Fairtrade Living Income Reference Price for Coffee from Nicaragua

EXPLANATORY NOTE

Introduction

This document explains the figures and validation process behind the Fairtrade Living Income Reference Price for conventional and organic arabica coffee from Nicaragua. 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.

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, Ethiopia and Peru, Fairtrade Living Income Reference Prices for conventional and organic coffee from Nicaragua were established 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:

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

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 Nicaragua, baseline data were collected from a sample of 319 farmers from 10 producer organizations distributed across four coffee growing regions – Las Segovias, Jinotega, Matagalpa and Boaco – during the harvest cycle 2022/23.

A technical roundtable was set up, comprised of national coffee experts representing producers, NGOs, trade, governmental and finance institutions. After a validation session of the baseline results, a two-day in-person workshop was held in November 2023 to analyse the baseline findings, 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 both conventional and organic arabica coffee from Nicaragua were determined.

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.

In 2017, the Anker Research Institute conducted a living income benchmark study in the northeastern part of Nicaragua, overlapping to a large extent with the coffee growing regions. These costs of decent living were updated to June 2023, applying an inflation correction.[1] Similarly, WageIndicator publishes cost ranges for different parts of the country. We have compared their recent low-end values at country level and the high-end values for the Esteli region, as summarized in below table.

Table 1: Comparison of living income benchmark studies in rural Nicaragua, expressed in Cordobas

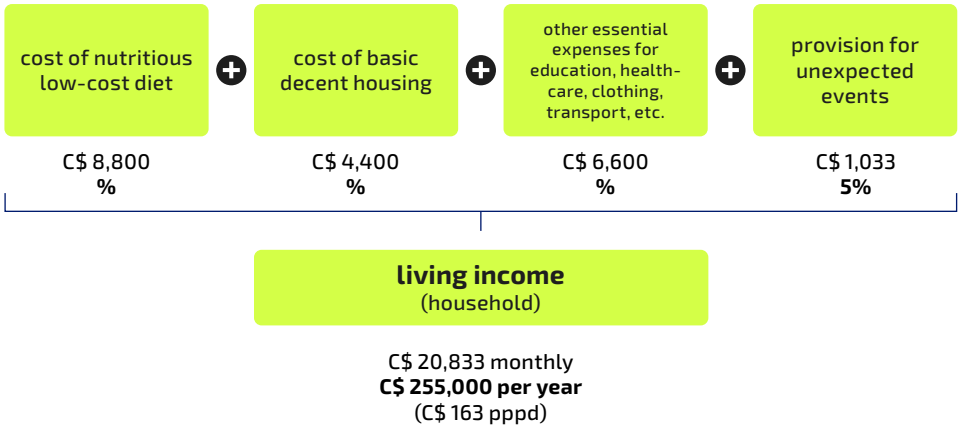
Living income benchmark	Anker study		WageIndicator	
region	original 2017	updated 2023	country	Esteli
household size	**4**		**4.3**	
available household labour (FTE)	**1.5**		**1.6**	
monthly cost per household*			**low**	**high**
food	5,372	7,859	7,111	9,183
housing	3,010	4,404	3,822	4,602
other essential needs	3,545	5,186	6,675	8,524
provision (5%)	596	872	880	1,115
total per household per month	**12,523**	**18,322**	**18,488**	**23,426**
cost of living per person per day	103	151	126	170
yearly costs of decent living	**150,280**	**219,864**	**221,856**	**281,107**
derived daily living wage	407	596	564	714

The average household in our baseline is composed of 4.2 members, with 2.8 adults of working age, which is slightly closer to the typical household size in the WageIndicator calculations.

The roundtable assessed the cost breakdown from both sources and concurred that the updated Anker and low-end WageIndicator values – and particularly the costs of a nutritious diet – were too low for a decent standard of living. The high-end values as defined by WageIndicator on the other hand were found too high to be realistic. Therefore, it was decided to use an average benchmark of 250,000 Cordobas (US$ 6,897)[2] per year, equivalent to a daily cost of living of 163 Cordobas per person, for calculating the reference price.

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 and 246 working days per year, a daily living wage is estimated at 678 Cordobas (US$ 18.7).

Figure 1: Approximate breakdown of monthly costs of decent living for a 4.2-member rural household in Nicaragua.



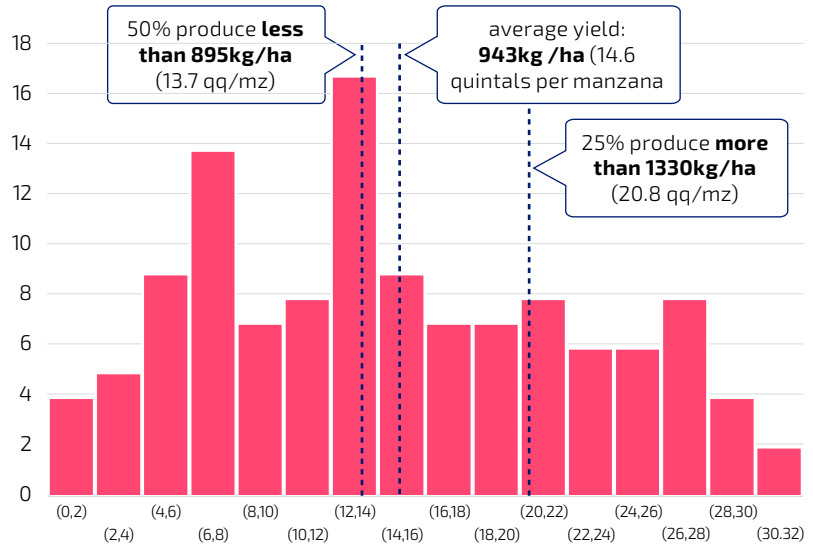
Variable 2: Sustainable yields

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 Nicaragua, we have analysed both conventional and organic farming practices. As primary input, baseline results were analysed and best performing farmers within the sample were taken as a reference for determining feasible yield targets.

Compared to other origins, the productivity in Nicaragua is quite low and shows significant variation per region and producer organization. These can in part be attributed to differences in soil, rain patterns and vulnerability to the effects of climate change. Labour scarcity and long distances between farms and dry mills also affect the productive capacity due to high costs.

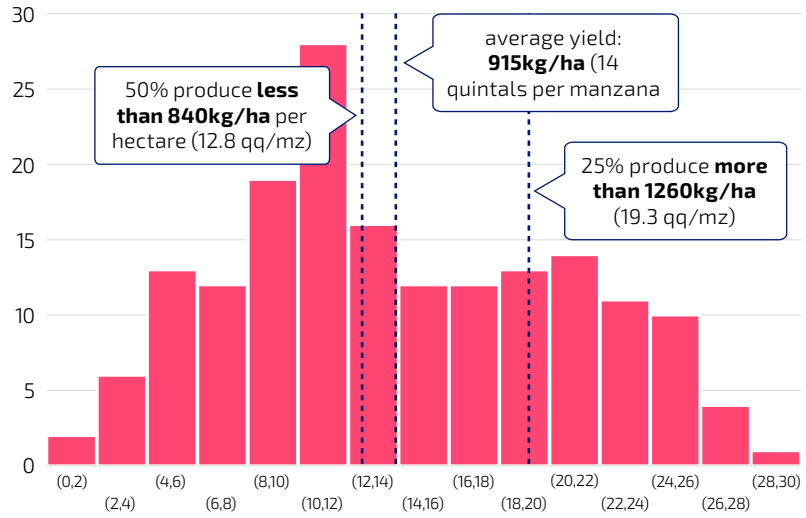
Conventional coffee yields were generally low with an average productivity level of 943 kg of dried parchment per hectare (14.6 quintals per manzana3) and half of the farmers producing less than 900 kg of dried parchment per hectare (13.7 quintals per manzana). It must be noted that most conventional production is in fact non-certified organic or 'natural' coffee, without application of any agricultural inputs. A quarter of all farmers in the baseline sample produced at least 1330 kg of dried parchment per hectare (20.8 quintals per manzana). The highest yields of conventional coffee were achieved in the Jinotega district.

Figure 2: Baseline distribution of conventional coffee yields in quintals (46 kg) of dried parchment per manzana (1 manzana equals 0.7 hectare)



The average productivity level for organic coffee was 915 kg of dried parchment per hectare (14 quintals per manzana) and half of the farmers produced only 840 kg of dried parchment per hectare (12.8 quintals per manzana) or less. A quarter of all farmers in the baseline sample produced at least 1260 kg of dried parchment per hectare (19.3 quintals per manzana) with the most productive organic coffee farmers located in Las Segovias and Jinotega districts.

Figure 3: Baseline distribution of organic coffee yields in quintals (46 kg) of dried parchment per manzana



Sustainable target yield

Key factors affecting productivity are tree density, rehabilitation cycles and soil fertilization. The roundtable recommends a density of 4000-4700 coffee trees per hectare (2800-3330 trees/manzana) for both production types. Crop renovation should happen after 7 years in case of conventional coffee and after 10 years in organic production. Furthermore, adequate fertilization based on soil analysis, integrated weed management, regular maintenance pruning and shade management are key to obtaining sustainable yields.

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 Nicaragua are related to climate change, especially in the lower altitudes. The prevailing mix of coffee varieties is unsuitable and resistant varieties are scarce. The shortage and therefore high cost of labour as a result of massive migration is another important limitation. There is lack of affordable finance and the high levels of indebtedness make it very hard for farmers to invest in their farms and escape the vicious cycle of poverty. Furthermore, there are challenges related to legal land ownership, availability of adequate knowledge and technical assistance and overall resistance to change traditional growing practices, which inhibit increasing yields.

The roundtable assessed that by implementing good agricultural practices it is feasible to produce 25 to 30 quintals of dried parchment of conventional coffee versus 16 to 18 quintals of organic coffee per manzana.

Considering the above, consensus was reached on a realistic **target yield of 1180 kg of dried parchment per hectare (18 quintals per manzana) for organic coffee**.

Provided that appropriate technology is applied in conventional production, the roundtable agreed that 1800 kg of dried parchment per hectare (27.5 quintals per manzana) is an achievable target for conventional coffee, despite the fact that only 6% of the baseline sample reached this level.

Variable 3: Cost of sustainable production

The baseline results show a clear relation between investments in coffee production and the productivity. Sampled conventional farmers spent on average per manzana 31,300 Cordobas versus an average investment of 53,700 Cordobas by the quartile of most productive farmers. Similarly, the average organic farmer spent C$ 35,000 per manzana, while the most productive farmers invested nearly C$ 50,000.

Figure 4: Breakdown of average costs of conventional production per manzana for overall baseline sample versus best performing quartile with yields over 20.8 quintals per manzana

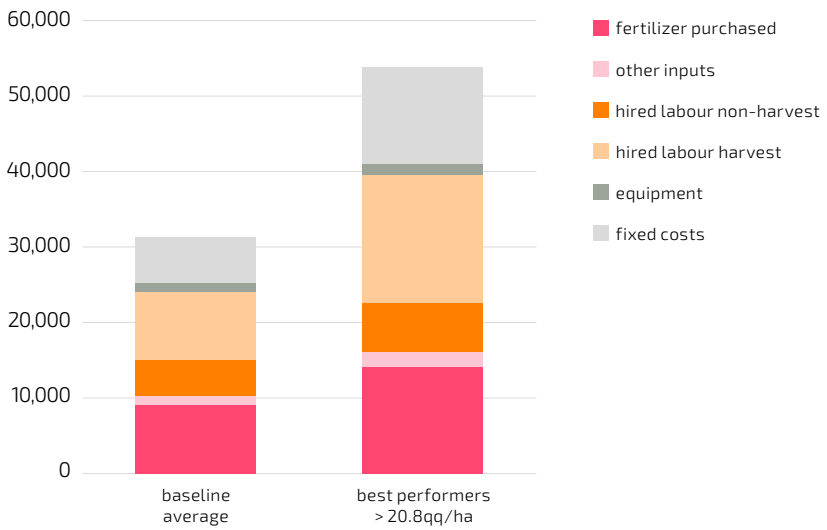
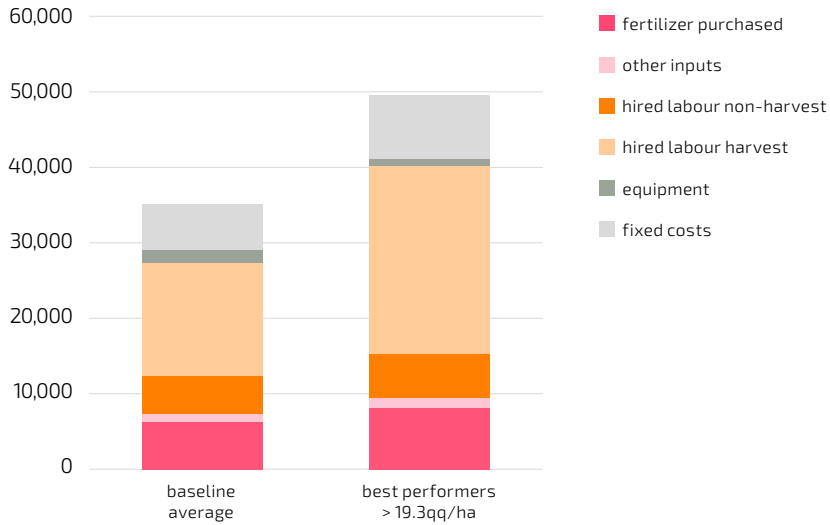


Figure 5: Breakdown of average costs of organic production per manzana for overall baseline sample versus best performing quartile with yields over 19.38 quintals per manzana



The costs of sustainable production were calculated based on the projected investments needed to reach and maintain the target yield. The requirements in terms of agricultural inputs and other costs, as well as the labour needed for each practice were determined, as per tables below for conventional and organic production.

Table 2: Breakdown of sustainable production costs (excluding hired labour) and labour days needed per manzana for conventional coffee

cost of sustainable production (conventional)					
required practice		agri inputs (C$/mz)	labour (days/mz)	other variable costs (C$/mz)	fixed costs (C$)
fertilization	fertilizer application: 8qq urea + 1.5qq complete formula + 3qq MOP + 0.5lt foliar + 5qq soil improvers; soil analysis	25,310	16	1,300	
pest management	various insecticides + fungicides + 12 borer traps + 0.7lt beauveria	11,965	13	600	
weed control	manual weeding + 0.2lt mesulforon application	1,140	26		
rejuvenation	sanitary pruning; tissue management; shade regulation		16		
harvest	cherry picking; baskets; transport		63	2,450	
post-harvest	depulping + washing + drying + transport (depreciated infrastructure)		19	1,600	8,000
establishment/ replanting	yearly replacement of 180 plants/mz (7%) @C$8	1,440	4		
other	administration		15		
total number of days x hectare		**39,855**	**172**	**5,950**	**8,000**

Table 3: Breakdown of sustainable production costs (excluding hired labour) and labour days needed per manzana for organic coffee

cost of sustainable production (organic)					
required practice		agri inputs (C$/mz)	labour (days/mz)	other variable costs (C$/mz)	fixed costs (C$)
fertilization	organic fertilizer application: 32qq solid @C$380 + 5 lt liquid @C$50 per manzana; soil analysis	12,410	16	2,300	
pest management	various bio-inputs + traps	7,080	18	600	
weed control	manual weeding	-	24	600	
rejuvenation	sanitary pruning; tissue management; shade regulation	-	16	500	
harvest	cherry picking; baskets; transport	-	50	3,600	
post-harvest	depulping + washing + drying + transport (depreciated infrastructure)	-	19	1,450	8,000
establishment/ replanting	yearly replacement of 180 plants/mz (7%) @C$8	1,440	6	1,000	
other	administration + transport	-	15	1,000	
total number of days x hectare		**20,930**	**164**	**11,050**	**8,000**

Variable 4: Viable land size

In accordance with the universal right to remuneration for work that provides a decent living,[3] 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 x 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 members. In case of maximum deployment of household labour, a total of 122 days of family labour per manzana would be utilized in both conventional and organic coffee, which is nearly all the work outside harvest. Fifty labour days per manzana (29%) in conventional and 42 days (21%) in organic farming would need to be outsourced (see table 4).

In this scenario, a full-employment coffee area is equal to 369 / 122 = 3 manzanas or 2.1 hectares. This is also the median coffee area for organic farmers, whereas the median conventional farmer only has 2.3 manzanas (1.6 ha) of coffee.

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 678 Cordobas (see variable 1), the yearly hired labour costs amount to 33,875 and 28,455 Cordobas per manzana for conventional and organic production respectively.

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

labour distribution	conventional		organic	
labour needs (days/mz)	family labour	hired labour	family labour	hired labour
fertilization	16	0	16	0
pest management	13	0	18	0
weed control	18	8	16	8
rejuvenation	12	4	12	4
harvest	25	38	20	30
post-harvest	19	0	19	0
replanting	4	0	6	0
admin & misc	15	0	15	0
total # days per manzana	**122**	**50**	**122**	**42**

Living Income Reference Price modelling

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

The following tables summarize the agreed key parameter values of the price model and the respective Living Income Reference Prices with varying farm sizes and corresponding labour distribution and level of income dependency on coffee. For each production system three scenarios were compared:

i. Maximized use of household labour for a full-employment coffee area of 2.1 hectares / 3 manzanas.

ii. Prevailing labour distribution (with 41-43% of the labour being outsourced) and a larger full-employment coffee area of 2.6-2.8 ha (3.7- 4 manzanas) for full income dependency on coffee.

iii. Prevailing labour distribution with 75% of household income dependent on coffee and a viable coffee area of 2 – 2.1 ha (2.8- 3 manzanas).

Table 5: Living Income Reference Price modelling for conventional coffee with varying crop areas depending on distribution of labour between household and hired and respective percentage of living income to be generated from coffee sales.

LIRP coffee Nicaragua (conventional)	scenario	maximized household labour deployment	prevailing labour distribution x larger viable coffee area	75% of family labour used to generate 75% of living income
	unit	i	ii	iii
(A) viable coffee area	**ha**	**2.1**	**2.6**	**2.0**
	mz	**3.0**	**3.7**	**2.8**
(B) sustainable target yield	**kgDP/ha**	**1800**	**1800**	**1800**
	qqDP/mz	**27.5**	**27.5**	**27.5**
(AxB) production volume	kgDP	3835	4696	3522
agricultural input costs	C$/mz	39,855	39,855	39,855
hired labour costs non-harvest	C$/mz	8,130	23,713	23,713
hired labour costs harvest	C$/mz	25,745	25,745	25,745
other variable costs (incl. finance costs)	C$/mz	5,950	5,950	5,950
total variable costs per manzana	C$/mz	79,680	95,263	95,263
fixed costs	C$	8,000	8,000	8,000
(C) cost of sustainable production	**C$**	**247,041**	**360,473**	**274,303**
(D) living income	**C$**	**250,000**	**250,000**	**187,500**
living wage	**C$/day**	**678**	**678**	**678**
(C+D/AxB) Living Income Reference Price	**C$/kgDP**	**131.0**	**130.4**	**130.5**

*hired labour factored in @ C$678 per day

The price results for the different scenarios are fairly similar with a slightly higher outcome for the first. Since, the primary aim is to enable farmer households who work mostly with their own labour to earn a living income, the roundtable agreed on a Fairtrade Living Income Reference Price for conventional coffee from Nicaragua of 131 Cordobas (US$ 3.61) per kilo of dried parchment at farmgate.

In summary, the target values for each variable in the Living Income Reference Price model for conventional coffee from Nicaragua are established as follows:

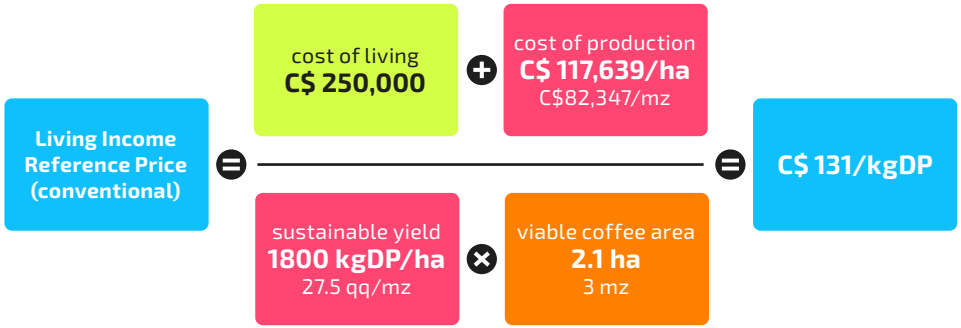


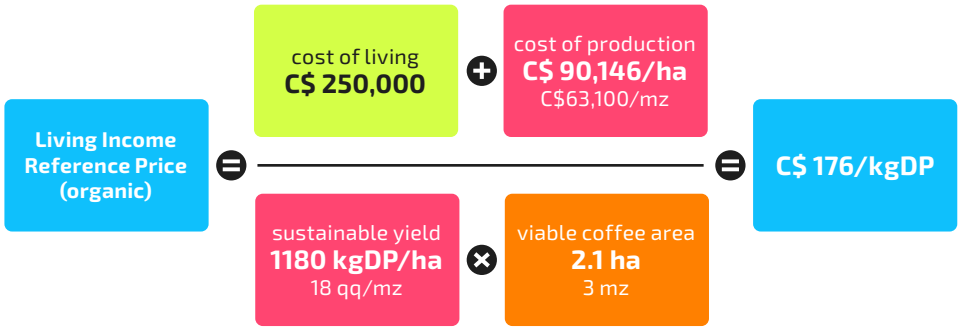
Table 6: Living Income Reference Price modelling for organic coffee with varying crop areas depending on distribution of labour between household and hired and respective percentage of living income to be generated from coffee sales.

LIRP coffee Nicaragua (organic)	scenario	maximized household labour deployment	prevailing labour distribution x larger viable coffee area	75% of family labour used to generate 75% of living income
	unit	i	ii	iii
(A) viable coffee area	**ha**	**2.1**	**2.8**	**2.1**
	mz	**3.0**	**4.0**	**3.0**
(B) sustainable target yield	**kgDP/ha**	**1,180**	**1,180**	**1,180**
	qqDP/mz	**18**	**18**	**18**
(AxB) production volume	kgDP	2,515	3,285	2,515
agricultural input costs	C$/mz	20,930	20,930	20,930
hired labour costs non-harvest	C$/mz	8,130	27,439	27,439
hired labour costs harvest	C$/mz	20,325	20,325	20,325
other variable costs (incl. finance costs)	C$/mz	11,050	11,050	11,050
total variable costs per manzana	C$/mz	60,435	79,744	79,744
fixed costs	C$	8,000	8,000	8,000
(C) cost of sustainable production	**C$**	**189,306**	**326,977**	**247,233**
(D) living income	**C$**	**250,000**	**250,000**	**187,500**
living wage	**C$/day**	**678**	**678**	**678**
(C+D/AxB) Living Income Reference Price	**C$/kgDP**	**176.4**	**173.8**	**174.6**

*hired labour factored in @ C$678 per day

The price calculations for the different organic scenarios show a lower result for the scenarios ii and iii in which more work is outsourced, compared to scenario i. However, since the primary aim is to enable farmer households who work mostly with their own labour to earn a living income, the first scenario is weighing in more. Therefore the Fairtrade Living Income Reference Price for organic coffee from Nicaragua is established at 176 Cordobas (US$ 4.86) per kilo of dried parchment at farmgate.

In summary, the target values for each variable in the Living Income Reference Price model for organic coffee from Nicaragua are set 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.

The corresponding FOB (Free on Board, or export) price for the LIRP 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 45 dollar cents per pound of green bean can be used to estimate a LIRP equivalent at FOB level, as follows:

		conventional		organic	
		C$	USD	C$	USD
LIRP (farmgate)	**kgDP**	**131**	**3.61**	**176**	**4.86**
LIRP equivalent per pound of green bean (conversion factor 0.8*2.2)	lbGBE	74.4	2.05	100	2.76
approximate FOB price (+ 0.45USD)	lbGBE		2.50		3.21
*exchange rate		36.25	1	36.25	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 https://www.globallivingwage.org/wp-content/uploads/2019/01/Update-report_Nicaragua_Northwest_2023_JUNE.pdf

2 Land size is commonly measured in manzanas in Nicaragua and therefore the analysis by the roundtable is done based on this unit measure. The conversion factor to hectares is 0.7044

3 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.

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