



A Quick Scan on Improving the Economic Viability of Coffee Farming

BRAZIL



OBJECTIVES OF STUDY

Overall objective

- Identify opportunities for potential benefits to coffee farmers from improved farm profitability and increased efficiency along the supply chain

Detailed objectives

- 1 Understand overall farm-level financial benefits for the dominant farmer type in each country and how they compare to other countries
- 2 Describe the main green coffee supply chain in each country at a high level to understand supply chain efficiency
- 3 Highlight key opportunities to increase farmer profitability in each country and explore next steps to increase value add for farmers and the industry

ANALYTICAL PROCESS TO DEVELOP A BUSINESS CASE FOR COFFEE FARMING



Approach	Model Inputs	Model Outputs
1 Define producer types	<ul style="list-style-type: none"> • Farm size • Coffee yields • Coffee quality metrics • Production volume • Number of growers 	<ul style="list-style-type: none"> • Farmer types
2 Establish farmer financial benefits	<ul style="list-style-type: none"> • Coffee price premiums • Potential increase in yield • Incremental changes to costs 	<ul style="list-style-type: none"> • Potential increase in net income for farmer
3 Describe value chain structure	<ul style="list-style-type: none"> • Key actors in value chain • Costs and margins • Share of value captured 	<ul style="list-style-type: none"> • Map of supply chain • Supply chain overview
4 Present recommendations	<ul style="list-style-type: none"> • Selected opportunities to optimize business case 	<ul style="list-style-type: none"> • High-level recommendations for priority opportunities • Potential partners to address gaps

Note: Assumes that demand for coffee will increase as coffee supply increases, thus maintaining static coffee prices

POTENTIAL ANNUAL VALUE CREATION OF \$145M ACROSS 129K FARMERS IN BRAZIL



Potential for yield improvements and reduction in costs

- For target farmers, there is modest potential for value add from increasing yield to 35-40 bags / ha for small Arabica farms, up from 27 bags / ha currently
- Key practices for this subset include optimized fertilization, concentrated planting densities, pruning, and tree cycle management / stumping
- Production costs have been increasing over the past decade; improvements in yield can amortize fixed costs. Mechanization or outsourcing of on-farm processing may reduce labor costs. Decreasing inputs can reduce costs and improve soil fertility and resilience to climate change

Improved processing

- There is modest opportunity for value add from improved post-harvest practices and improving access to specialty markets
- Centralized milling, improved infrastructure, and access to machinery (e.g., dryers, hullers) may be alternatives for farmers without sufficient financial resources to make investments themselves

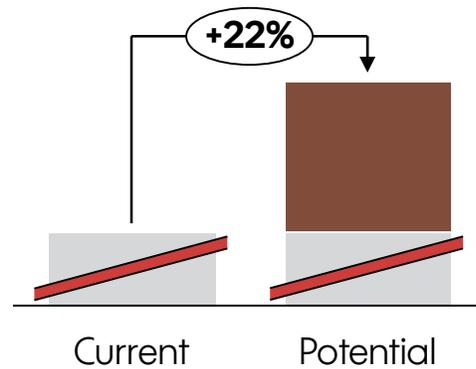
Other opportunities

- Though this scan focuses on non-mechanized Arabica smallholders largely in Minas Gerais, there is also opportunity for value add in other farmer segments. Productivity and levels of technology vary from region to region
- Examples of other opportunities include improving efficiency in transport and energy usage in regions such as Rondônia, investments in efficient water usage for irrigation in regions such as Cerrado, Bahia and Espírito Santo

POTENTIAL REVENUE INCREASE FROM HIGHER YIELD AND PRICE PREMIUMS

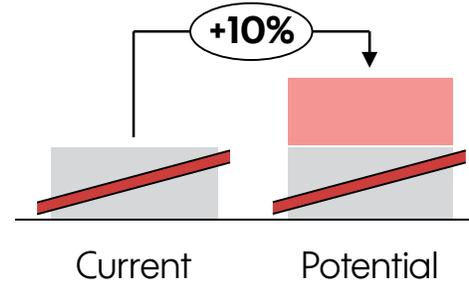


Net income from yield improvements (\$ / ha)



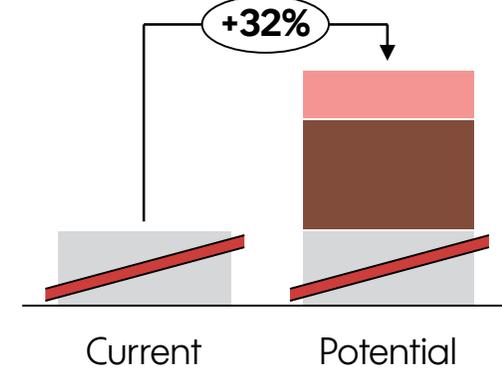
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Net income from price premiums (\$ / ha)



=

Total net income increase (\$ / ha)



■ Yield improvements ■ Processing improvements ■ Certification

- Yield is high at 27 bags green / ha
- There is potential for yield improvement of 30% over five years, though this will require investment and additional fixed and variable costs. Farmers will need to assess through a personalized break-even analysis
- Key issues are technology use, agricultural practice adoption, and climatic adaptation

- Though the specialty market in Brazil has been historically small, there is potential to achieve premiums if farmers are able to make necessary investments
- Up to 20% of the coffee produced by family farmers does not meet the *café duro* quality level

- There is significant potential to increase net income through improvements in yield, given currently high yields
- Value of access to specialty market for Brazil coffee farmers may be an area of additional study moving forward
- Profitability can be unpredictable due to external factors, such as price, climate and FX

Note: Assumes that three interventions are separate and independent.
Source: See appendix.

\$145 MILLION OF POTENTIAL INCREMENTAL VALUE ANNUALLY

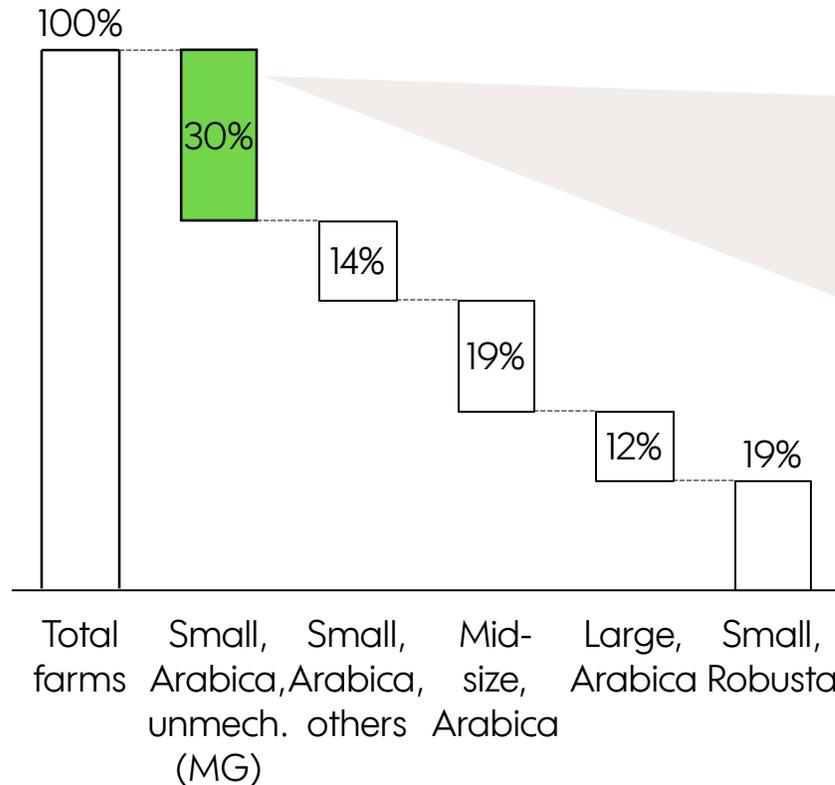


- There is an opportunity for a 32% increase in profitability for farmers, which translates into estimate \$154m annual potential value across the 129k farmers in this archetype (unmechanized Arabica smallholders under 10 ha, primarily in Minas Gerais)
- Given the heterogeneity of coffee farming across regions, the variety of farms types within Brazil and the narrow scope of this scan, there is need for additional research to precisely define what total potential profitability to all farmers and the total value created for the industry

Note: Extrapolated estimate annual value; improvements in profit for individual farmers may vary.
Source: See appendix.

IDENTIFYING FARMER TYPE WITH HIGHEST POTENTIAL IMPACT

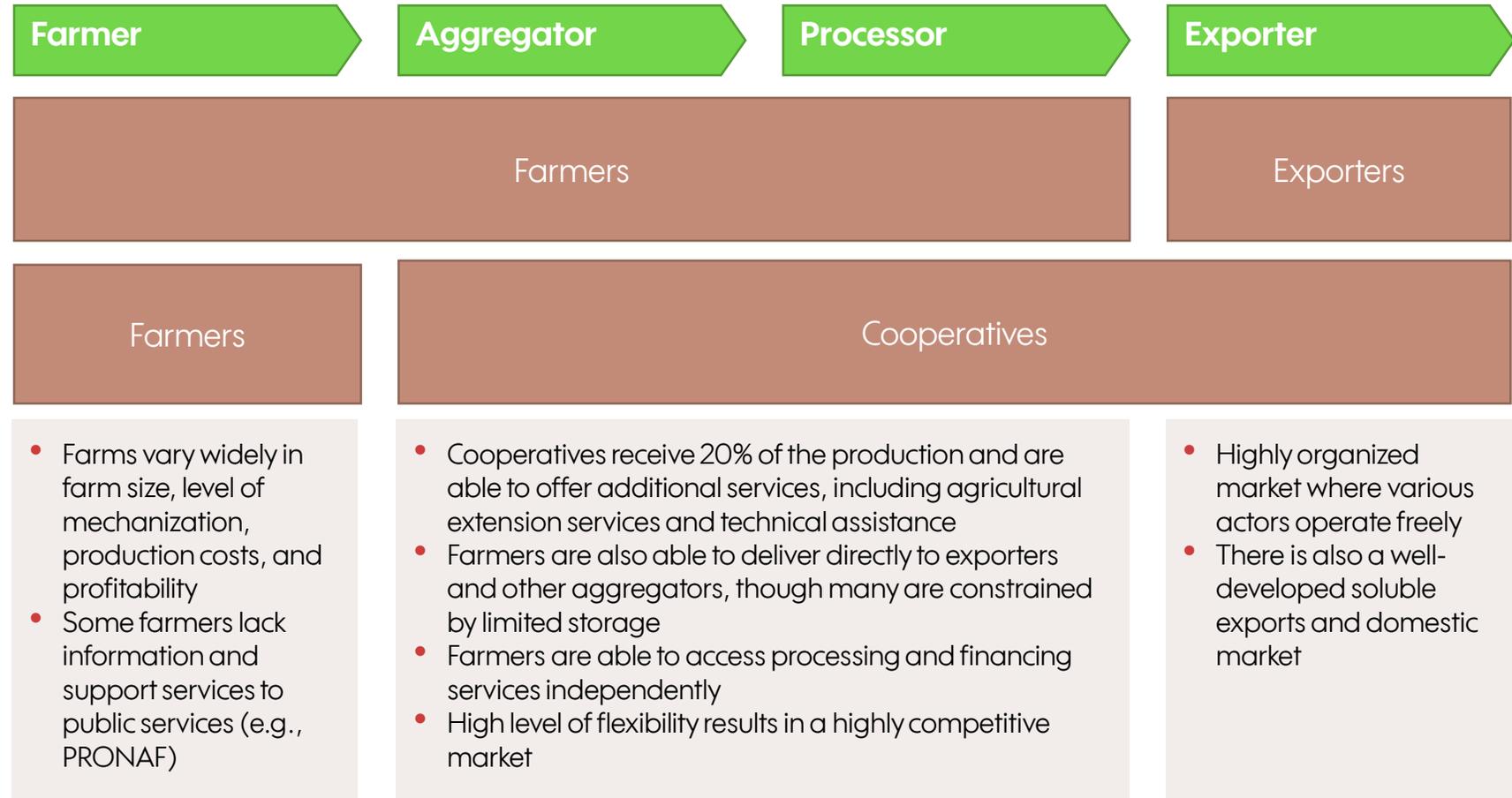
Farmer types by share of volume



- Smallholders under 10 ha of coffee growing Arabica in unmechanized farms, mostly through manual labor, primarily in Minas Gerais, have the highest potential for income improvement given comparatively low levels of yield, skills and technology
- Within this farmer type there is great variety in systems of production, costs, capital invested, financial capacity, cooperative membership, training levels, best practice adoption, and other factors that will affect farmers' ability to achieve these yields
- 80% of the volume is Arabica, mostly sun-dried on farm, and 20% is Robusta
- There is a great deal of variance among different regions, farm sizes, and profitability

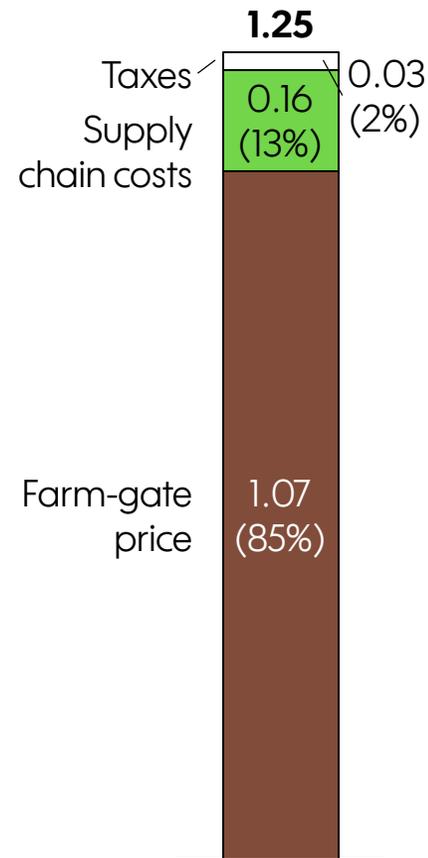
Note: full description of farmer types in appendix.
Source: TNS (2014), USDA (2016), stakeholder interviews

SUPPLY CHAIN OVERVIEW



SUPPLY CHAIN COST BREAKDOWN FROM FARM TO EXPORT

Supply chain cost breakdown (US \$ per lb green)



- Farmers receive 85% of FOB price, though must pass-on a portion of this to input suppliers, laborers, processors, transporters and other members of the value chain
- Farmers dry coffee on farm, access additional services independently, and often sell to exporters directly
- There is a 2% tax on coffee, which is used to fund FUNCAFE
- The market is relatively free of intervention and there is a highly organized supply chain with 220 registered exporters
- There is also a well-developed domestic market, which is excluded from this analysis



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PLATFORM**
for a sustainable coffee world

APPENDIX

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DETAIL ON FARMER TYPES



Type	Region	Farm size (ha)	Variety	Number of farms
Small, Arabica, unmechanized, MG	Minas Gerais	<10 ha	Arabica	129,006
Small, Arabica, others	Other regions	<10 ha	Arabica	63,686
Mid-size, Arabica	Minas Gerais, São Paulo, Paraná	10-50 ha	Arabica	12,684
Large, Arabica	Cerrado in Bahia, Minas Gerais	>50 ha	Arabica	5,348
Small, Robusta	Bahia, Rondônia, Espírito Santo	<10 ha	Robusta	76,105
Large, Robusta	Espírito Santo	>50 ha	Robusta	3,171

DETAILED DATA APPLICABLE TO SELECTED FARMER TYPE



Data point	Unit	Data
Farmer data		
Average coffee farm size	ha	5.00
Number of farmers in type	#	129,000
Assumptions		
Exchange rate	USD to LCU	3.48
Market Data		
Farm-gate price	cts/lb	107
Average FOB export price	cts/lb	123
Yield		
Average coffee yield	lb/ha	3,580
Potential yield increase	%	29%
Price		
Potential quality premium	cts/lb	20
% of production eligible for quality premium	%	25%
Potential certification premium	cts/lb	2
% of production eligible for certification	%	5%

* Costs of unmechanized farms in Guaxupe used as an example. Total costs in alignment with ICO (2016) and SEBRAE (2017) (Cerrado Mineiro, South of Minas, and Matas de Minas).
Note: Costs of production updated to 2016 exchange rates. All volume units are for green coffee equivalent.

Data point	Unit	Data
Production costs*		
Operations	\$/ha	888
Inputs	\$/ha	724
Labor	\$/ha	1269
Incremental costs of increasing yield	\$/ha	936
Processing costs		
Paid processing labor	\$/ha	0
Drying service	\$/ha	38
Other	\$/ha	99
Incremental costs of improving processing	\$/ha	109
Third-party costs		
Other	\$/ha	102
Incremental costs of certification	\$/ha	5
Outputs		
Current revenue	\$/ha	3,825
Potential increase in net income from:		
Yield improvements	\$/ha	155
Processing improvements	\$/ha	70
Certification premiums	\$/ha	-1

SOURCES



Organization	Data inputs	Detailed references
TechnoServe	Farmer data, market data, yield, costs, certification	IDH and TechnoServe, Brazil: A business case for sustainable coffee production (2014); TechnoServe, Cup of Excellence in Brazil and Honduras: An Impact Assessment (2015)
Global Coffee Platform	Farmer data, market data, yield, price, costs	Stakeholder interview (2017)
Other	Farmer data, yield	USDA, GAIN Report: Coffee, Brazil (2017)
	Farmer data, market data, yield, cost	UFLA, Análise da viabilidade econômico-financeira da cafeicultura: um estudo nas principais regiões produtoras de café do Brasil (2009)
	Farmer data, market data	Ministry of Agriculture Statistics (2017)
	Costs, yield	National Coffee Council of Brazil (CNC) (2014)
	Costs	SEBRAE-MG, Central processing data for Educampo Project (CPDE) (2017)
	Costs	ICO, Assessing the economic sustainability of coffee growing (2016)
	Certification	ICO, The State of Sustainability Initiatives Review 2014 – Standards and the Green Economy (2014)



LIMITATIONS OF METHODOLOGY

This scan is intended to initiate conversations between coffee origins, rather than to be an exhaustive study of farmer economics. It seeks to provide a synthesis of existing databases, studies, and reports as well as a comparative analysis across origins. However, given wide variation in methodologies, regions, and characteristics of available information, there may be credible and important data sources not incorporated into this study.

Since national averages of production indicators do not represent real farmers, our scan focuses on one farmer type within each origin. These farmer types are not representative of the national averages and opportunities may not be uniform within each farmer type.

This scan is not meant to evaluate certification schemes, but rather assesses incremental contribution of certification premiums to farmers' incomes. Impacts of certification achieved through the promotion of best practices and improved access to markets are outside the scope of the scan. Prices are assumed to be static and therefore the scan does not account for volatility of coffee prices and exchange rates, both of which have a significant impact on farmer incomes. Climate change, droughts, and diseases such as coffee leaf rust also pose risks for farmers, but are outside the scope of this scan. Intercropping and other household incomes are also outside the scope of this scan.



Acknowledgments

SEBRAE, IMAFLORA, Hanns R. Neumann Stiftung, CLAC (Latin American and Caribbean Network of Fair Trade Small Producers and Workers), Nespresso, Ipanema Coffees, Brazilian Confederation of Agriculture and Livestock (CNA)

About the Global Coffee Platform

The GCP is the leading facilitator of the coffee sector's journey towards sustainability. The GCP improves the livelihoods, ecosystems and resilience of coffee farming communities and the sector as a whole by enabling producers, international roasters, governments, traders, and NGOs to align and multiply their efforts and investments, collectively act on local priorities and critical issues, and grow and scale successful sustainability initiatives across the coffee world.

About TechnoServe

TechnoServe works with enterprising men and women in the developing world to build competitive farms, businesses and industries. A nonprofit organization operating in 29 countries, TechnoServe is a leader in harnessing the power of the private sector to help people lift themselves out of poverty. By linking people to information, capital and markets, we have helped millions to create lasting prosperity for their families and communities.