour by the time household members need to spend working on an hectare of land. With two working-age adults in the household the available household labour is considered to be equivalent to 1.5 full-time workers. In other words, there would be a household labour force of $1.5 \times 246 = 369$ working days per year.

For the discovery of a price that allows a "full-time" coffee farmer to earn a living income from their coffee sales, the focus is on those producers who primarily make use of family labour for the work on their farms and for whom coffee is their main source of income.

The full-employment coffee area is determined based on the previously identified labour requirements for the different tasks and the share of this work that can be carried out by family labour in case of maximum deployment of household labour (see table 4).

In this scenario, **a full-employment coffee area is equal to $369 / 104.3 = 3.5$ hectares**. This is somewhat smaller than the 4 hectare average coffee area in the baseline, but larger than the median of 3 hectares.



Living Income Reference Price modelling

With the variables defined in the previous chapters, Living Income Reference Prices at farm gate were modelled for organic coffee from Peru.

The following table summarizes the agreed key parameter values of the price model and the resulting Living Income Reference Price with varying farm sizes and the corresponding income dependency on coffee. Two scenarios were compared:

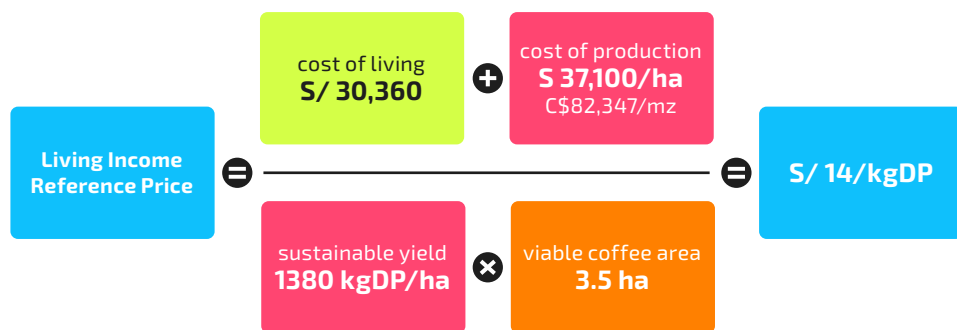
- i. Maximized household labour use and full employment coffee area of 3.5 ha for full income dependency on coffee.
- ii. 70% of available household labour utilization with a coffee area of 2.5 ha for 70% of the household income expected from coffee revenues.

Table 5: Living Income Reference Price modelling for organic coffee with varying crop areas and corresponding coffee income dependency.

LIRP coffee Peru (organic)	scenario	household income fully dependent on coffee	70% of family labour used to generate 70% of living income
variable	unit		
(A) viable coffee area	ha	3.5	2.5
(B) sustainable target yield	kgDP/ha	1,380	1,380
(AxB) production volume	kgDP/ha	4,830	3,450
agricultural input costs	PEN/ha	3,256	3,256
hired labour costs non-harvest	PEN/ha	600	600
hired labour costs harvest	PEN/ha	4,217	4,217
other variable costs (incl. finance costs)	PEN/ha	2,071	2,071
total variable costs per hectare	PEN/ha	10,144	10,144
fixed costs	PEN	1,600	1,600
(C) cost of sustainable production	PEN	37,104	26,960
(D) living income	PEN	30,360	21,252
living wage	PEN/day	82	82
(C+D/AxB) Living Income Reference Price	PEN/kgDP	14.0	14.0

The first scenario is based on a full employment farm size of 3.5 hectares in which the farmer family dedicates most of their time to coffee production and fully depends on coffee revenues for their livelihood. In the second scenario farmers have smaller coffee areas and would need complementary income sources besides coffee to reach a living income. Both scenarios have the same price result. Therefore, the **Fairtrade Living Income Reference Price for organic coffee from Peru is established at 14 Peruvian soles (US\$ 3.78) per kilo of dried parchment** at farmgate.

In summary, the target values for each variable in the Living Income Reference Prices model for organic coffee from Peru are established as follows:



Implementing Living Income Reference Prices

By establishing Living Income Reference Prices, Fairtrade quantifies the gap between market and sustainable prices at farmgate level and emphasizes the need to address price as a crucial factor to attain sustainable supply chains that enable farmers to earn a living income.

During the harvest cycle 2021/22 when the baseline data were collected, the international coffee market prices have been exceptionally high and coffee farmers in Peru received farmgate prices between 13 and 17 soles per kilo of dried parchment, hence often above the newly established reference price. As a result, 46% of the sampled farmers in the baseline study in fact earned at least a living income of 30,360 soles and the average net farm income of nearly 44,300 soles was well above the living income benchmark. Nonetheless, the income for farmers with less than three hectares of coffee only perceived a net income of 23,500 soles on average, which is insufficient for a decent standard of living.

The corresponding FOB (Free on Board, or export) price depends on the particular situation and cost structure of each producer organization and will have to be negotiated between seller and buyer, in order to factor in all relevant costs incurred by producer organizations, so they can pay their members a Living Income Reference Price at farmgate. However, the roundtable suggests that an average cost of 35 dollar cents per pound of green bean can be used to estimate a LIRP equivalent at FOB level, as follows:

		PEN	USD
LIRP (farmgate)	kgDP	14.0	3.78
LIRP equivalent per pound of green bean (conversion factor 0.8*2.2)	lbGBE	7.95	2.14
approximate FOB price (+ 0.35USD)	lbGBE	9.21	2.49
*exchange rate		3.7	1

Fairtrade integrates voluntary payment of the Living Income Reference Prices in living income pilot projects with committed buyers and their supply chain partners. By implementing the holistic living income strategy on a controlled scale, Fairtrade seeks to demonstrate its effectiveness and validate the price component as a critical driver to achieve living incomes.

It must be stressed that the Living Income Reference Price is just one tool, which – in combination with other interventions – is needed to close the income gap. Therefore there is no guarantee that all farmers will earn a living income, even if they are paid that price. Nonetheless, payment of a Living Income Reference Price, along with long-term sourcing agreements, are considered essential purchasing practices that buyers are responsible for to enable living incomes for farmers in their supply chains. On the other end, farmers are equally responsible for implementing the sustainable agricultural practices to meet the productivity target.

Fairtrade recommends that the mandatory Fairtrade Premium is not counted towards the Living Income Reference Price, but is paid on top to the producer organization. The Fairtrade Premium is an important source of income for producer organizations to cover operational costs, including adequate service delivery to their members. Empowered producer organizations play a crucial role in supporting their members reach target yields, reduce costs, add value, diversify income sources and enhance farm resilience, all of which contribute to achieve living incomes.

Finally, most buyers do not purchase all the coffee produced by a producer organization and thus the Living Income Reference Price will only be received for part of the sales. This means that the price differential will get diluted over the total volumes, if not all buyers commit to paying the Living Income Reference Price. Hence, this is a call to the coffee industry to jointly commit to sustainable prices, so that living incomes can become a reality for coffee farmers.

Endnotes

- 1 Applied exchange rate PEN 3.7:1 USD
- 2 The Universal Declaration of Human Rights establishes: "Everyone who works has the right to just and favourable remuneration ensuring for himself and his family an existence worthy of human dignity."

The Living Income Reference Price model makes up an integral part of Fairtrade's Living Income Strategy. Fairtrade is constantly testing and improving its model in order to develop a standardized approach for establishing sustainable price levels for smallholder farmers, applicable to a wide range of commodities and regions. We welcome your feedback in this process.

For more information or comments, please contact:

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