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for a sustainable coffee world

NICARAGUA

A Quick Scan on Improving the Economic Viability of Coffee Farming

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

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Approach	Model Inputs	Model Outputs
1 Define producer types	• Farm size • Coffee yields • Coffee quality metrics • Production volume • Number of growers	• Farmer types
2 Establish farmer financial benefits	• Coffee price premiums • Potential increase in yield • Incremental changes to costs	• Potential increase in net income for farmer
3 Describe value chain structure	• Key actors in value chain • Costs and margins • Share of value captured	• Map of supply chain • Supply chain overview
4 Present recommendations	• Selected opportunities to optimize business case	• 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 $41M ACROSS 42K FARMERS

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Potential for yield improvements

- There is high potential for value creation through yield improvements
- Average yield for smallholders is low and estimated to be ~10 qq / mz , with potential to increase yields by 35%. National yields are higher at ~13–15 qq /mz
- Key levers include farm rejuvenation and adoption of best practices, suggesting a gap in smallholder farmers' access to credit and training programs
- Production is recovering coffee rust in 2013/14 that reduced coffee production by 25%

Price premiums from improved processing

- There is limited potential for value creation through improved processing
- Nicaraguan coffee is well-placed to qualify as specialty coffee. However, farmers are not currently incentivized to invest in quality improvements as they are unable to capture the associated premium

Supply chain efficiency

- Farmers receive ~68% of the export price and the supply chain involves a number of intermediaries
- By selling in dry parchment and/or selling directly to exporters, farmers may be able to capture a greater share of the margin

POTENTIAL REVENUE INCREASE FROM HIGHER YIELD AND PRICE PREMIUMS

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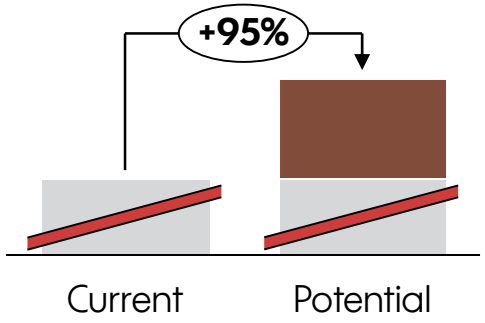
Net income from yield improvements ($ / ha)



- Productivity for smallholders is low at ~10.2 qq / mz.
- Key issues are:
  - Limited access to credit that discourages farmers from using inputs or renovation
  - Lack of adoption of GAP
- Production is recovering from the coffee rust in 2013/14 that reduced coffee production by 25%

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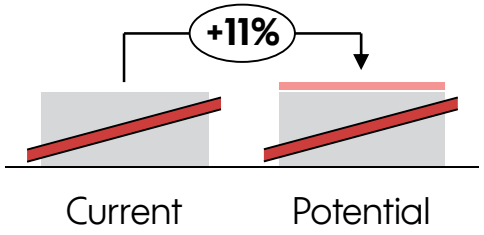
Net income from price premiums ($ / ha)



- There is potential to attain price premiums through improved wet processing, access to the specialty coffee market, and trading directly with exporters
- However, the current supply chain does not incentivize farmers to invest in quality as they are unable to capture premiums

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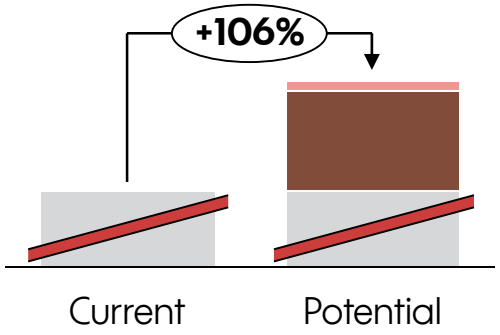
Total net income increase ($ / ha)

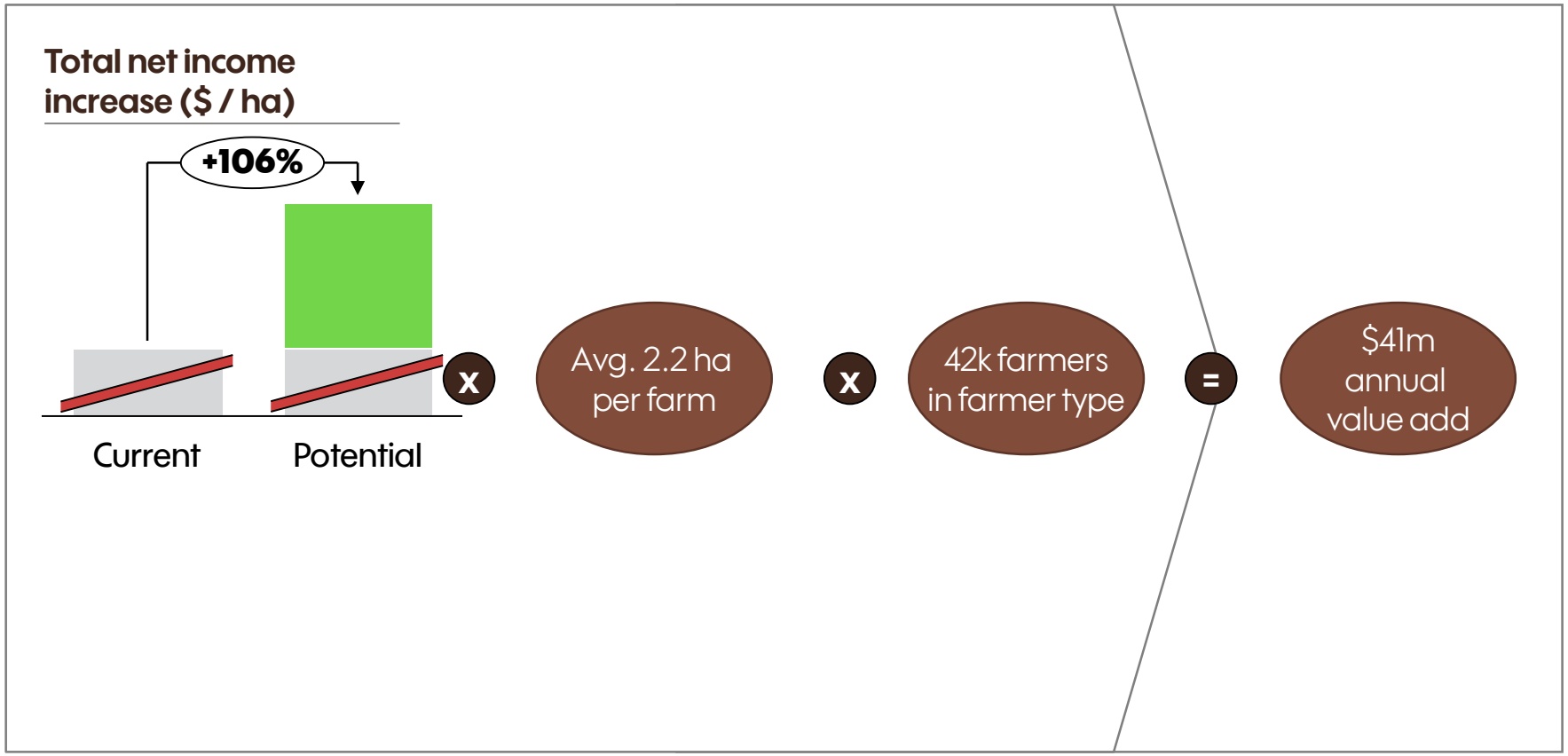


- There is high potential to increase net income to farmers through yield improvements
- There is potential for improved processing and quality, though farmers may not be incentivized to do so currently

Yield improvements | Processing improvements | Certification premiums

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

$41 MILLION OF POTENTIAL INCREMENTAL VALUE ANNUALLY

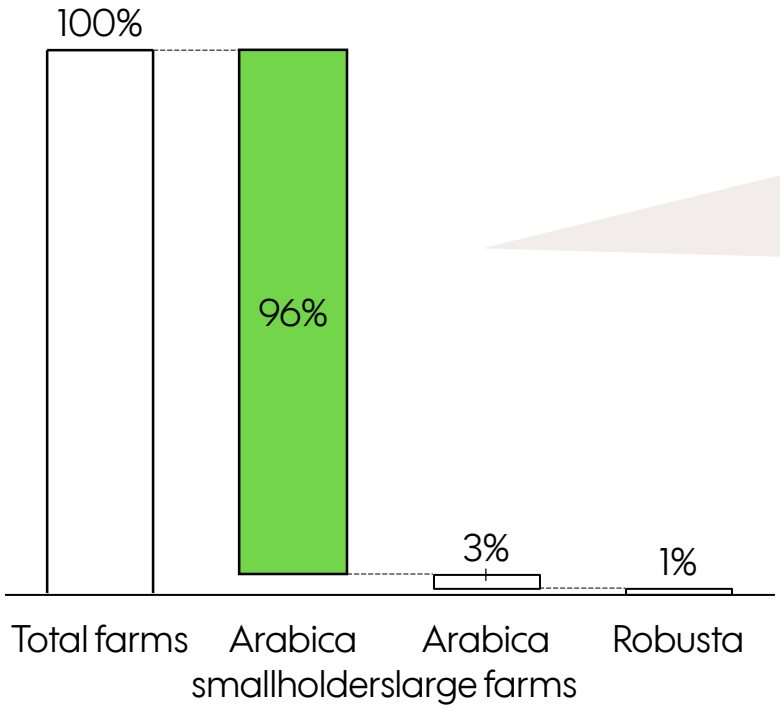


- There is an opportunity for a 106% increase in profitability for farmers, which translates into an estimated $41m annual potential value across the 42k farmers in this farmer type (smallholders)

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

IDENTIFYING FARMER TYPE WITH HIGHEST POTENTIAL IMPACT

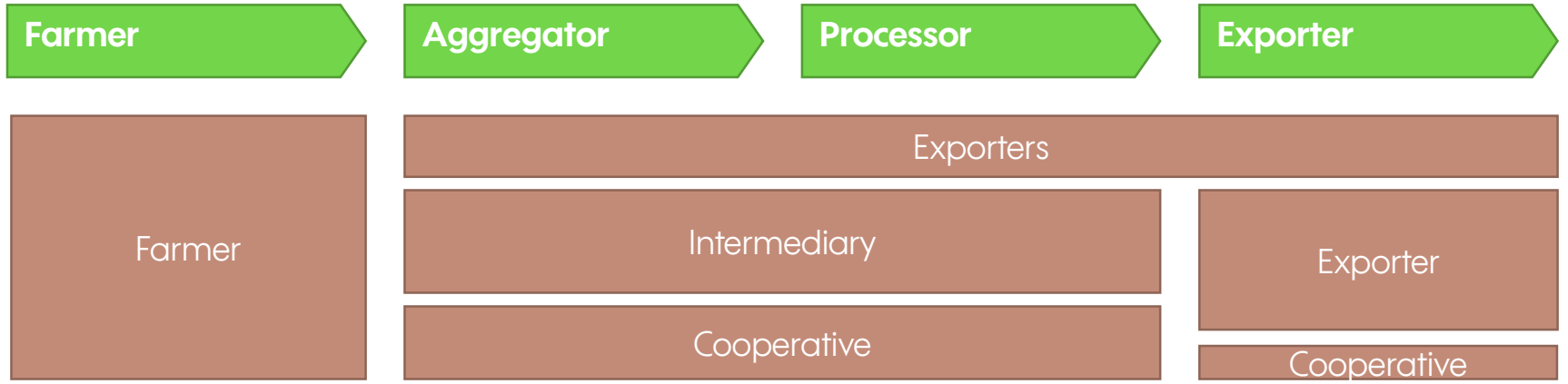
Farmer types by share of volume



- There are an estimated 44,000 farmers in Nicaragua, of which ~96% are Arabica smallholder farmers (with less than 14 ha of coffee).
- Less than 2% of the production is Robusta, but private sector investments expect to increase production of Robusta by 30% in 2017/18

Source: TechnoServe analysis based on CENGARO (2011) and USDA (2017)

SUPPLY CHAIN OVERVIEW



- Most smallholders sell in wet parchment, wet milling on farm
- Farmers have limited access to credit for farm renovation and input provision and lack institutional support compared to Honduras (IHCAFE) or Colombia (FNC)

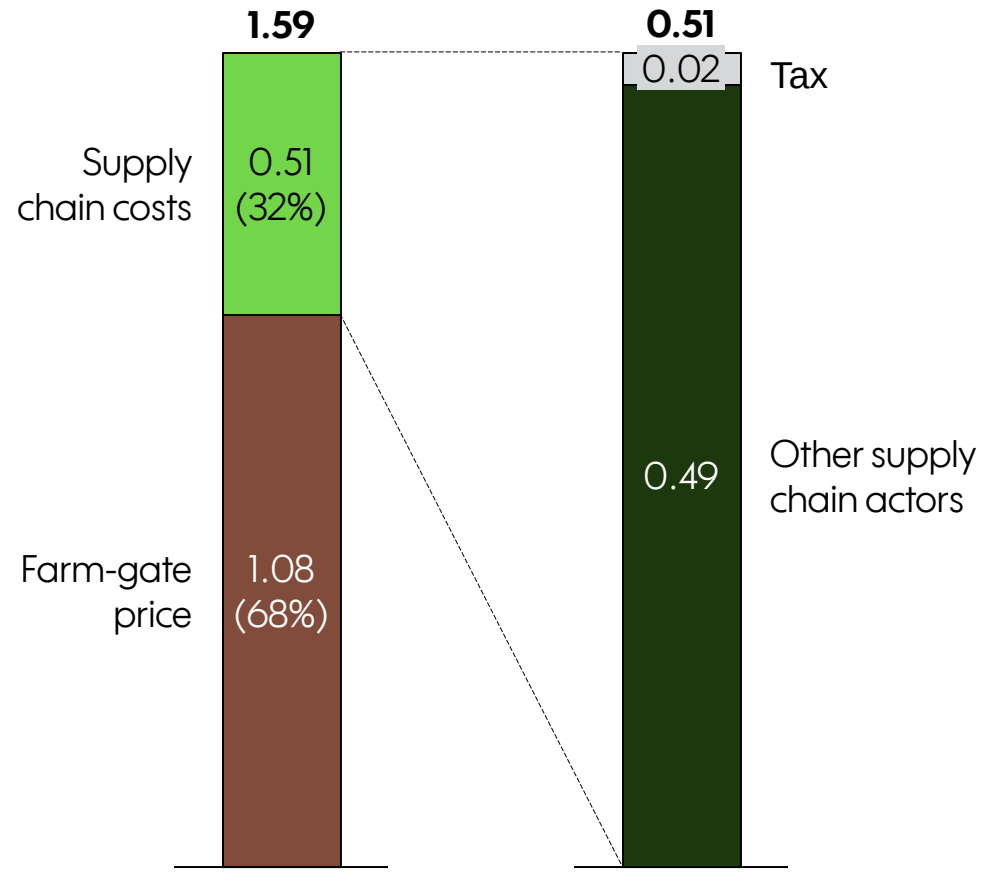
- Smallholders usually sell coffee to intermediaries and, to a lesser extent, to cooperatives and exporters
- Intermediaries, cooperatives, or exporters then dry coffee
- Any quality premiums for coffee sold by farmer in wet parchment is captured by processor once dried and farmers are not incentivized to invest in quality.

- In 2012/13, it was estimated that cooperatives export ~20% of total coffee

Source: FUNIDES (2012), stakeholder interviews

SUPPLY CHAIN COST BREAKDOWN FROM FARM TO EXPORT

Supply chain cost breakdown (US $ per lb green)



- Farmer share of export price is ~68%
- Intermediaries play a significant role in the supply chain. There will be multiple middlemen in the supply chain from farm to exporter for the majority of smallholders
- Farmers selling directly to exporters tend to receive a higher price, suggesting there is potential for a more efficient supply chain
- There is a small fee ranging from 1-4 cents per lb green exported to fund renovation of old coffee plantations

Source: USDA (2017), stakeholder interviews

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APPENDIX

DETAIL ON FARMER TYPES

Type	Region	Farm size (ha)	Variety	Number of farms
Arabica smallholders	N/A	< 14 ha	Arabica	42,000
Arabica large farms	N/A	> 14 ha	Arabica	1,000
Robusta	N/A	N/A	Robusta	600

Source: TechnoServe analysis based on CENGARO (2011) and USDA (2017)

DETAILED DATA APPLICABLE TO SELECTED FARMER TYPE

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Data point	Unit	Data
Farmer data		
Average coffee farm size	*ha*	2.20
Number of farmers in type	*#*	42,000
Assumptions		
Exchange rate	*USD to LCU*	29.5
Market Data		
Farm-gate price	*cts / lb*	108
Average FOB export price	*cts / lb*	159
Yield		
Average coffee yield	*lb / ha*	1,455
Potential yield increase	*%*	35%
Price		
Potential quality premium	*cts / lb*	40
% of production eligible for quality premium	*%*	9%
Potential certification premium	*cts / lb*	5
% of production eligible for certification	*%*	7%

Data point	Unit	Data
Production costs		
Operations	*$ / ha*	31
Inputs	*$ / ha*	313
Labor	*$ / ha*	809
Incremental costs of increasing yield	*$ / ha*	153
Processing costs		
Paid processing labor	*$ / ha*	0
Drying service	*$ / ha*	0
Other	*$ / ha*	0
Incremental costs of improving processing	*$ / ha*	8
Third-party costs		
Other	*$ / ha*	0
Incremental costs of certification	*$ / ha*	2
Outputs		
Current revenue	*$ / ha*	1,571
Potential increase in net income from:		
Yield improvements	*$ / ha*	397
Processing improvements	*$ / ha*	44
Certification premiums	*$ / ha*	3

Note: Costs of production updated to 2016 exchange rates. All volume units are for green coffee equivalent.

SOURCES

Organization	Data inputs	Detailed references
TechnoServe	Farmer data, market data, yield, price, costs, supply chain	Stakeholder interviews (2017); TechnoServe implementation project data (2016)
Enveritas	Costs, farmer data	Stakeholder interview (2017)
CENAGRO	Farmer data	CENAGRO census (2011)
Other	Farmer data, market data, yield	USDA, GAIN Report: Coffee, Nicaragua (2016); CIAT, CIAT research on improving livelihoods of smallholder coffee producers in Nicaragua (2015)
	Yield, price, costs	CIDIN, How Standards Compete: Comparative impact of coffee certification in Northern Nicaragua (2010)
	Market data, yield, costs	Haggar J. et al, Environmental-economic benefits and trade-offs on sustainably certified coffee farms (2017); Soto, G. et al, Environmental and socioeconomic impact of organic coffee certification in Central America as compared with other certification seals (2012)
	Farmer data, market data, yield, costs	Montagnon, C., Production costs and profitability of coffee growing: A synthetic review (2016)
	Yield, supply chain	FUNIDES, Program to improve productivity of coffee (2012)
	Certification	ICO, The State of Sustainability Initiatives Review 2014 – Standards and the Green Economy (2014)

LIMITATIONS OF METHODOLOGY

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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
Enveritas, Specialty Coffee Association of Nicaragua, Solidaridad, Nespresso

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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.