

Living Income Reference Price for Vanilla from Madagascar, a 2020 update

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TABLE OF CONTENTS

1. Abstract	3
2. Background & reasons to update the Vanilla LIRP	4
3. Methods/ Methodology	5
4. RESULTS.....	7
4.1 LOCAL FOOD COSTS IN 2020 COMPARED TO 2019	7
4.2 VANILLA PRODUCTION, PRICES RECEIVED & OTHER CASH CROPS IN 2020	7
4.3. IMPACT OF COVID-19 ON LOCAL LIVELIHOODS	8
4.4. UPDATED MODEL DIET BASED ON LOCAL FOOD COSTS	9
4.5 LIVING INCOME BENCHMARKS FOR MALAGASY VANILLA FARMERS IN 2020	10
4.6 UPDATED COSTS OF SUSTAINABLE PRODUCTION	11
4.7. UPDATED FAIRTRADE'S SUSTAINABLE VANILLA FARM MODEL BASED ON 2020 DATA.....	11
4.8 OVERVIEW AND LIVING INCOME REFERENCE PRICE FOR VANILLA IN 2020.....	13
5. Discussion and Conclusion	14
REFERENCES	16
APPENDIX	17

TABLE OF FIGURES

Figure 1: Differences in Food Prices in the SAVA region of northeastern Madagascar, 2020 vs. 2019	7
Figure 2: Price differences in cash crops in the SAVA region in northeastern Madagascar, 2020 vs. 2019	8
Figure 3: Items that became a) more expensive year and b) less expensive compared to last year in the SAVA region in northeastern Madagascar	8
Figure 4: Composition of living income for vanilla farmers in Madagascar in 2020.....	10
Figure 5: Vanilla Living Income Reference Price for Madagascar in 2020	13

TABLE OF TABLES

Table 1: Model diet for Malagasy vanilla farmers in 2020	9
Table 2: Summary of key variables for FVLIRP model in Madagascar	13

TABLE OF APPENDIX

Appendix 1: Food Seasonality calendars for zone 1. Sambava Nord, 2. Andapa. 3. Sambava vers Antalaha , Source: Andriamparany et al. 2021)	17
Appendix 2: Frequency of green vanilla production per vanilla farmer in northeastern Madagascar	20
Appendix 3: Vanilla price received per kg green vanilla in 2020	20
Appendix 4: Status quo of average vanilla production and prices received in 2020. Graph showing that with the given harvests of 81.3 kg vanilla farmers would need a minimum price of 22.1€ to reach the poverty line and 57.2€ to reach a living income.	21

1. Abstract

The goal of the present study is to update Fairtrade's Living Income Reference Price (LIRP) for Vanilla for Madagascar from 2019, to the changing reality of the vanilla farming population in the SAVA region (north-eastern Madagascar) in 2020. The year 2020 was an exceptional year worldwide, and in particular for the SAVA region and its vanilla farmers. In addition to the COVID-19 pandemic, the vanilla market has suffered from overproduction and vanilla farmgate prices dropped dramatically.

This study puts a special emphasis on updating a.) local food costs and b.) production costs for vanilla as compared to 2019. Furthermore, this report demonstrates the reality of the vanilla farming population, production patterns such as vanilla yields, prices received, changing local food prices and the impact of the Covid-19 pandemic on farmer's livelihoods.

The results of this study show that average farmgate vanilla prices dropped around 71% from around 40€ in 2019 to around 10€ per kg green vanilla. At the same time, the average local vanilla production has increased: farmers harvested 81 kg green vanilla compared to 49 kg in 2019, on average. The high price phase of vanilla (2014-2019) has led to that many local farmers- who previously also grew rice- have increasingly focused on vanilla during the last years. Coupled with the global COVID-19 pandemic and associated transport restrictions, this has led to nationwide price increases in rice, which is by far the most important staple food. Yet, there was a major inflation of the Malagasy Ariary in 2020 and the regional purchasing power has decreased, partly due to low vanilla prices this year. Consequently, all food prices (other than rice) that are locally produced (fruits, vegetables, tubers, grains and legumes, and zebu meat) have slightly decreased compared to 2019 (-12 %, on average). Decreasing prices were even more pronounced for other locally produced cash crops such as cloves and coffee, which have lost 75% and 60% in value compared to 2019, respectively. However, other imported goods such as vegetable oil and petrol became locally more expensive.

Farmers react to the falling vanilla prices by decreasing investments on their farms. In particular theft pressure has decreased and so do costs for hiring security guards and other farm investments. Likewise, the costs for the model diet established in 2019 change for the present model diet in 2020. Both variables are relevant for the updated Fairtrade Vanilla LIRP.

In 2020, the living income benchmark for an average household of 4.2 members is established at 4,667.53€ per year or 3.04€ per person per day. Considering Fairtrade's established vanilla farm model with a sustainable yield of 350 kg green vanilla per farmer on a viable land size of 1.0 ha, and taking the updated living income benchmark and production costs into account, this study shows that Malagasy farmers would need a minimum price of 13.59€ / \$16.45/ 62,448 Ariary per kg of green vanilla to achieve a living income if we are looking at net vanilla income only. However, if we look at vanilla net income & other farm income the Fairtrade Vanilla LIRP is 13.16€ / \$15.93 / 60,481 Ariary.

2. Background & reasons to update the Vanilla LIRP

Madagascar is the largest vanilla producer globally; vanilla production particularly takes place in the north-eastern SAVA region where the present study was conducted. Between 2020 and 2018, global vanilla prices collapsed from \$450 to \$185 (U.S. Customs Database), which likely will leave many Malagasy vanilla farmers in extreme poverty. The results of this study show that the average farmgate vanilla prices dropped around 71% (in Malagasy Ariary) from around 39.5€ in 2019 to 10.2€ per kg green vanilla. In Madagascar, where rice is the most important staple food, large shares of the rice supply are in fact imported.

The COVID-19 pandemic affects Madagascar as the poverty rate is estimated to increase from 70.5% to 72.1 % (UNDP 2020). The COVID-19 pandemic, however, also lead to a reduction in imports of rice through a deterioration in supply chains (FEWS 2020, WFP 2020), also Madagascar's exports have decreased (UNDP 2020). The high price phase of vanilla (2014-2019) has led to the fact that many local farmers- who previously also grew rice- have increasingly focused on vanilla during the last years. Coupled with transports restrictions and deteriorations in supplies, rice and other staple food prices increased 50-60% in parts of Madagascar in 2020 (FEWS 2020, WFP 2020).

The purchasing power of Malagasy vanilla farmers has decreased and the drop of vanilla prices is likely to have led to regional inflation, particularly considering that 83% of the rural population in the SAVA region is engaged in vanilla farming (Hänke et al. 2018). Moreover, the Malagasy Ariary had an inflation of 5.6% between 2019 and 2020 (World Bank 2020). Looking at exchange rates between the Euro (€) and the Malagasy Ariary, the Malagasy Ariary has lost around 13% compared to 2019 (oanda.com, 2020).

In sum, there are sufficient reasons to update Fairtrade's Living Income Reference Price (FLIRP) for vanilla to the new context in 2020. For the present 2020 update, the FLIRP for vanilla price model established by Hänke & Fairtrade International (2019) remains essentially the same:

$$\text{Living Income Reference Price} = \frac{\text{cost of decent living} + \text{cost of sustainable production}}{\text{viable land area} * \text{sustainable yields}}$$

The maximal feasible yield per vanilla farming household is 1.0 ha and the sustainable yield is 350 kg/ha of green vanilla (Hänke & Fairtrade International 2019). Other parameters needed for a living income benchmark calculation (“cost of decent living”, Anker & Anker 2017), i.e., schooling, housing, electricity, communication, clothes are assumed to be the same amount (in Malagasy Ariary) as in 2019 (Hänke & Fairtrade International 2019). However, the benchmarks (in Malagasy Ariary) are converted into 2020 Euro exchange rates (1€= 4,594 Malagasy Ariary as compared to 2019, 1€=4,055 Malagasy Ariary (oanda.com, 2020)). The 5 % margin for unexpected events (Anker & Anker 2017) is based on the new living income benchmarks established in this study. The household size of 4.2 persons is assumed to be the same as in 2019 (Hänke & Fairtrade International 2019).

As both, the regional economic situation as well as the vanilla market have changed dramatically between 2020 and 2019, this study puts a special attention on updating local food costs as well as farm investments by vanilla farmers, i.e., production costs.

The model diet (see [Table 1](#)), a nutritious, healthy and low-cost diet which is in line with WHO recommendations (Anker & Anker 2018), which was established in 2019 for the SAVA region of Madagascar (Hänke & Fairtrade International, 2019) remains the same for the present study. However, we updated the local food costs that are needed for the model diet and, therefore, did a study on food prices in 2020 as compared to 2019. In fact, in the living income reference price model by Hänke & Fairtrade International (2019), food costs (2,597€) made up 45.2% of the overall living income. Consequently, food costs have a strong influence on the final FLIRP for vanilla. Likewise, the dropped vanilla prices are likely to have an influence on decisions of farm investments by vanilla farmers and other costs of sustainable production, which deserve thorough attention.

In addition to updating the FLIRP for vanilla, this report shows the impact of the COVID-19 pandemic on Malagasy vanilla farmer’s livelihoods and production patterns such as vanilla prices received, total production and sales.

3. Methods/ Methodology

In November 2020, 4 experienced research assistants and one coordinator were engaged for an *in-situ* data collection in Madagascar. Selection of participating villages and markets were all

spread in the SAVA region over the provinces of Antalaha, Andapa and Sambava. The data collection had the following steps:

1. Food price surveys

Surveys on local markets were done to collect local food prices. To do so, three semi-urban markets (Andapa, Antalaha and Sambava) and five rural markets were visited (Antanamangotroka, Ampakana, Antsahameloka, Antsahanoro, Marojala,). Vendors and traders were asked about minimum and maximum prices over the year in 2020 for all common local foods. The prices per food item were averaged over the year 2020 in order to account for price fluctuations over the year (see Figure 1) and seasonality (see Appendix 1 for seasonal food calendars in the region). Local units were converted into kilograms based on *in-situ* measurements and conversion factors established by Hänke & Fairtrade International (2019). Prices from the local food surveys were used to calculate the costs of a model diet (see [Table 1](#)).

2. Face-to-face interviews

Face-to-face interviews were conducted with 60 farmers. The farmers were randomly selected. Four villages per province (Antalaha, Andapa, Sambava) were chosen leading to a total of 12 villages (Ambahavala, Ambatofisaka, Ambatojoby, Ambodiala, Ambodivohitry Marovato, Ampahana, Andigozabe, Andingosabe Andapa, Andrapengy, Maromokotra, Sahamazava Andapa, Tanambao Daoud).

The surveys dealt with the impact of the COVID-19 pandemic on farmer's livelihoods and changes in prices for different items over the year (food, medicine, petrol, other important goods). Moreover, vanilla production patterns, such as kg harvested, quantity sold in green and black, prices received, and planned vanilla farm investments for 2021 were collected.

4. RESULTS

4.1 Local food costs in 2020 compared to 2019

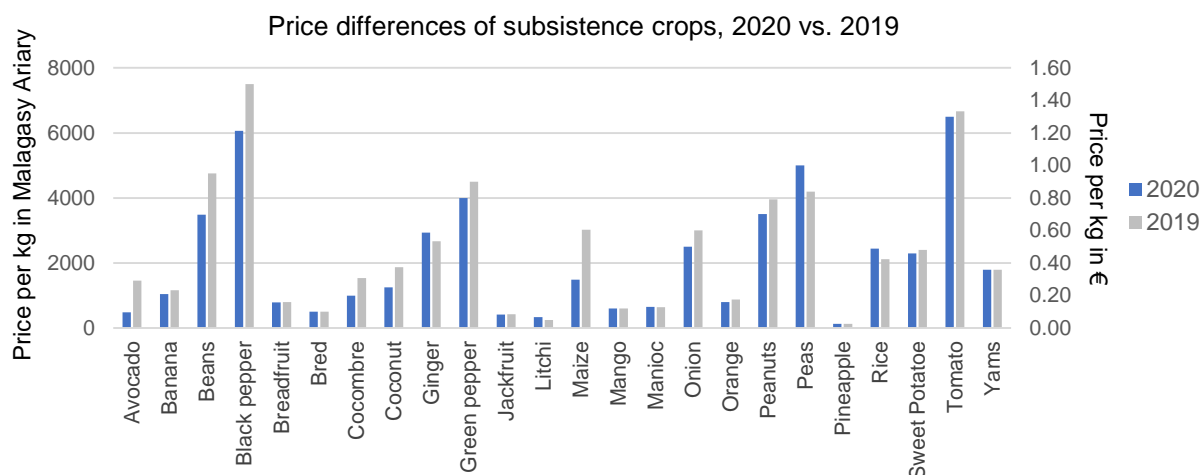


Figure 1: Differences in Food Prices in the SAVA region of northeastern Madagascar, 2020 vs. 2019

The market surveys showed that rice prices, locally the most important staple food, increased between 2020 (2,439 Ariary/kg) compared to 2019, where it was around 2,120 Ariary/kg averaged over the year. However, most local food prices slightly decreased compared to 2019, on average the price decrease was -12.04%. Particularly foods that are locally produced (fruits, vegetables, tubers, grains and legumes) are slightly cheaper than in 2019. Maize was >50% cheaper in 2020 (1,485 Ariary/kg) than in 2019 (3,025 Ariary/kg). In entire Madagascar, 2020 was a particular good maize harvest (FEWS 2020).

Also, prices of animal products changed compared to 2019, i.e., zebu meat (16,375 Ariary/kg in 2020 averaged over the year) compared to 20,000 Ariary/kg in 2019. Chicken remained relatively stable (20,4500 Ariary/adult animal) compared to 20,000 Ariary in 2019.

4.2 Vanilla production, prices received & other cash crops in 2020

Surveyed farmers harvested, on average, 81.27 ± 13.12 (Mean \pm Standard Error) kg green vanilla (see histogram in Appendix 2).

Farmers sold 47.16 ± 7.59 kg of green vanilla and 9.28 ± 2.79 of black vanilla, on average. 6.7% of farmers stated that they still stock some vanilla, however, only 2.0 ± 7.0 kg is stocked, on average. *Vrack*, a semi-cured black vanilla (often prematurely harvested green vanilla), was not sold as many farmers were afraid that prices would further decrease in the year 2020.

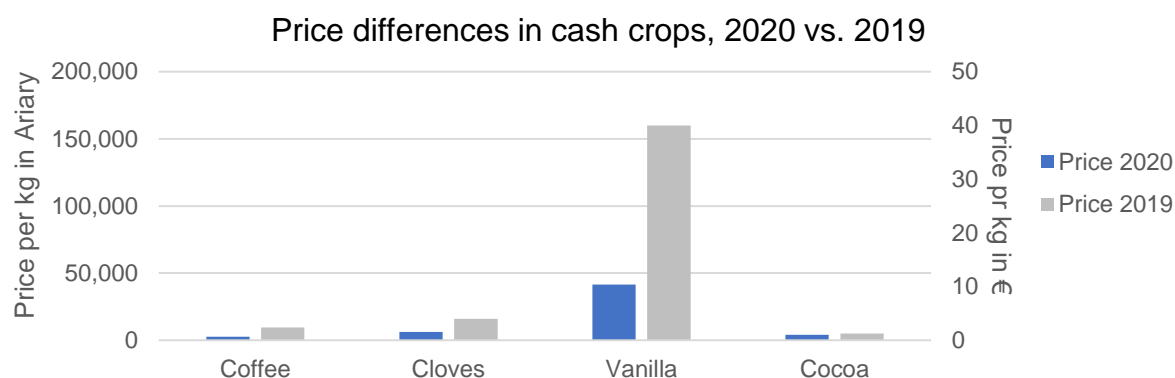


Figure 2: Price differences in cash crops in the SAVA region in northeastern Madagascar, 2020 vs. 2019

The average price received per kg green vanilla was $46,662 \pm 1,544$ Ariary (10.15€, see Appendix 3) compared to an average price of 160,000 Malagasy Ariary in 2019 (39.5€), which represents a price fall of 71% (in Malagasy Ariary). Decreasing prices were also pronounced for cloves and coffee, which have lost ~75% and ~60% in value, respectively.

4.3. Impact of Covid-19 on local livelihoods

Farmers were asked about the impact of the COVID-19 crisis on their livelihoods. None of the surveyed farmers was infected with COVID-19 nor any of the family members. 83% of the surveyed farmers stated that prices for “PPNs” (“*produits de premier nécessité*”, i.e., basic needs such as toilet paper, sugar, soap, salt etc.) had increased. Likewise, 85% of the farmers stated that rice prices increased due to the COVID-19 pandemic as well as vegetable oil (32%).

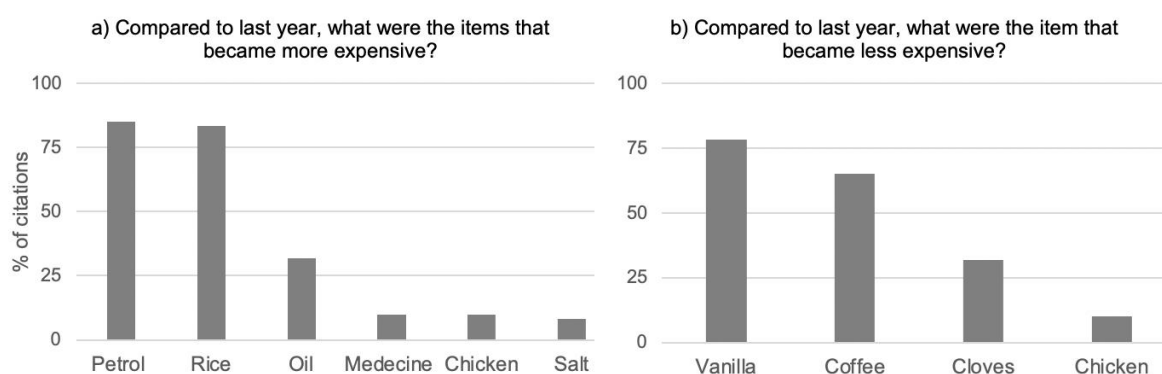


Figure 3: Items that became a) more expensive year and b) less expensive compared to last year in the SAVA region in northeastern Madagascar

Looking at the categories that were cited as increasing costs in 2020 (Figure 3a), petrol (85%), rice (83 %) and oil (31.7%) were most often cited. Items that became less expensive (Figure 3b) were vanilla (78% of citations), coffee (65%), cloves (31.7%) and chicken (10%), respectively.

4.4. Updated Model diet based on local food costs

In this study, we assume the same model diet as in 2019 (Hänke & Fairtrade International 2019), however, based on updated food prices that were collected *in-situ* in the SAVA region of Madagascar in 2020 (see Figure 2).

The model diet is based on low-cost, healthy and nutritious food that also takes the seasonality and local food cultures into account (Hänke & Fairtrade International 2019). Based on an average household composition of 4.2 persons, activity level, age and gender the average household members requires 2,010 kcal/day (Hänke & Fairtrade International 2019). Also, the model diet is based on locally available foods and is in line with FAO/WHO recommendations on consumption of carbohydrates, proteins, minerals and vitamins (Anker & Anker 2017).

Table 1: Model diet for Malagasy vanilla farmers in 2020

Food group	Food item	Grams per day	Cost per day/ person in Ariary	Cost per day/ person in €	Comment
Cereals and grains	Maize	25	46	0.01	4 times a week
	Rice	25	244	0.05	2-3 times a week
Roots and tubers	Cassava	150	116	0.03	4 times a week
	Yams	50	104	0.02	Once a week
Starchy fruit / vegetable	Plantains	200	492	0.11	4 times a week
Pulses, legumes, beans	Beans	80	279	0.06	3 times a week
	Groundnuts	60	211	0.05	3 times a week
Dairy	Milk	200	200	0.04	For children one glass per day
Eggs	Chicken	50	930	0.20	
Meats & Fish	Beef	30	674	0.15	2 times a week
	Chicken	10	301	0.07	Once a week
	Fish	30	167	0.04	2 times a week
Green leafy vegetables	Bred	60	42	0.01	5 times a week
	Cassava	50	1	0.01	2 times a week
Other vegetables	Onion	51	142	0.03	3 times a week
	Tomato	52	369	0.08	3 times a week
Fruits	Mango	60	51	0.01	3 times a week
	Banana	50	81	0.02	3 times a week
Oils & fats	Vegetable	57	398	0.09	Every day
Total cost of model diet excluding additional costs indicated below				4902 Ariary	1.07€
Percentage added for salt, spices, sauces, and condiments				1%	
Percentage for spoilage & waste				3%	
Percentage added for variety				10%	
Total cost of model diet including additional costs indicated above				5,714 Ariary	1.24 €
Total model diet per family per day (4.2 persons)				23,999Ar	5.22 €

E.g. the rice consumption is reduced to 100 grams per day/person in order to establish a healthy and nutritious diet as rice contains almost exclusively carbohydrates (USDA 2019). This means that rice is only eaten 2-3 times a week. Tuber roots and fruits are cheap and locally available, and its consumption is, therefore, increased in the model diet. Also, vegetable and animal protein consumption is slightly increased in the model diet to satisfy WHO/FAO recommendations (Anker & Anker 2017). Please see Hänke & Fairtrade International (2019) for more details on the model diet.

Table 1 illustrates the cost distribution for a low cost, healthy, and nutritious model diet, which is based on locally available food and their local costs averaged over the year 2020 (see [Figure 2](#)). The **model diet** leads to daily costs of 23,999 Ariary/household/day (**5.22€**) or 5,714 Ariary/person/day (**1.24€**). **Total food costs** for one household is **1906.79€** per year.

4.5 Living income benchmarks for Malagasy vanilla farmers in 2020

Living income estimates or the cost for a “decent living” takes food costs, housing, electricity, clothes communication, health expenditures, transportation, education and a margin of 5% for unexpected events into account (Anker & Anker 2017). In the present living income calculation expenditures for housing, electricity, clothes, health, transportation, education and other costs (in Malagasy Ariary) are based on Hänke & Fairtrade International (2019) and converted to € equivalents based on exchange rates in 2020 (1€= 4,595 Ariary, oanda.com 2020).

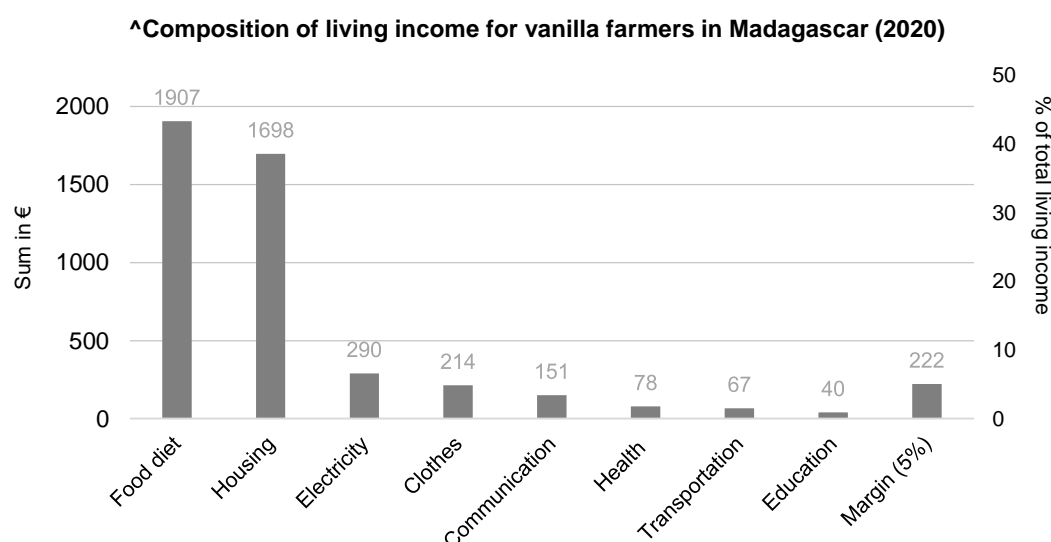


Figure 4: Composition of living income for vanilla farmers in Madagascar in 2020

Figure 4 illustrates the composition of the different living income benchmarks for an average Malagasy vanilla farming household in 2020. The total living income sums up to 4,667.53 € per year per household (21,442,609 Ariary) or 3.04 € per person per day (13,987 Ariary), considering the average household size of 4.2 persons.

4.6 Updated costs of sustainable production

The surveys with 60 vanilla farmers showed that 85% of respondents stated that the low vanilla prices in 2020 will change and affect their farm decisions and investments in 2021. In particular, this means a reduction of security guards (~ 50% of the farmers stated that they will not hire guards anymore). The sum of hired labour for guards, pollination and weeding activities are summing up to self-projected costs of 801,778 ± 179,871 Ariary in 2021 per ha (174.5€). However, hired labourers are not paid in living wages, average salaries are 2.3 € per man day. Living wage is estimated at 3.80 € for a typical Malagasy household, based on average values from wageindicator.org (2019) for Madagascar.

Other frequently mentioned costs were materials such as lights (53.2%), torch (25.5%), arrows 25.5% and axes (4%) leading to a total sum of 269,900 ± 134,009 Ariary in total per ha per year (58.8€). In total, the expected production costs sum up to 1,071,677 Ariary /ha/year (233.3€) for 2021.

4.7. Updated Fairtrade's Sustainable Vanilla Farm Model based on 2020 data

Fairtrade's Living Income Reference Piece model is based on the following equation:

$$\text{Living Income Reference Price} = \frac{\text{a) cost of decent living} + \text{b) cost of sustainable production}}{\text{c) viable land area} * \text{d) sustainable yields}}$$

a. Costs of decent living:

The costs of a decent living/living income for vanilla farming household for the year 2020 is established at 4,668€ per year per household (see Figure 4). The value of self-consumed food (303 €, converted from Hänke & Fairtrade International 2019) is deducted from the cost of decent living- also called “living income” - in Fairtrade's living income reference price model (Fairtrade 2019).

b. Costs of Sustainable production:

The current costs of production are estimated at 233.3 €/year (hired labour, tools & equipment). However, the labourers are not paid in living wages as they received 1.7 € per day (7,810 Ariary), on average. Living wage is estimated at 3.8 €/day (17,457 Ariary adapted to 2020 exchange rate, cf. Hänke & Fairtrade International 2019). Consequently, the labour needs are transformed into living wages for hired labourers, summing up to 333.9 € /ha/year. Along with tools and equipment (58.8 €) the costs of sustainable production are hence: 1,804,039 Ariary/ha /year (392.7 €).

c. Viable land area

Together with experts, farmers and other stakeholders, the viable land area or “full employment farm size” was established at 1.0 ha in Madagascar in 2019 and remains the same for the present farm model (Hänke & Fairtrade International 2019)

d. Sustainable yields

Sustainable yield levels or “maximum feasible yields” were established at 350 kg/ha on a viable land size of 1.0 ha together with diverse stakeholders (Hänke & Fairtrade International 2019). The maximal feasible yield level in 2010 is assumed to be the same as in 2019.

4.8 Overview and Living Income Reference price for Vanilla in 2020

As a summary of selected data presented before, [Table 2](#) summarizes key variables that will be used in the final FLIRP model for vanilla.

Table 2: Summary of key variables for FVLIRP model in Madagascar

Variable*	FLIRP for vanilla from Madagascar 2019	FLIRP for vanilla from Madagascar 2020
Vanilla (ha)*	0.9	0.9
Full employment vanilla farm size (ha)*	1.0	1.0
Hired labour/year (without living wages)/ha	310.7€	174.5
Other production costs (equipment)/ha	32.3€	58.8€
Hired labour at living wages /ha/year	594.5€	333.9
Production costs (incl. living wages)/ha/year	626.8€	392.7
Farm gate price green vanilla in 2020 (€)	38.2	10.2
Vanilla yields (kg /green)	49.2	81.3
Max. feasible yield per ha of green vanilla*	350	350
Net income from other farm sources*	149.8	149.8
Value of self-consumed food *	413.0	303.0
Household size*	4.2	4.2
Living income benchmark (per household and year)	5 751€	4,667.5 €
Extreme poverty line (1.9\$/person/day) ²	1592€/year	1,405 €/year

* based on Hänke & Fairtrade International (2019) and assumed to remain unchanged

¹ in italic & grey background= model estimations

² Purchasing Power Parity (PPP) exchange rates applied based on IPC (2011)

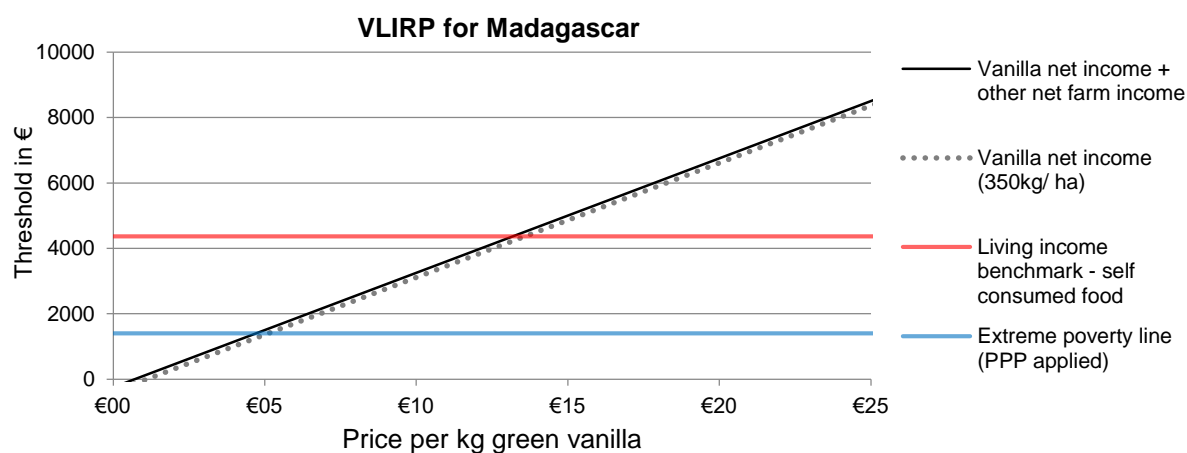


Figure 5: Vanilla Living Income Reference Price for Madagascar in 2020

As illustrated in [Figure 5](#), if only **vanilla net income** is considered (dashed grey line in [Figure 5](#)), farmers would need a minimum price of **5.14€** (23,615 Ariary or US\$ 6.2) per kg green vanilla to reach the PPP (Purchasing Power Parity) - adapted **poverty line**, and 13.59€ (62,448 Ariary / US\$ 16.45) to reach a **living income**.

If we are looking at **net vanilla and other farm income**, however, farmers would need **4.71€**, 21,627 Ariary or US\$ 5.70 to reach the **extreme poverty line**. If farmers are to reach a **living income** based on vanilla & other farm income, they would need a minimum price of 13.16 € / 60,475 Ariary / US\$ 15.93.

5. Discussion and Conclusion

This study presents an updated FLIRP for vanilla based on updated food costs, inflation of the Malagasy Ariary and changing farm investments by Malagasy vanilla farmers in 2020.

Compared to 2019, the estimated Fairtrade vanilla living income reference price has decreased from 15.6 € to 13.2 € in 2020. This is due to changing food prices in the SAVA region and changing farm investments of farmers, particularly production costs such as hiring of security guards. Also, inflation of the Malagasy Ariary had an impact. In sum, the living income per year for a typical vanilla farming household has decreased from 5,751 € in 2019 to 4,668 € in 2020.

The SAVA region was impacted through the global COVID-19 crisis leading to increasing costs of imported goods (particularly rice, petrol and vegetable oil). Still, the SAVA region was hit much less by food price fluctuations than other parts of Madagascar, most likely because large shares of the rural population are farmers (Hänke et al. 2018) and were able to buffer increasing food costs. While prices of main staples in other parts of Madagascar have been reported to be 10-50 % above the five-year average in 2020 (FEWS 2020, WFP 2020), the SAVA region was in the lower spectrum with a rice price increase of 15% (see [Figure 2](#)). Particularly the Andapa basin is a key rice growing area in Madagascar, which possibly buffered some of the rice import gaps this year. However, local rice production -the most important national and regional staple food- has decreased, many local farmers invested gradually in vanilla during the last years due to ongoing high vanilla prices. Prices of most other foods decreased this year most likely due to inflation and since the local purchasing

power has decreased, which is linked to low vanilla prices in 2020, especially considering that 83% of the rural population practice vanilla farming (Hänke et al. 2018).

Due to low prices, farmers invest less in their farms and theft pressure is reported to decrease this year. Consequently, production costs decreased as “hiring of security guards” was a main production costs category in 2019 (Hänke & Fairtrade International 2019).

In the presented FLIRP for vanilla 2020 update we assume a similar model diet as in 2019, updated the food and production costs based on *in situ* data collection, and estimated other living income benchmarks based on 2020 exchange rates. While petrol prices have increased (see [Figure 3](#)) so did probably transportation costs. Likewise, the income from “other cash crops” is most likely lower in 2020 as clove and coffee prices have dropped dramatically (see [Figure 2](#)). However, even if these changes are not taken into account in the presented model, in 2019 “other cash crops,” “value of self-consumed foods” and “other farm income” was low for Malagasy vanilla farmers (Hänke & Fairtrade International 2019). Therefore, we assume that these costs/income sources have a minimal impact in the updated price model.

Feedback to this report from stakeholders included a.) that a next LIRP update on vanilla includes additional production regions outside of Madagascar and b.) that the present report should also be accessible in French for Malagasy stakeholders.

Over the long term, vanilla is locked in a boom-and-bust cycle. After remaining around 5 years in a “boom cycle” (2014-2018), the vanilla market is moving back towards a „bust cycle“. There is a risk that many vanilla farmers, whose livelihoods depend on vanilla, will now fall into extreme poverty (see Appendix 4). Looking at current vanilla net production patterns and prices received, farmers earned only 59% of income needed to reach poverty line and 18% of living income (see Appendix 4). The main challenge will be to fill this gap and to reach adequate productivity levels for vanilla farmers who are now at the risk of falling into extreme poverty. Fair pricing is one important component but sustainable vanilla production should also include technical assistance, traceability, sustainability issues and a transparent market.

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APPENDIX

Appendix 1: Food Seasonality calendars for zone 1. Sambava Nord, 2. Andapa. 3. Sambava vers Antalaha , Source: Andriamparany et al. 2021)

1. Zone : Sambava Nord

[illegible]

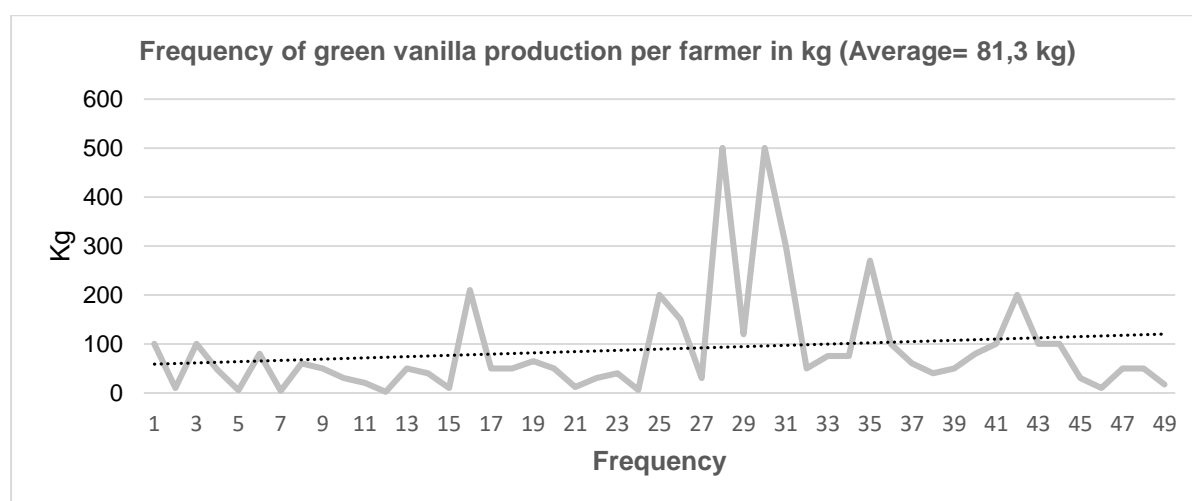
2. Zone : ANDAPA

[illegible]

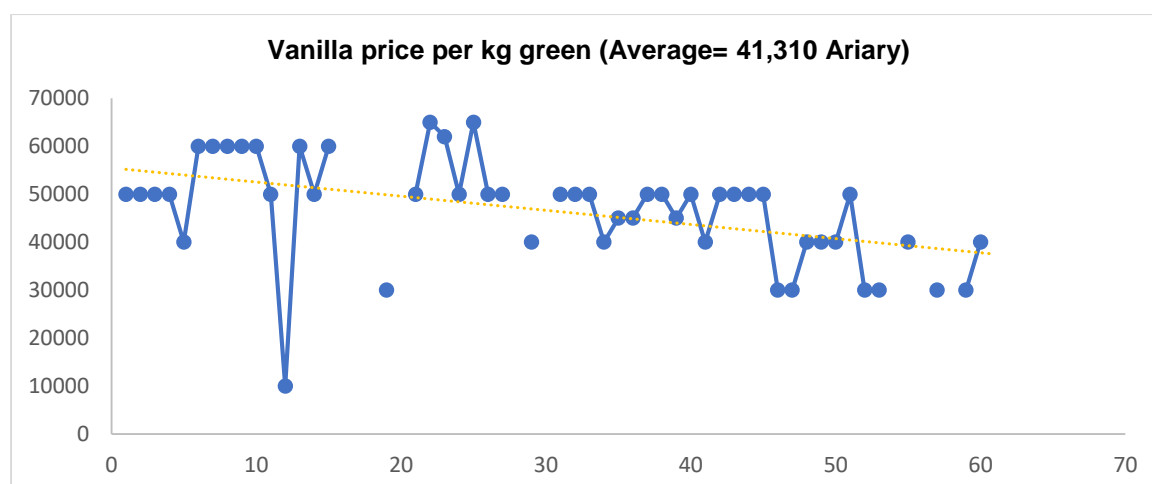
3. Zone : Sambava vers Antalaha

[illegible]

Appendix 2: Frequency of green vanilla production per vanilla farmer in northeastern Madagascar



Appendix 3: Vanilla price received per kg green vanilla in 2020



Appendix 4: Status quo of average vanilla production and prices received in 2020. Graph showing that with the given harvests of 81.3 kg vanilla farmers would need a minimum price of 22.1€ to reach the poverty line and 57.2€ to reach a living income.

