

FIRST
EDITION

SMALL FARMER ATLAS

Elevating the voice
of small-scale farmers
in high value markets



Solidaridad

EXECUTIVE SUMMARY

SUMMARY

The story of global agriculture is largely one of small farms, as small-scale operations account for 90% of the 570 million farms around the world and are responsible for a notable share of the world's food, feed, fiber, and other products. Despite being a vital cog in the global food system, the grand majority of small-scale farmers remain mired in poverty, struggling to eke out a living from their land.

Though governments can set the stage creating a supportive enabling environment for agriculture and agribusiness through policy and investment, the private sector and farmers have key roles to play in building relationships based on mutual respect rather than dependent beneficiaries reliant on support projects. This entails recognizing and prioritizing the interests and agenda of local communities, rather than imposing top-down solutions.

To promote sustainable agricultural development, it is essential to incorporate the perspectives and practical know-how of small-scale farmers into policies and practices that affect their livelihoods.

This Small Farmer Atlas seeks to do just that, by exploring the experiences and expectations of small-scale farmers in global value chains. It's a novel attempt by Solidaridad to package these interests and concerns in a concise report and website. This first edition is centered around the examination of eight agricultural value chains that have an international scope: bananas, cocoa, coffee, cotton, oil palm, soybeans, sugarcane and tea. These commodities are produced by millions of small-scale farmers, the vast majority of whom are in Asia, Africa, and Latin America. In these three continents, we have selected 18 countries and have surveyed close to 10,000 small-scale farmers. The purpose of these interviews is to gain insights into how they view sustainable development, particularly regarding their household income, access to markets, and utilization of natural resources.

Our research shows that nearly half of farmers who cultivate crops like bananas, cocoa, soybeans, and sugarcane are dissatisfied with their income, which they feel is inadequate given the amount of effort they put into farming activities. Similarly, about one third of coffee and tea farmers share the sentiment. However, the situation is notably different for cotton and oil palm farmers, with two thirds of them content with their income, which covers their basic needs. It's worth noting that even farmers who express satisfaction with their earnings acknowledge that their income remains insufficient for building resilience to market volatility or climate-related shocks.

Half of the farmers express dissatisfaction with their access to markets for their produce, with export markets being especially challenging for those who grow crops like bananas, sugarcane, cocoa and tea. The vast majority of farmers, nearly two thirds of them, struggle with a lack of financial resources essential for adapting to the impacts of climate change. Furthermore, across all countries farmers express grave concerns about the deteriorating quality of soil and the severe scarcity of water for irrigation.

Small-scale farmers possess a wealth of knowledge and their experiences contradict some of the fundamental assumptions underpinning our existing development model. The results of the farmer perceptions study demonstrate that it's not just about the commodities; it's about the farmers' livelihoods, their family well-being, their land, and access to and protection of natural resources.

These shared challenges underscore the fact that working in a lengthy, export-oriented commodity chain is too much of a straitjacket for farmers. It reveals the importance of two additional drivers: Firstly, the crucial need for profit-sharing across the agricultural value chain that directly benefits farmers, improves their business case so they can invest in their farms, and enables them to access finance; secondly, the need for systemic changes that cater to the requirements of small-scale farmers and the need for building wealth in the broader community.

CONTENT

Opening — *page 5*

Foreword — *page 10*

1. THE BIGGER PICTURE — *page 14*

2. FARMER PERCEPTIONS — *page 30*

3. AGRICULTURAL VALUE CHAINS — *page 44*

Bananas — *page 46*

Cocoa — *page 50*

Coffee — *page 54*

Cotton — *page 58*

Palm oil — *page 62*

Soybeans — *page 66*

Sugarcane — *page 70*

Tea — *page 74*

4. REFLECTION — *page 78*

ANNEX — *page 88*

List of abbreviations — *page 89*

Research methodology — *page 90*

Sources of figures — *page 92*

References — *page 96*

Colophon — *page 106*

SMALL FARMER ATLAS

PROSPERITY



PROSPERITY

We have been banana producers in the Sullana sector of Piura, Peru for more than 20 years already. We have seen how industrialization has transformed agriculture. We used to sell our bananas to the national market, bringing the produce with donkeys from the field. Now, most farmers have vans, motorcycles, and cars. Economically, things have improved a lot. We have increased our incomes, sent our children to school, improved our houses, and even managed to save some money.

In the last 10 years, farming has become increasingly difficult. In multiple ways. One is the costs for fertilizers. Especially now, with the war between Russia and Ukraine, prices have gone up. It has become very difficult to get the same harvests as before and being able to export the same volumes. This is really taking a toll on us.

The pandemic has also affected us. The prices of all kinds of groceries increased, and some farmers couldn't pay for their plots anymore. So we produced significantly fewer bananas than before. We now need to look at other sources of income to cover our basic expenses.

The greatest challenges that we currently face is the issue of pests and diseases. One of the main ones is called the 'red spot' or 'fusarium wilt'. It is caused by a fungus that first appeared in Asia, then it infected Colombia, and now it has reached Peru. It is an enormous challenge for all banana growers as it is already spreading in this area. I think the impact of this banana pandemic may be far more lethal than the COVID pandemic. I'm scared, farming has become increasingly complicated.

Jessica Paola Mondragón Mendoza and Edwin Nunjar Peña, Banana farmers, Peru.

INCLUSIVITY



INCLUSIVITY

My name is Mawuse Hotor. I come from Akorme-Gborta in the Volta region. I love farming. I am a young female cocoa farmer and I know there are other farmers out there who would also like to go into cocoa farming, because our cocoa-farming parents are old. But there are two major problems we face in farming now. One is access to finance. The other is access to land. We young ones, especially females, find it very difficult to get access to land to grow cocoa. I urge the government to come to our aid and get access to finance and land to support the development of cocoa and move it to a higher level. I call on development partners to help build the capacity of young people to sustain cocoa production in Ghana.

Mawuse Hotor, Cocoa farmer, Ghana.

BALANCE WITH NATURE



BALANCE WITH NATURE

My name is Ramesh Rajput. I am a soy farmer in Bhopal, Madhya Pradesh, India. I like farming. It provides us with income, it has helped us to open a business and make good progress in life.

The biggest issues we are facing here are related to climate change. The monsoon rains used to arrive on time. Farmers could sow the crops on time and the temperature used to be comfortable. But today, the situation is much different.

The monsoons don't arrive as they normally would and most villages are facing water problems. Also, when it rains there are high fluctuations in temperature, which causes problems for the farmers.

As farmers, we are entirely dependent on nature. Nature determines when I sow and when I harvest. It is important that we can cultivate our crops with respect for nature. Not only because all agriculture is based on nature, but also because it results in better yields. With organic farming, my input costs have been reduced. I make my own organic fertilizers and I am producing organic vegetables for my children's consumption. If I continue with organic farming, my children will be safe in the future.

Ramesh Rajput, Soybean farmer, India.

The concept of an atlas as a collection of maps, charts and interesting things is well understood. It evokes the idea of knowledge gathered and made understandable, which is our goal with the Small Farmer Atlas. As global conversations around food systems and sustainability have progressed over years, the world has lost the connection with its core constituency: the farmers. This atlas puts them at the heart of the discussion.

Pushing the atlas concept further, I think of the towering Greek god Atlas bearing the weight of the world. This could just as well characterize the farmers who produce our food and steward our planet's resources. In particular, I think of the 500 million small-scale farmers who produce a third of the world's food. Small-scale farmers shape our daily diets. Here they also inform the discourse.

WHERE WE COME FROM

Solidaridad has worked with millions of small-scale farmers for more than 50 years. We have offices in 44 countries and over 1,000 staff worldwide. We brought the world's first Fair Trade branded products to market, and put sustainability on the agenda at many large companies. We've developed round tables, working groups, and participated in many public-private-partnerships.

Yet we are far from satisfied with how sustainability initiatives have worked out for farmers. Despite small-scale farmers' prominence and decades of development support, we have yet to create a proper business case for farming within sustainable boundaries.

The majority of farmers continue to struggle with insufficient or unstable income. Their communities are disproportionately affected by the increasing frequency of extreme weather events. In addition, the majority of the over 800 million people grappling with hunger are smallholder farmers and their families. This inconvenient truth should bother all of us on a daily basis.

THE FUNDAMENTAL QUESTION

Is our global food system equipped to fully consider the interests of small-scale farmers? Can small-scale farmers find viable avenues for success?

We believe it is possible. On the farm, there are opportunities for higher yields with better practices, better wages, and less environmental damage. With support of supply chain actors we can help farmers access compensation for valuable ecosystem services or regenerative practices. We need to strengthen the business ecosystem with financial and digital training, and ensure fair participation in the data economy. Lobbying and advocacy work can encourage fair value distribution throughout the value chain, and a human-rights based due diligence. And in the supply chain we need price arrangements that lead to a better deal for farmers.

The sum of these efforts is a business case that can push income levels beyond so-called 'living incomes' to what's needed for a prosperous, healthy and climate resilient farm, family and surrounding community.

A healthy business case starts at the farm, with farmers as entrepreneurs. But this is just the starting point. The data in this atlas confirm the need to reshuffle our supply chains to provide the right conditions for farmers. It also contains many other surprising insights. I invite you to join us in considering the relevance and interpretation of the findings.

We seek your wisdom and ideas at www.smallfarmeratlas.info

A WORD OF THANKS

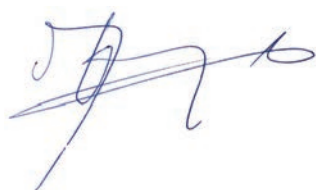
First and foremost, we must thank each of the 10,000 farmers who made this report possible. This is their report and we are grateful for their trust in Solidaridad, to speak on their behalf and share their perspectives. We would like to thank the academics and researchers at the Maastricht University – School of Business and Economics, who helped us develop the methodology and the related survey, making sure the outcomes are representative and avoiding bias, as much as possible. We thank the various peer reviewers.

We extend our appreciation to all our donors and partners. This report has partially been financed with programmatic support from 'Reclaim Sustainability!', a granted programme of the Ministry of Foreign Affairs of The Netherlands. A significant part of the funds came from the many individuals who have made donations to Solidaridad. Thank you! Our hope is to make this Atlas a periodical report and we count on your support to produce subsequent editions.

The opinions and views of farmers matter. After all: farming is the most important job in the world. They are the original influencers shaping our daily diets. And if we want healthy food that's produced in a sustainable way, we need to listen to them. The farmer perspective is not an afterthought; it's the starting point.

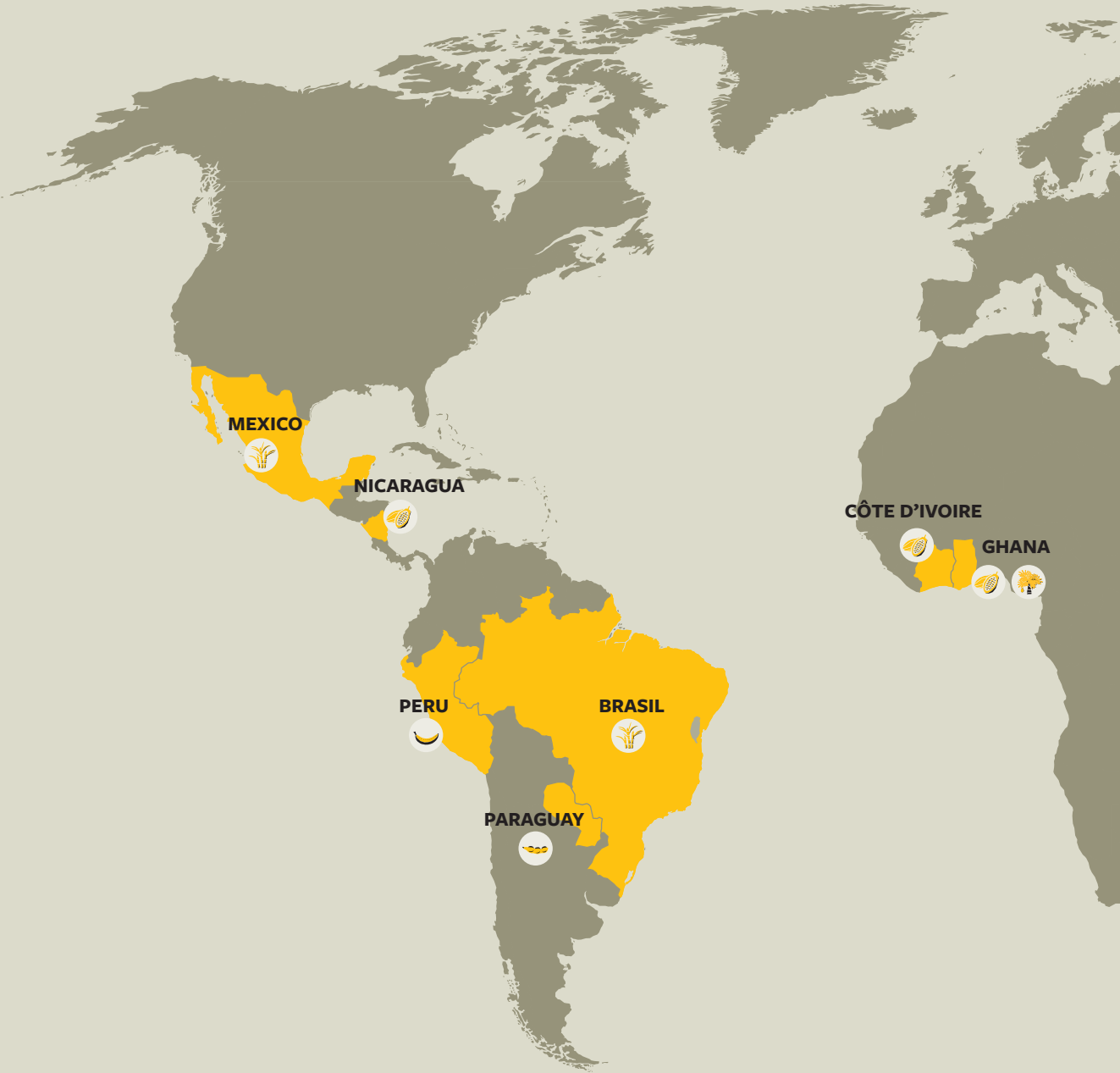
Jeroen Douglas,

Executive Director Solidaridad Network



SCOPE OF THE RESEARCH

10,000 SMALL-SCALE WORKING IN



BANANAS



COCOA



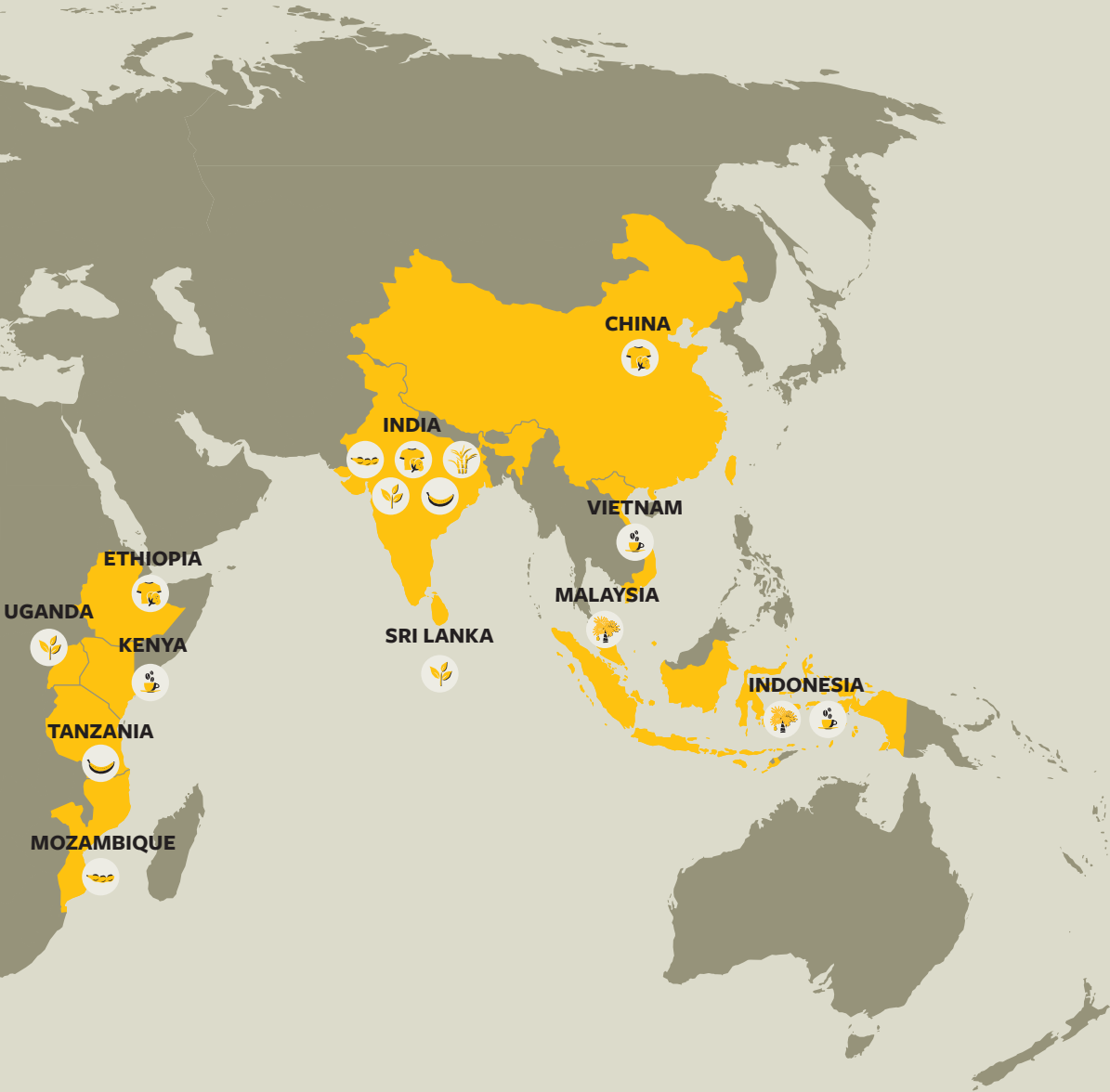
COFFEE



COTTON

FARMERS IN 18 COUNTRIES

8 COMMODITIES



PALM OIL



SOYBEANS



SUGARCANE



TEA

THE BIGGER PICTURE

This “Small-scale Farmer Atlas” aims to shed light on the experiences and perspectives of almost 10,000 small-scale farmers in 18 countries, to better understand their choices, interests, expectations, and constraints within rapidly changing agricultural commodity sectors. Based on interviews with commodity farmers producing bananas, cocoa, cotton, coffee, tea, oil palm, soybeans, and sugarcane, the report provides insights into small-scale farmers’ perceptions of household income, crop production, and sustainable resource utilization.

“I’ve been working on my farm for many years and I’ve never seen the weather be so unpredictable. In the beginning, my biggest challenge was just trying to grow crops and stay afloat. Then, it became about finding a balance between production and the environment. But now, extreme weather conditions are one of the biggest problems my farm faces on a daily basis.”

Mercedes Escoto, a cocoa producer from Nicaragua.

“Sustainability seems to have lost its meaning. If the people who produce our goods are mired in poverty, there can be no such thing as sustainability.”

Jeroen Douglas, Executive Director Solidaridad Network.

OVERWHELMING EXPECTATIONS

Agriculture is a small-farm story, 90% of the world's 570 million farms are small-scale farms. These small-scale farmers produce a significant proportion of the world's food, fiber and other products that sustain human life. In myriad ways, there are enormous expectations placed on these farmers. They are not only seen as the key to reducing rural poverty, but also serve as a pillar of global food security, stewards of natural resources and biodiversity, and part of the solution to climate change.

For millions of small-scale farmers in Africa, Asia and Latin America, agricultural (export) commodities contribute to household well-being, food security and rural livelihoods. While there are opportunities to gain real benefits from accessing high value agricultural commodity (export) markets, these farmers face fierce competition in a globalized food system that favors large-scale agribusiness. Small-scale farmers must succeed in not only managing a confusing set of issues, problems and contradictions, but they also have to make a livelihood. To flourish, small-scale farmers must be entrepreneurial, ensuring that their agricultural enterprises are both economically viable and ecologically sustainable.

RURAL TRANSFORMATION

Demographic change, urbanization and shifting diets are already having a considerable impact on how food is produced, processed, marketed, traded, and consumed across the globe. Small-scale farms and farmers themselves are also changing – in terms of landholdings, education, age and aspirations. Rural transformation, driven by forces like migration, generational transition and digitalization, is crucial for understanding how small-scale farmers manage the risks and opportunities to access markets. This implies more than simply ascertaining what drives agricultural productivity growth; it requires incorporating the knowledge accumulated by male and female farmers about food value chains, natural resource management, public policies, gender roles, and climate change.

FARMERS' VOICE

The voice of small-scale farmers can be a powerful catalyst for change. In this first edition of the "Small Farmer Atlas", we focus on the perceptions of farmers, to see through their eyes and better understand their choices, interests, expectations and constraints in rapidly changing agricultural commodity sectors. In 18 countries, we have gone into the field and interviewed small-scale commodity producers of banana, cocoa, cotton, coffee, tea, oil palm, soybeans and sugarcane, to learn about how they perceive their livelihood challenges - more specifically, their satisfaction with household income, crop production, and sustainable utilization of natural resources. Instead of depicting farmers as beneficiaries of development support programmes, we view the nearly 10,000 farmers surveyed as food producers and entrepreneurs and seek their views on prosperity, inclusivity and production in balance with nature. We expect this will contribute to strengthening their position in the debate, giving them space to be agenda setters and to be part of the solution to feeding a growing global population under severe environmental constraints.

GLOBAL DYNAMICS

To a certain extent we find ourselves in a transition phase: the voluntary certification models covering agricultural commodity production only reach a small percentage of small-scale farmers and represent a limited share of the market. In face of various crises directly affecting farming, including persistent poverty and aging farmers, a new form for the sector

is not clearly visible yet. Most of the economic development strategies to foster a sustainable, fair and prosperous future appear unable to drive systemic change that is truly impactful at the producer level.

For instance, poverty rates continue to be high among the producers of agricultural commodities, such as coffee, cocoa and sugarcane. Accessing credit and high-quality seeds and inputs is a challenge for many, which limits their ability to invest in more sustainable practices that could increase productivity. In the coming years, equitable participation in the data economy will become increasingly essential, and even a precondition for operating in certain spheres. Nonetheless, for a significant number of individuals, realizing such inclusion may pose a daunting obstacle.

These dynamics are not minor factors and it's time to ask ourselves whether we have our priorities in the right order. On balance, the answer from this publication is probably a loud 'no'. Our argument is not that all current solutions are completely ineffective. Rather, our point is that the small successes at farm level can distract from the big-picture dynamics visible in multiple agricultural value chains. Business-as-usual models rooted in the capitalist growth imperative and the globalization of trade in agricultural commodities continually apply pressure to small-scale farmers and exceed the boundaries of our planet. Sustaining past progress and responding to emerging pressures will require innovative approaches – faster and at scale – to resolve the many obstacles that limit the potential of small-scale farmers in agricultural value chains.

REPORT STRUCTURE

This report presents small-scale farmers' perceptions regarding their socio-economic status, main challenges and concerns, and aspirations. Given the variety of commodities, countries, farmers, companies and consumers, the information gathered in this atlas takes a broad brush in painting the big picture. At the same time, we zoom in on some of the particular challenges in different agricultural commodity value chains.

Clearly, durable commodity chains do not rest on the shoulders of small-scale farmers alone. For these to be genuinely sustainable, a range of other factors will need to be addressed. Rather than offering answers and solutions, our purpose is to challenge the thinking about small-scale farmers. As such, this atlas is not a comprehensive reflection of Solidaridad's current strategy, it's intended as a contribution to an evolving debate.

The 2023 edition of the "Small Farmer Atlas" sets out to explore the global and local dimensions of agricultural development challenges and the role of small-scale farmers in the global food system. In part 2, by exploring the interplay of social, economic, and environmental factors, the analysis of farmer perspectives provides valuable insight into the daily realities of these farmers. The commodity-specific sections in part 3 shed light on the delicate balancing act between various sustainable development objectives and a complex policy environment, with a focus on the challenges faced by small-scale farmers. In part 4, this publication aims to paint a comprehensive picture of a sustainable global food system that places these farmers at the heart of its vision.

WEBSITE

This report forms a part of a larger effort, with further background stories and resources accessible through the accompanying website: www.smallfarmeratlas.info

MARKET FRAGILITY

Global food and agricultural markets are highly integrated. Nevertheless, recent trade shocks resulting from the COVID-19 pandemic and the invasion of Ukraine have revealed the fragility of our systems. The increase in commodity prices and uncertainty around energy and fertilizer prices have revealed the instability of the world's food supply. While the volatility of the international food market is reflected in the rising prices of supermarket goods, a less discussed aspect is the pressing issue of global food insecurity. Currently, over 811 million people worldwide are food insecure and projections indicate that the global population is expected to reach 8.5 billion by 2030, with over 650 million people still undernourished. A substantial segment of this population consists of small-scale farmers, who make up a significant proportion of those earning less than 2 dollars US per day.

CROP PRODUCTION

Approximately 11% (1.5 billion hectares) of the world's land surface is currently used for crop production; this constitutes 36% of the total land that would be suitable for crop production. According to the UN FAO, the production of the eight commodities covered in this atlas has significantly increased over the past two decades, with coffee up 43% and palm oil up 246% since 2000 (see *figure 1*). This growth can be attributed to three factors: expansion of arable land, increased cropping intensity, and growth in yields. Without doubt, agricultural expansion and commodification are major drivers of deforestation and land-use change.

CLIMATE ADAPTATION

Climate change is expected to make agriculture more difficult, leading to declines in crops and yields. The frequency and severity of extreme weather events is increasing as temperatures are projected to continue rising, and rainfall patterns are expected to shift more than they have already. Indirect effects of climate change include a higher frequency and duration of drought, which has increased by nearly a third globally since 2000, and the spread of pests and diseases. Adaptation to these growing environmental constraints is essential, and farmer communities need substantial national and international support to do it successfully. The climate scenario maps in the infographic of *figure 2* reflect the situation in 2020 and highlight a country's capacity to attract investment and transform it into adaptation action. It depicts overall readiness by combining three factors: economic readiness (ability of a country's business environment to accept investment for adaptation), governance readiness (institutional factors supporting investment for adaptation), and social readiness (factors such as social equality, ICT infrastructure, education and innovation).

SMALL-SCALE FARMERS

Despite urbanization and the rise of large-scale commercial agriculture, much of the world's agriculture remains in the hands of 500 million small-scale farmers. The significance of small-scale farmers cannot be overstated, and despite facing numerous challenges, their role is expanding in sectors such as oil palm, sugarcane, and tea (see *figure 3*). The future stability of food production and supply chains will increasingly depend on the effective integration of these farmers into global markets. The critical question is whether they can benefit from new market demands, which are linked to changes in food purchasing and selling practices in developed and developing countries. A key notion in advancing rural development and alleviating poverty is the equitable distribution of profits within agricultural food value chains, ensuring that small-scale farmers not only earn a livelihood from their agricultural activities, but also have the opportunity to invest in professionalizing their agribusinesses.

VALUE CHAINS

In its simplest form, a food value chain is a partnership among businesses involved in the steps required to bring a product from its initial stage to its final market destination. In practice, an agricultural product moves from the farmers to the market through intermediaries, including producer organizations, processors, traders, transporters, Fast Moving Consumer Goods companies (FMCGs), and retailers, before reaching consumers. In many of the countries in our research, it's exactly these multinationals – rather than the national government – that hold the power to support small-scale farmers in their value chains. For commodities frequently exported with minimal local value addition, there are concerns about the distribution of value at the small-scale farmer level, as is explored in the eight commodity sections of this report.

CORPORATE CONSOLIDATION

Transnational trade and food companies have expanded their operations in producing countries to secure a larger share of value along the production chain. Small-scale farmers interact with such corporations, on the one hand to buy fertilizer or seeds, on the other hand to sell their produce or their labor. The infographic in figure 4 highlights the bottleneck in the food value chains, where millions of farmers and billions of consumers have become reliant on a limited number of traders, processors, and retailers.

The consolidation of international agribusiness firms has resulted in a small number of corporations dominating the market for farm inputs and outputs. Examples include the mergers of Syngenta and China-Chem (2017), Dow Chemical and Dupont (2017), and Bayer and Monsanto (2018). Small-scale farmers are caught in a squeeze between a handful of input suppliers, a few specialized commodity trade firms, and powerful giants like Nestlé, PepsiCo and Walmart. The combined buying power of these companies often drives down farmgate prices, leading farmers to reduce costs and investments, including those related to labor and the environment.

SUSTAINABLE PRODUCTION AND TRADE

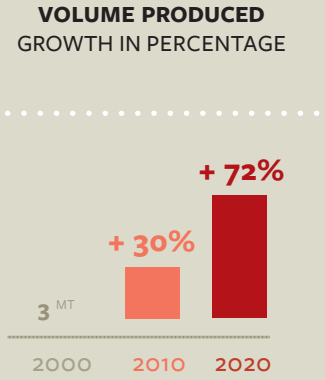
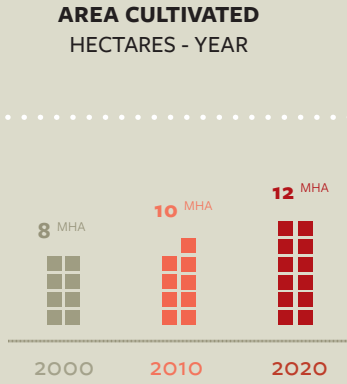
To guarantee sustainability in agricultural value chains, Voluntary Sustainability Standards (VSS, eg. Bonsucro, Fairtrade, Rainforest Alliance, RSPO, etc.) have emerged as regulatory tools to foster economic prosperity, social inclusivity, organizational capacity and agricultural production practices in balance with nature. While certification and verification are expanding slowly, there are many doubts as to whether this translates into the desired benefits for a larger number of small-scale farmers. Since major problems persist, whether and which initiatives are having the desired impact is hotly debated.

The infographic in figure 5 gives an overview of the share of production adhering to any of the common sustainability standards. It is important to realize that the solutions to foster sustainable production and trading practices cannot be applied in the same way everywhere. The solution is likely to be a combination of voluntary and mandatory approaches. Increasingly, governments, civil society, but also companies, investors and business groups, have recognized the need to complement voluntary approaches with international regulations. For example, at the European Union level, more stringent corporate governance legislation – including mandatory human rights, environmental due diligence, and greenhouse gas emission reduction targets, avoided deforestation targets – will cover commodities such as coffee, cocoa, palm oil and soybeans.

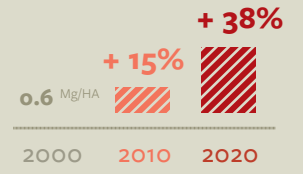
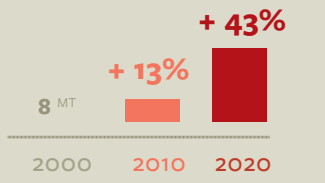
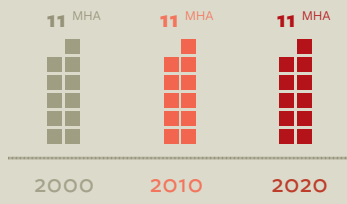
GLOBAL GROWTH IN PRODUCTION



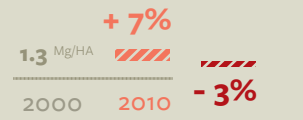
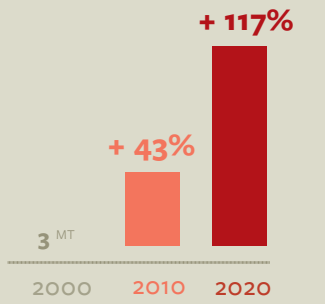
COCOA



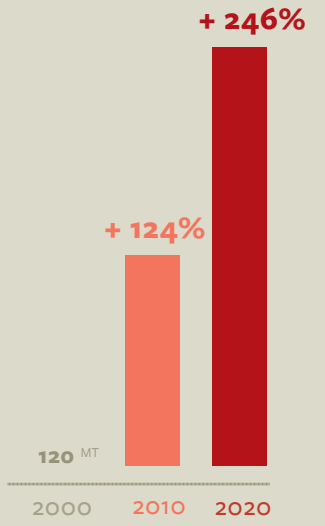
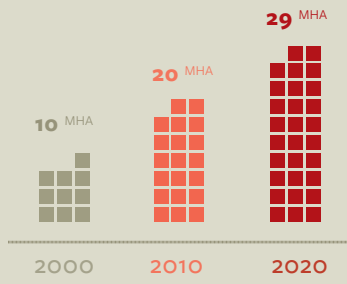
COFFEE



TEA



PALM OIL



MHA = MILLION HECTARE

MT = MILLION TONNES

Mg/HA = MEGAGRAM / HECTARE

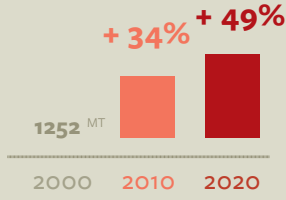
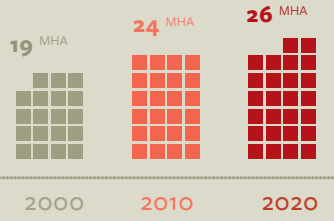
AREA CULTIVATED
HECTARES - YEAR

VOLUME PRODUCED
GROWTH IN PERCENTAGE

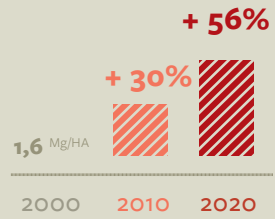
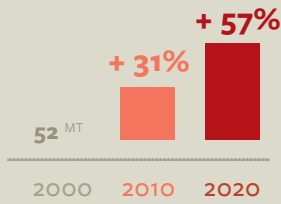
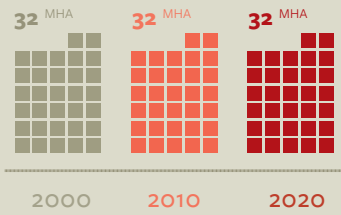
YIELD
GROWTH IN PERCENTAGE



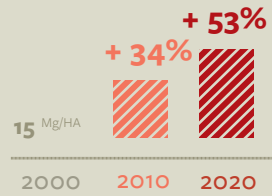
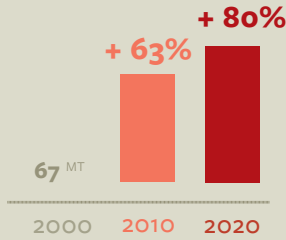
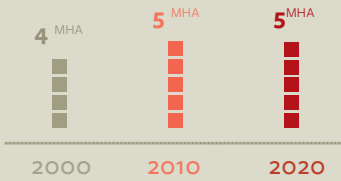
SUGARCANE



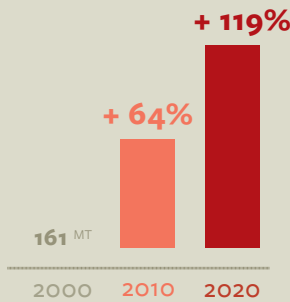
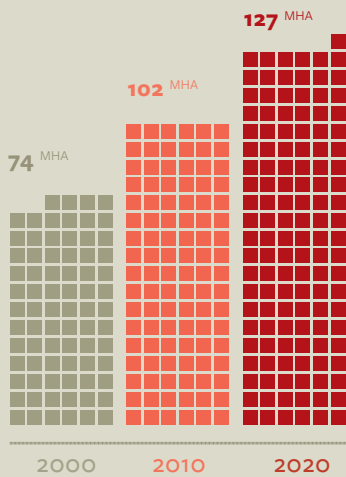
COTTON



BANANAS



SOYBEANS

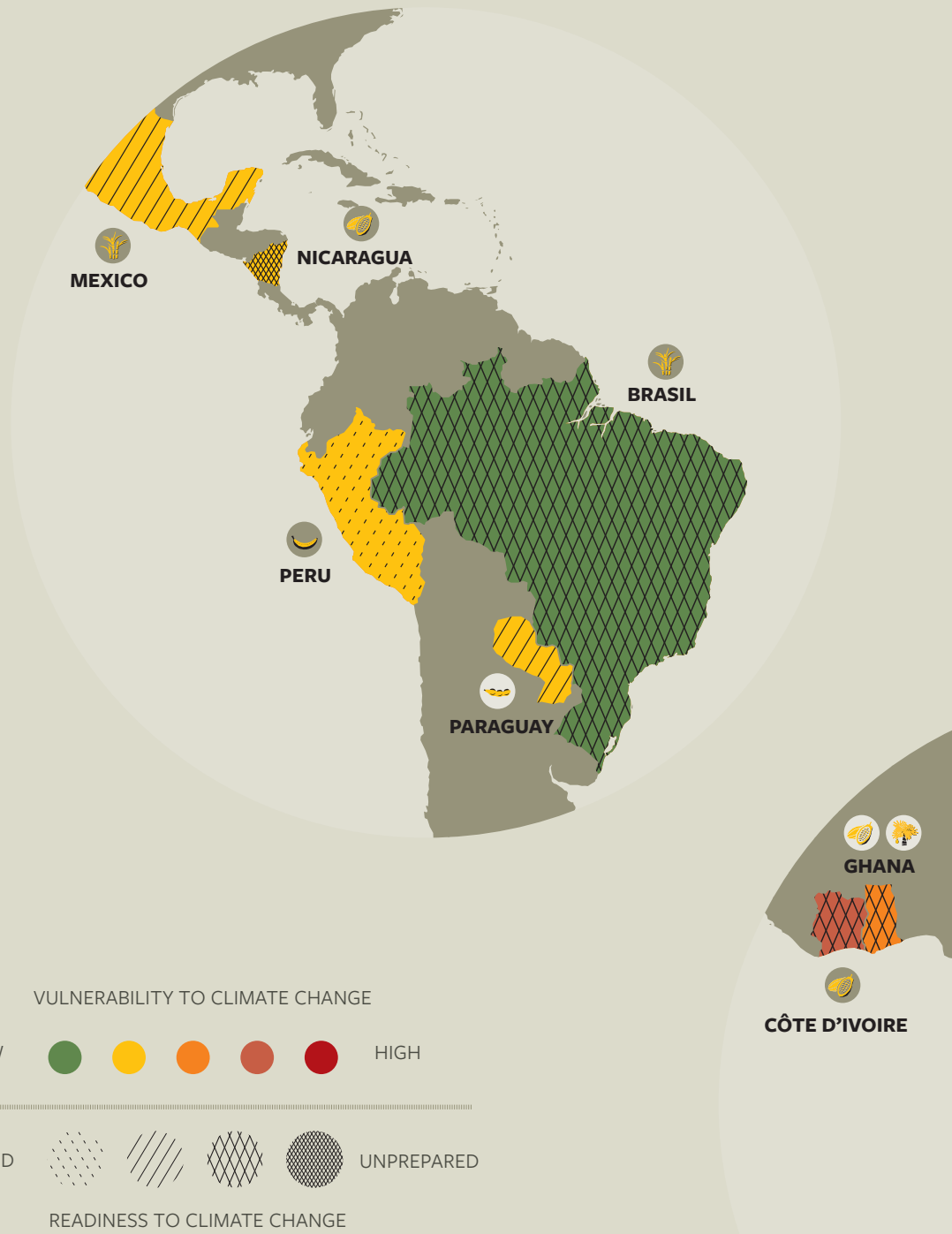


MHA = MILLION HECTARE

MT = MILLION TONNES

Mg/HA = MEGAGRAM / HECTARE

CLIMATE SCENARIOS



VULNERABILITY: Measures a country's exposure, sensitivity and capacity to adapt to the negative effects of climate change. ND-GAIN measures overall vulnerability by considering six life-supporting sectors – food, water, health, ecosystem service, human habitat, and infrastructure.

READINESS: Measures a country's ability to leverage investments and convert them to adaptation actions. ND-GAIN measures overall readiness by considering three components – economic readiness, governance readiness and social readiness.



Source: see page 92

SMALL-SCALE FARMERS BY SECTOR

75%



OF GLOBAL PRODUCTION
PRODUCED BY SMALL-SCALE FARMERS



COCOA

5



MILLION
SMALL-SCALE FARMERS

70%



OF GLOBAL PRODUCTION
PRODUCED BY SMALL-SCALE FARMERS



COFFEE

12.5



MILLION
SMALL-SCALE FARMERS

70%



OF GLOBAL PRODUCTION
PRODUCED BY SMALL-SCALE FARMERS



TEA

12.5



MILLION
SMALL-SCALE FARMERS

30%



OF GLOBAL PRODUCTION
PRODUCED BY SMALL-SCALE FARMERS



PALM OIL

5



MILLION
SMALL-SCALE FARMERS

40%



OF GLOBAL PRODUCTION
PRODUCED BY SMALL-SCALE FARMERS



SUGARCANE

60



75%



OF GLOBAL PRODUCTION
PRODUCED BY SMALL-SCALE FARMERS



COTTON

24



MILLION
SMALL-SCALE FARMERS

65%



OF GLOBAL PRODUCTION
PRODUCED BY SMALL-SCALE FARMERS

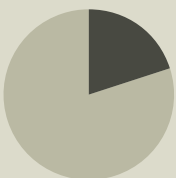


BANANAS

90



20%



OF GLOBAL PRODUCTION
PRODUCED BY SMALL-SCALE FARMERS



SOYBEANS

13

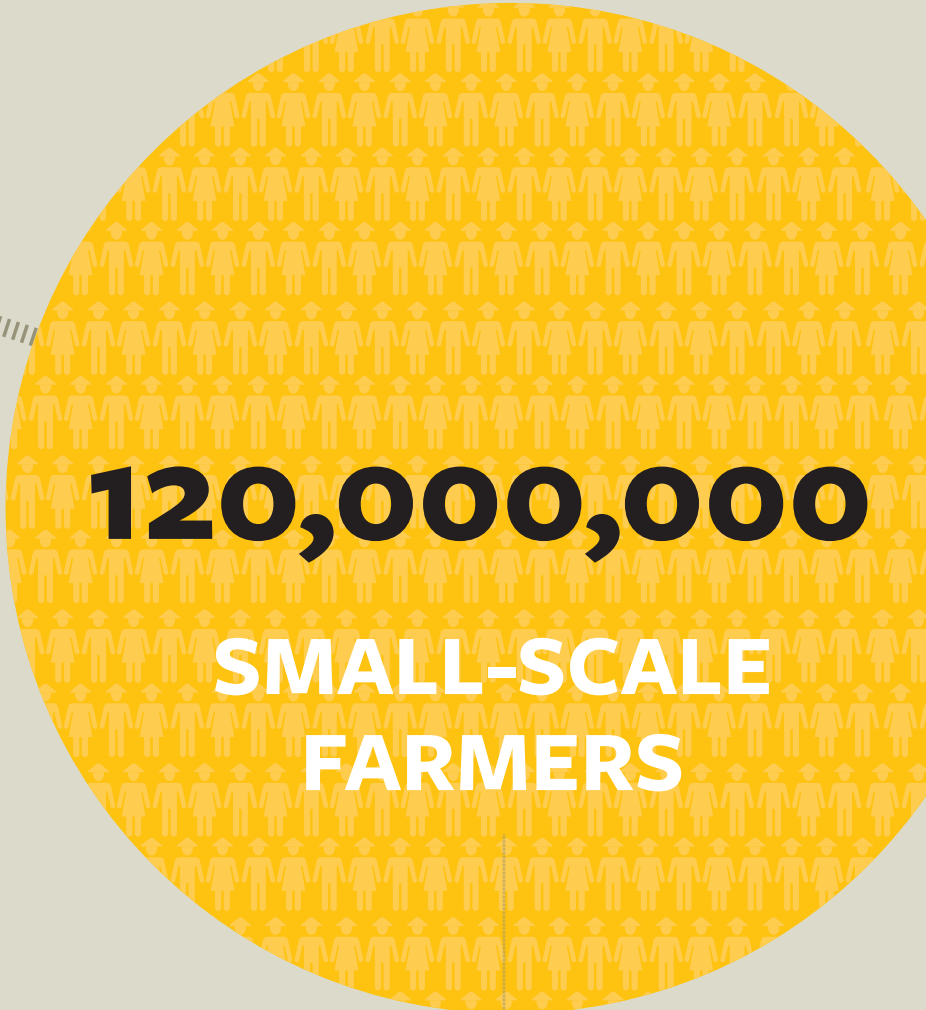


MILLION
SMALL-SCALE FARMERS

DUPLICATION IN FARMER NUMBERS OCCURS, DUE TO FARMERS PRODUCING MULTIPLE COMMODITIES

CORPORATE CONCENTRATION

SEED,
AGROCHEMICAL,
FERTILIZER
SUPPLIERS



TOP 10

- BASF
- Dow-DuPont
- Monsanto-Bayer
- Syngenta Group
- Limagrain Vilmorin & Cie
- KWS Saat
- Yara International
- Agrium
- Mosaic Company
- Potash Corp

BANANAS



PALM OIL

COCOA



SOYBEANS

COFFEE

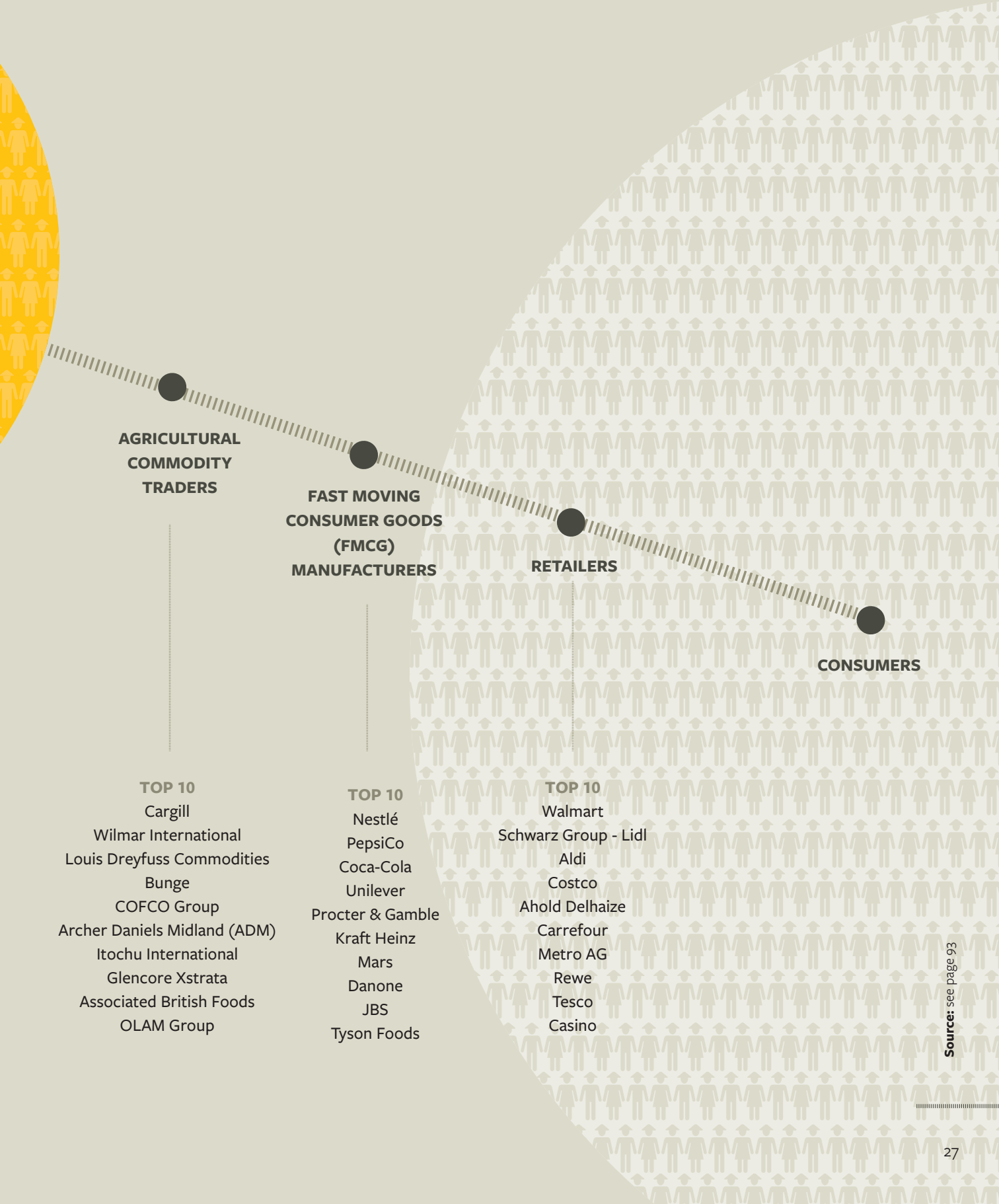


SUGARCANE

COTTON



TEA



**AGRICULTURAL
COMMODITY
TRADERS**

- TOP 10**
 Cargill
 Wilmar International
 Louis Dreyfuss Commodities
 Bunge
 COFCO Group
 Archer Daniels Midland (ADM)
 Itochu International
 Glencore Xstrata
 Associated British Foods
 OLAM Group

**FAST MOVING
CONSUMER GOODS
(FMCG)
MANUFACTURERS**

- TOP 10**
 Nestlé
 PepsiCo
 Coca-Cola
 Unilever
 Procter & Gamble
 Kraft Heinz
 Mars
 Danone
 JBS
 Tyson Foods

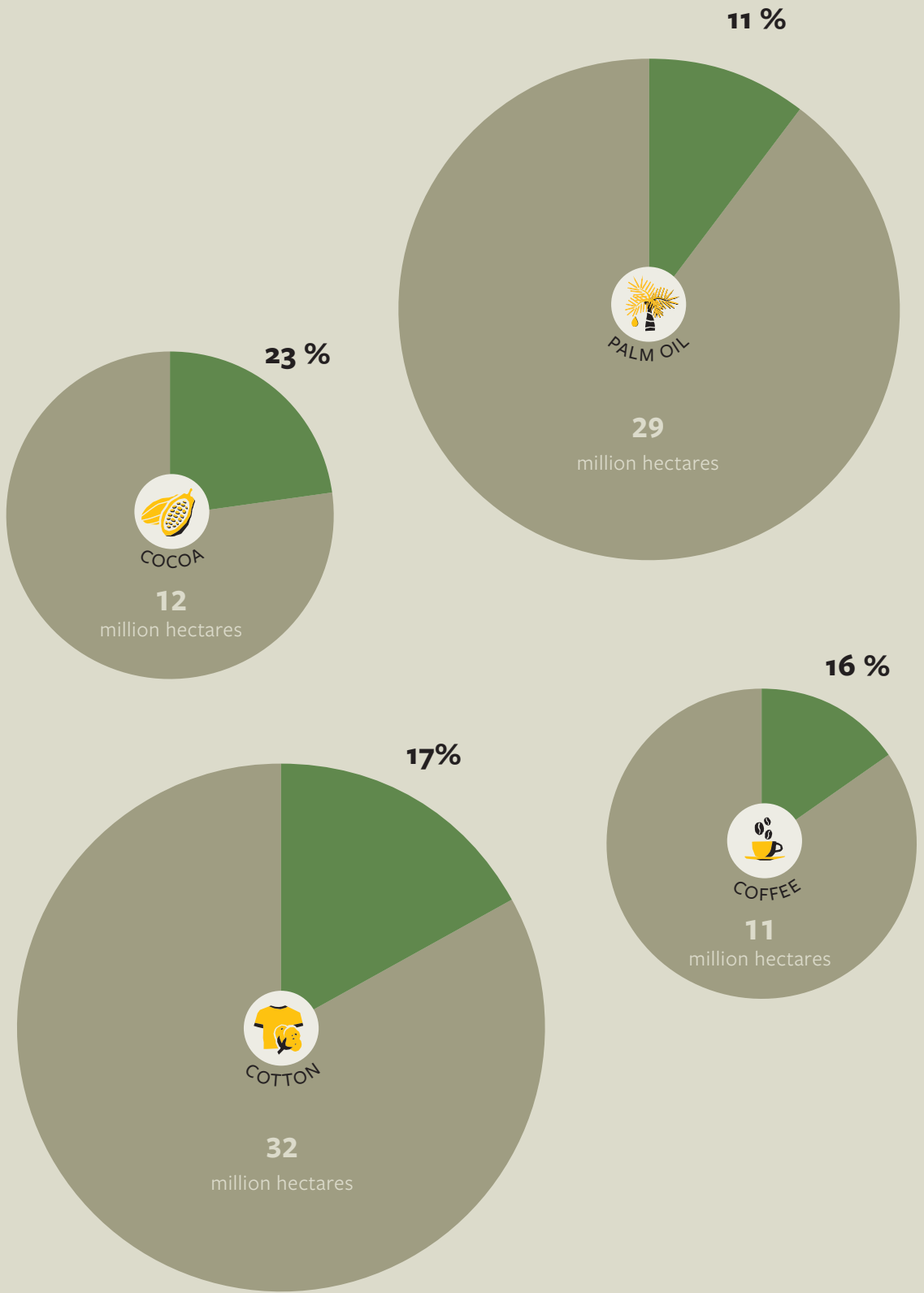
RETAILERS

- TOP 10**
 Walmart
 Schwarz Group - Lidl
 Aldi
 Costco
 Ahold Delhaize
 Carrefour
 Metro AG
 Rewe
 Tesco
 Casino

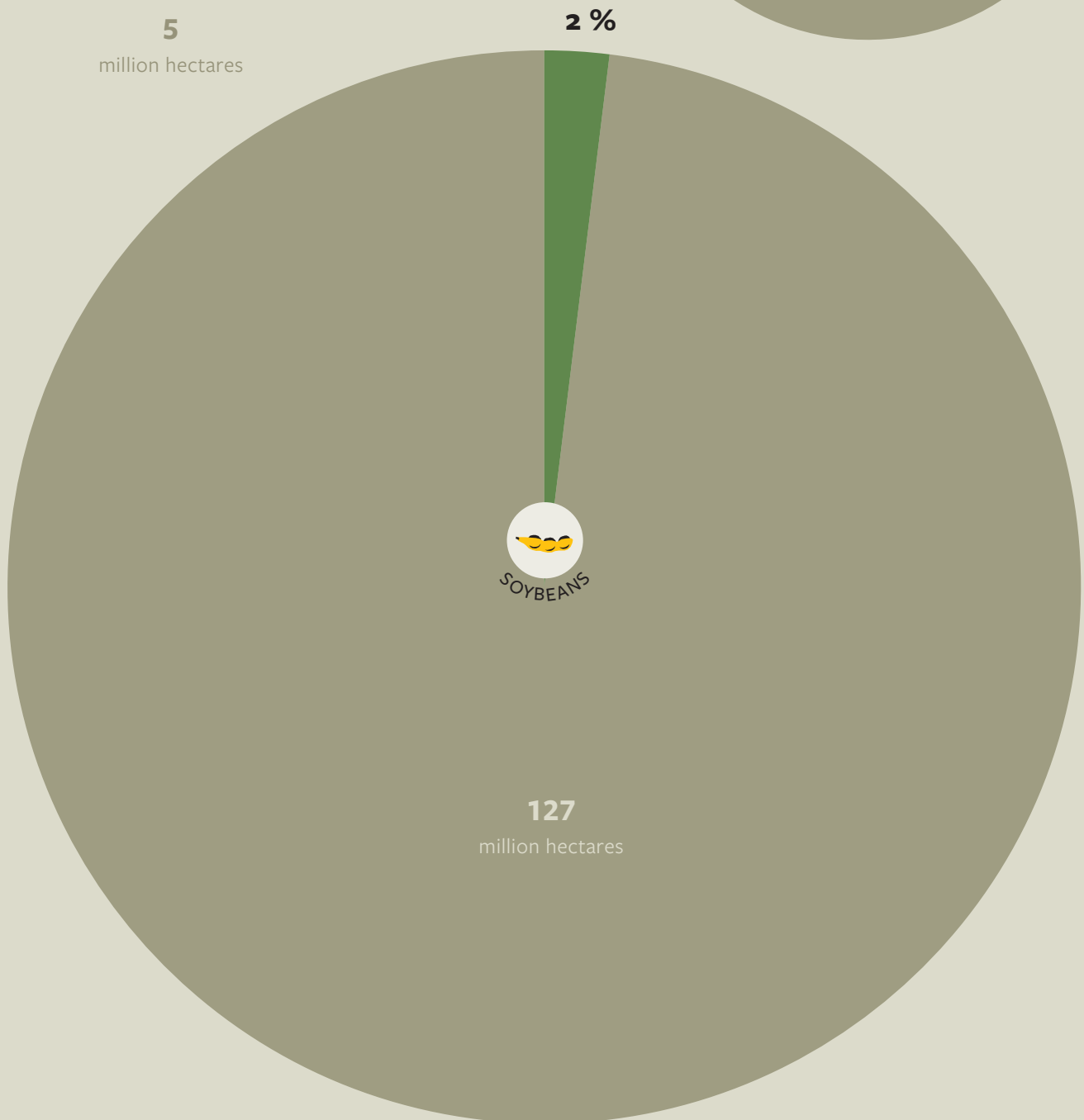
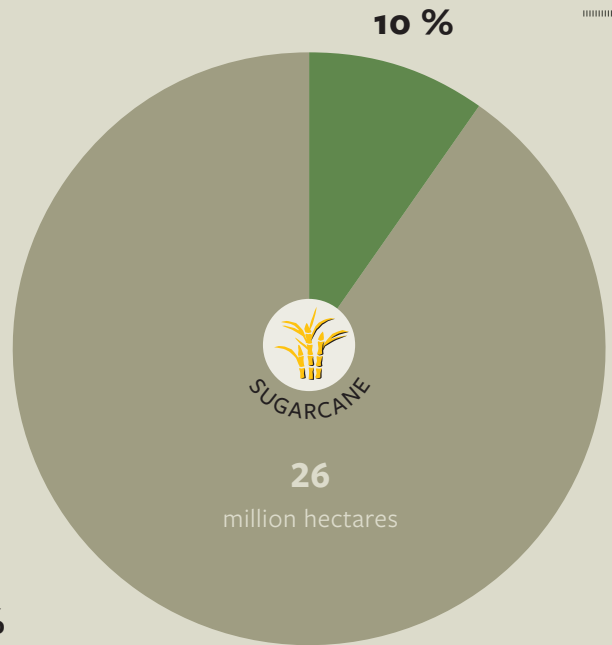
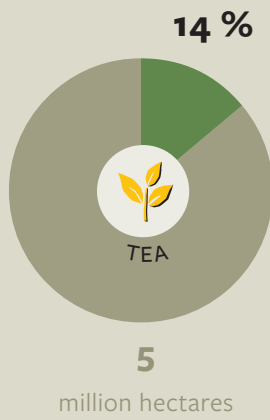
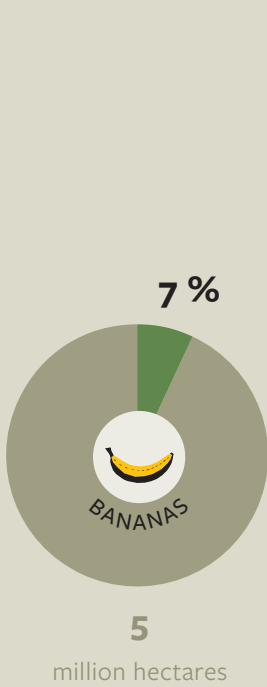
CONSUMERS

Source: see page 93

SUSTAINABLE PRODUCTION



GLOBAL PRODUCTION AREA IN 2020 AND PERCENTAGE THAT MEETS VOLUNTARY SUSTAINABILITY STANDARDS



FARMER PERCEPTIONS

The role of farmers in addressing global issues of poverty, food security, and climate change cannot be overstated. Small-scale farmers hold the key to feeding a rapidly growing population while stewarding the planet's resources. Yet their potential has never been fully realized. It is imperative that voices of these farmers play a prominent role in shaping the discourse on sustainability and their contributions must be acknowledged as a crucial part of the solution.

“We are not getting a fair price for our crops. The market price and what we are paid is very different, and middlemen make things worse. We also have to pay high prices for electricity. We want to get a better price for our crops and are asking the government to provide us with alternative energy sources like solar or renewable energy.”

Pawan Parmar, Soybean farmer, India.

“As a farmer, I am facing a lot of challenges right now. The cost of paying my workers has gone up and I also have to pay more for the fertilizers I need for my crops. The money I make from selling my produce is not enough to cover all my expenses and I am struggling to make ends meet.”

Beatriz Herrera de Suarez, Banana farmer, Peru.

A PRACTICAL DEFINITION

The small-scale farming sector is crucial in the current development discourse, yet the definition of smallholder agriculture remains vague and inconsistent. Smallholders are a large and internally diverse group that may overlap with family farmers, but they are not equivalent. While the FAO defines family farmers as those receiving their main income from agriculture, research from several regions suggests that smallholder family farms get large portions of income outside of agriculture. This could be a combination of cash crop production, household staple production, and wage labor and off-farm income. Often smallholders are narrowly defined in terms of the physical size of the farm, primarily in terms of hectares of cropland operated, with a common threshold being farms of less than two hectares.

However, the definition often varies based on the national context and commodity. Sometimes farms larger than two hectares are considered small (as in soybeans or sugarcane); sometimes tiny farms are more lucrative than large ones (as in vanilla); and different crops on the same land area provide very different returns. Thus, the way that smallholders fit into the development picture goes beyond the number or size of their fields.

In this report, we use the term small-scale farmer rather than smallholder. Small-scale refers to the economic scale or turnover and profit levels, while smallholder refers to land holding size.

Our priority is to understand and respond to the economic scale of a farming operation, rather than focus on land holdings. Thus, we follow Woodhill's (2020) framework for small-scale agriculture (see *figure 6*). This disaggregation of livelihood categories helps explain how small-scale farmers differ from one another through their advantages and disadvantages in market exposure, and in the causes of these constraints and potentials.

RESEARCH METHODOLOGY

Most small-scale farmers have little influence or input in the events and decisions that determine the trajectory of their business and lives. This report creates a space for their ideas and concerns, and centers on how they perceive their daily lives and their role and position in commodity value chains, as well as their expectations for the future. Additionally, we consider farmers perceive income uncertainties, organizational support structures and the potential impact of climate change, which is important for two reasons: Firstly, local experiences and views can be shared and compared, which is useful for identifying common patterns in food value chains. Secondly, recognizing the farmers' awareness of vulnerabilities in agricultural systems, potential risks and other uncertainties may help to define the priority issues. This deeper understanding of the differentiated perception of impacts can provide new insights and opportunities to improve farmer centric policies and practices.

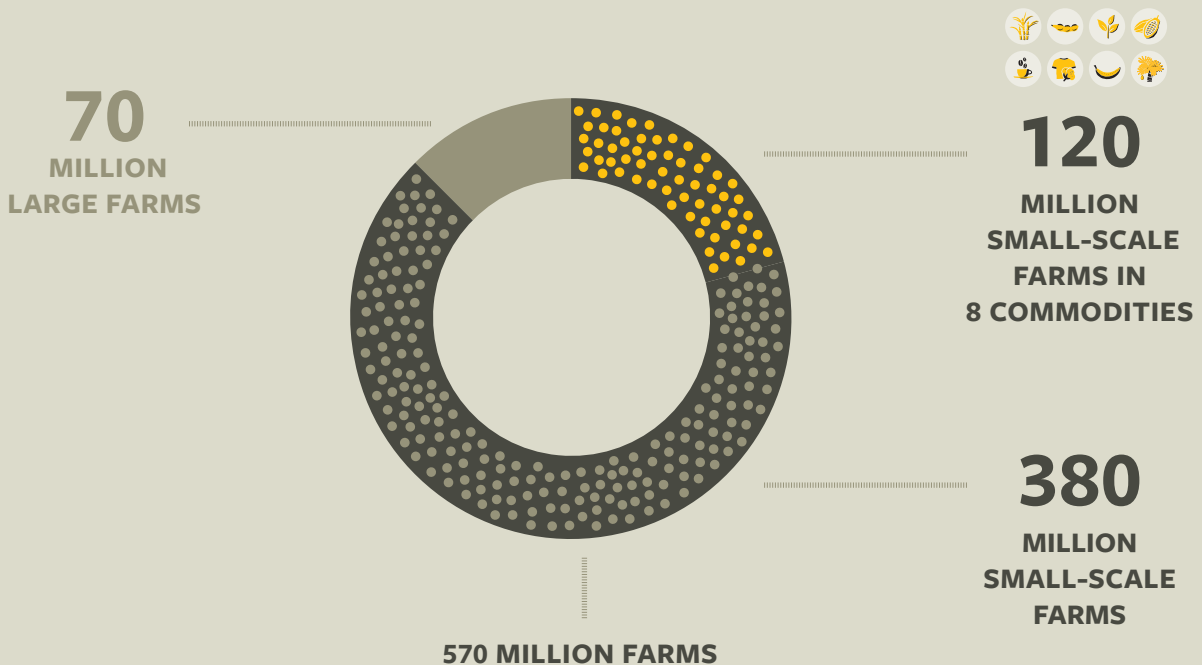
The purpose of this research is to investigate the extent of small-scale farmers' satisfaction in producing agricultural commodities, in relation to prosperity, inclusivity and balance with nature (see *figure 8*). The aim is to use the insights gained from the findings to challenge the thinking about small-scale farming and inclusive value chain development. With the intention to look at a set of sustainability denominators across eight commodities in Africa, Asia and Latin-America, we have selected countries where Solidaridad has an operational presence and is actively supporting inclusive value chain programmes.

FIGURE 6: **DISAGGREGATION OF LIVELIHOOD CATEGORIES**

FARMING AND LIVELIHOOD CATEGORY	DESCRIPTION AND POVERTY STATUS
Small-commercial	Farmers < 20 ha well connected to domestic or international value chains using productivity, increasing technologies and management practices. Farming is an economically viable livelihood strategy enabling households to have an income well above the poverty line and approaching or above a living income. Farming is the dominant livelihood strategy.
Semi-commercial	Farmers selling a significant surplus of production but loosely connected to markets with less than optimal use of productivity, increasing technologies and management practices. Mostly poor to very poor, may still be below poverty line, and struggle to approach a living income. May have diverse livelihood strategies.
Semi-/subsistence	Farmers who sell none or only a small proportion of surplus (usually to local markets) and who tend to have low productivity. Poor to very poor with many below poverty line. Depend on production for own food. May have diverse livelihood strategies.
Landless farm workers	The landless poor who depend on low paid labour to survive. Mostly very poor, below or just at poverty line.
Chronically poor	Extremely poor and marginalised groups landless or with largely unproductive land, who are often food insecure and highly vulnerable. Well below poverty line.

Source: see page 93

SMALL-SCALE COMMODITY FARMS IN THE GLOBAL CONTEXT



Furthermore, the commodities researched across these countries were selected based on the relative importance of small-scale farmers who represent a significant percentage of the production globally. In order to reflect on the diversity of farmer perceptions and country contexts in the report, we have combined field research and desk study approaches to illustrate particular themes, challenges or opportunities.

Data on farmers' perceptions of satisfaction has been collected in 18 countries from sample households. Half of the respondents are farmers that receive (or have received) support from Solidaridad, the other half have been included as a control group. Although we are planning to execute the study on a periodic basis, it is not our intention to follow a specific cohort of farmers over a long-term period to analyze trends.

During the research phase, a total of 9,767 small-scale farmers were surveyed with the objective of learning more about how different commodity farmers perceive their livelihood challenges, or more specifically, their satisfaction about household income, crop production support structures, and sustainable utilization of natural resources. The infographic in figure 7 gives a more detailed overview of the socio-economic and demographic features of the survey participants. The farmers surveyed are active in banana, cocoa, cotton, coffee, tea, oil palm, soybeans or sugarcane.

Most of the small-scale farmers that we have interviewed during our research could be classified as small-commercial and semi-commercial producers; the two highest categories in Woodhill's classification (see figure 6). These farmers are not poor by the standards of their community, are able to bear risk, to invest capital from their own income, and are interested in raising their farm income. Given the entrepreneurial nature of agriculture, they are analyzing their options, managing risk and making their own decisions – even in the face of information asymmetries and unfavorable policies. It's exactly this heterogeneous group of farmers that, through market inclusion, are expected to contribute to reducing rural poverty and global food security, and be part of the solution to climate change.

While the research results presented here do not provide a complete analysis of agricultural value chains, it is important to highlight that the material drawn on here is not anecdotal. It is the outcome of systematic documentation and reflection to ensure that small-scale farmers' voices, both across and beyond the value chain, are heard. Readers of this survey report are encouraged to bear in mind that the rapid perception survey methodology has its limitations (see annex, research methodology); however, this first edition is intended to provide a glimpse of what might be found if the 'satisfaction' of small-scale farmers were further explored. By applying a methodology, which produces results that are open for interpretation and analysis, the results of the survey are expected to generate discussion and reflection within Solidaridad leading to insights that bring back farmers into the centre of the sustainability discourse.

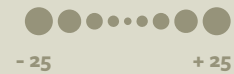
PROSPERITY, INCLUSIVITY AND BALANCE WITH NATURE

The farmers' perception questionnaire covers three essential elements central to small-scale farmers' visions of sustainability: prosperity, inclusivity, and balance with nature.

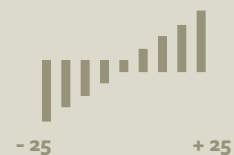
PROSPERITY: Ensuring sustainability requires benefiting farmers' financial wellbeing. We assess their economic satisfaction with their income from farming, their ability to withstand farm gate price volatility, and their capacity to generate enough household income to cover basic needs and invest in their farm businesses.



INCLUSIVITY: We are exploring factors such as farmers' integration within the value chain, their access to markets, inputs and extension services, and the transparency of market information.



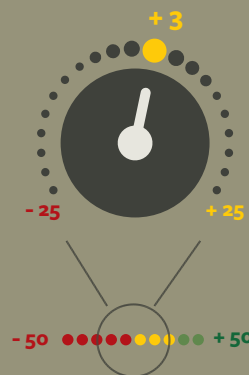
BALANCE WITH NATURE: The research looks at the environmental aspects of farming, focusing on the effects of climate change, farmers' technical and financial preparedness to adapt to these changes, and recognition for adhering to voluntary sustainability standards.



VISUALIZATION OF THE PERCEPTIONS

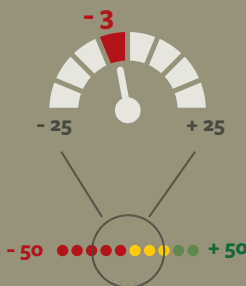
The questionnaire for this study uses a set of questions covering three themes: Prosperity, Inclusivity, and Balance with nature (see above). The dataset for this study includes positively framed statements presented to farmers, with five options for expressing the extent of their agreement or disagreement. The responses were scored on a Likert scale ranging from -50 to 50, which has been adapted for the infographics in this publication to a range of -25 to 25.

OVERALL SUSTAINABILITY SCORE

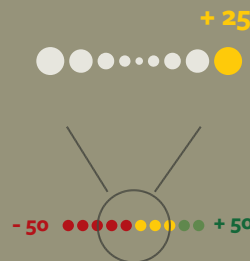


Overall Sustainability Score = +3
= Average of Prosperity -3, Inclusivity +25, Nature -13

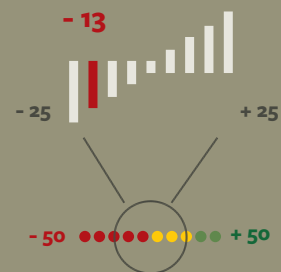
PROSPERITY



INCLUSIVITY



NATURE



SCORE ON SINGLE QUESTIONS

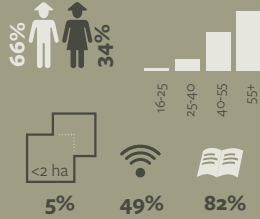


FARMER PERCEPTIONS

MEXICO



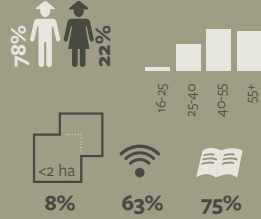
397 respondents



NICARAGUA



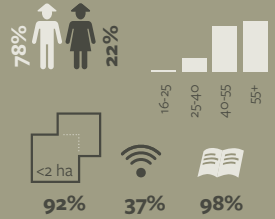
398 respondents



PERU



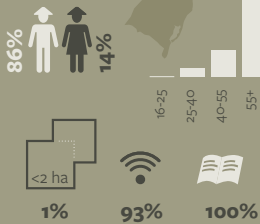
376 respondents



BRASIL



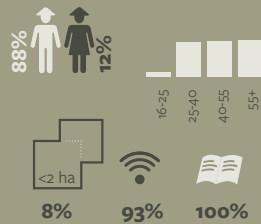
380 respondents



PARAGUAY



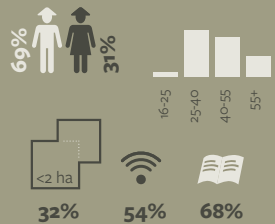
400 respondents



CÔTE D'IVOIRE



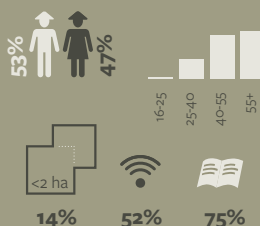
411 respondents



GHANA



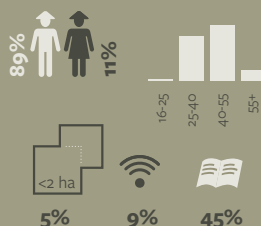
919 respondents



ETHIOPIA



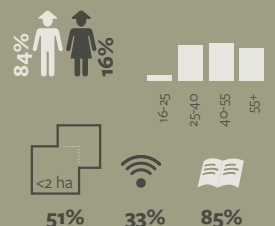
298 respondents



UGANDA



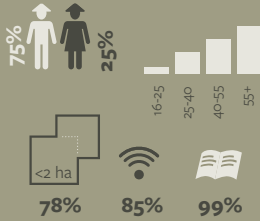
340 respondents



KENYA



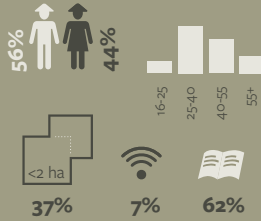
402 respondents



MOZAMBIQUE



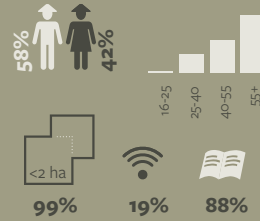
444 respondents



TANZANIA



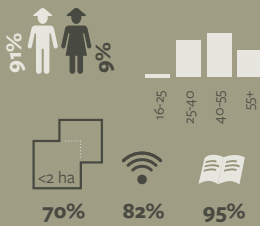
450 respondents



INDIA



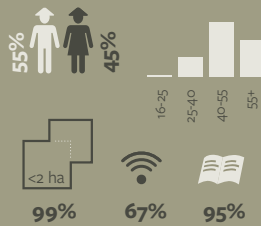
2057 respondents



SRI LANKA



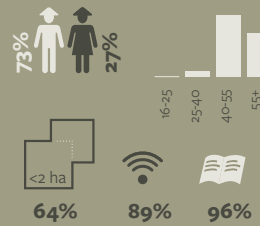
408 respondents



CHINA



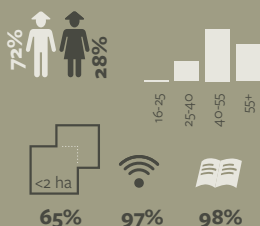
400 respondents



VIETNAM



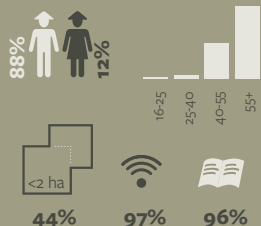
400 respondents



MALAYSIA



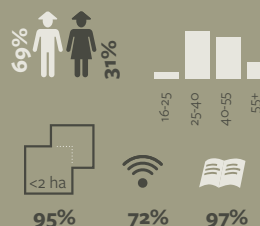
400 respondents



INDONESIA



887 respondents

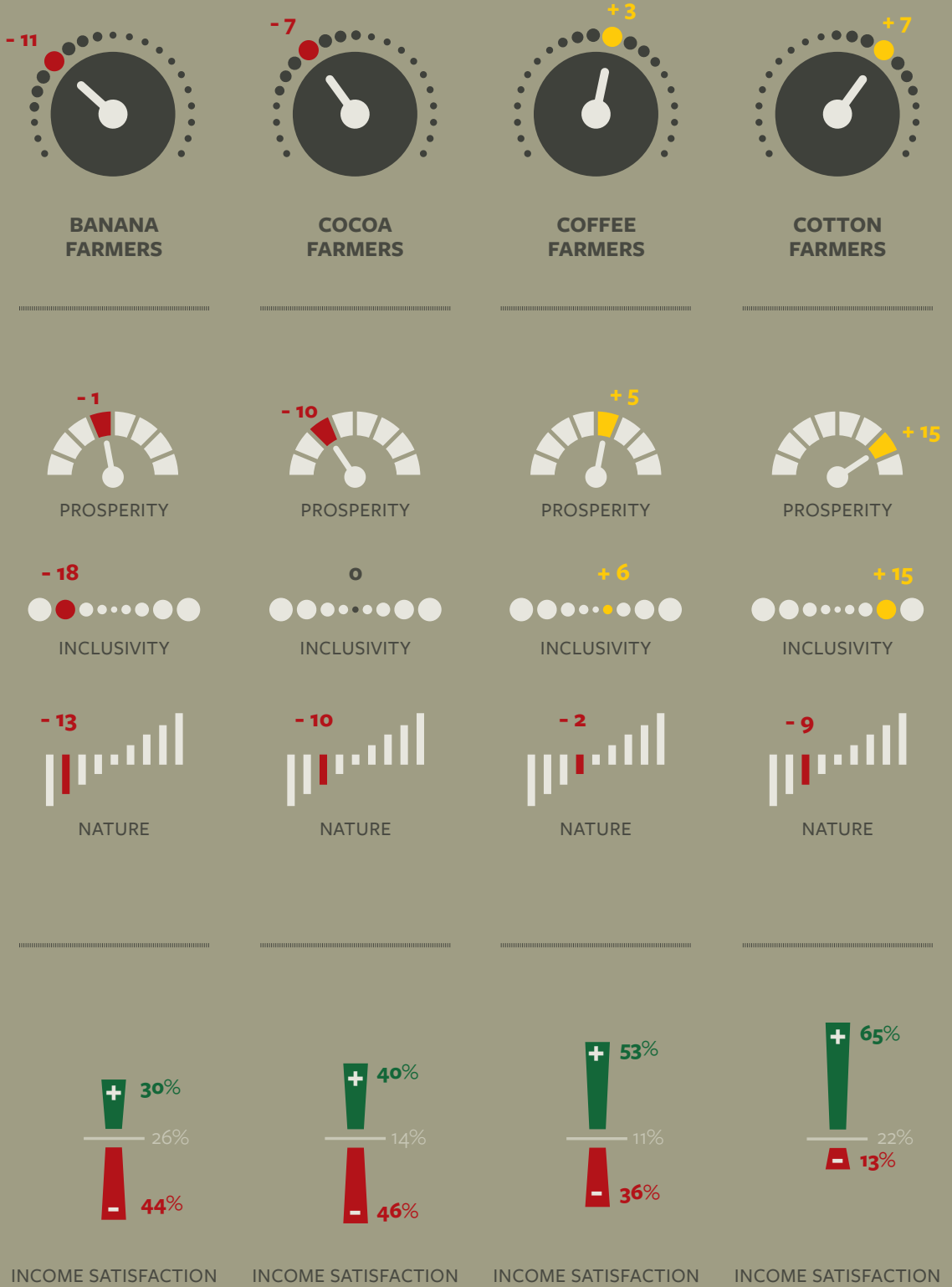


LEGEND



Source: see page 93

FARMER PERCEPTIONS

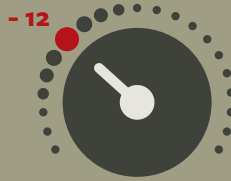




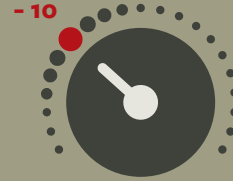
PALM OIL FARMERS



SOYBEANS FARMERS



SUGARCANE FARMERS



TEA FARMERS



PROSPERITY



PROSPERITY



PROSPERITY



PROSPERITY



INCLUSIVITY



INCLUSIVITY



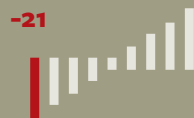
INCLUSIVITY



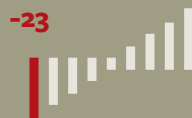
INCLUSIVITY



NATURE



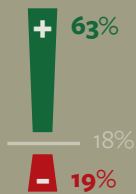
NATURE



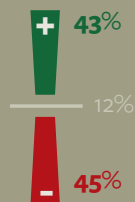
NATURE



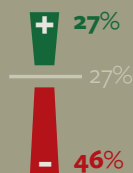
NATURE



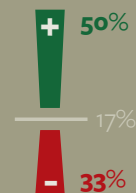
INCOME SATISFACTION



INCOME SATISFACTION



INCOME SATISFACTION



INCOME SATISFACTION

SEE PAGE 35: VISUALIZATION OF THE PERCEPTIONS
SEE PAGE 90: FOR RESEARCH METHODOLOGY

CONCERN FOR SUSTAINABLE PRODUCTION

Half of the farmers express confidence in meeting their basic needs, yet they all struggle to handle price shocks or invest in measures to improve their farms' resilience to climate change.

The farmers that we have surveyed clearly see how their work, in many ways, is becoming more complex and unpredictable. On the one side they face worsening scarcity of the resources they need for their livelihoods; on the other, they face failing markets and governments that offer only limited assistance in conserving these resources or otherwise supporting access to sustainable markets. Evidence from around the world of day-to-day personal experiences, whether they are cotton farmers in India or cocoa farmers in Ghana, provides us with an overall glimpse of their reality, challenges and expectations.

The infographic in figure 8 presents the overarching analysis of the farmer (n = 9767) beliefs and perception in eight commodities and 18 countries, which are linked to the following thematic areas in the survey: (1) Perceptions about prosperity, (2) Perceptions about inclusivity, (3) Perceptions about production in balance with nature. It merits re-emphasizing that although these themes cover daily reality, many of the underlying issues do not follow a linear process and occur simultaneously.

In many agricultural value chains there are gender-specific roles and responsibilities. As such, there may be differences in how men and women assess the prospects of being in agriculture. The female farmers who participated in the survey often expressed a greater degree of pessimism compared to their male counterparts. This disparity could be attributed to the unequal distribution of power and control over assets in the value chain, with women typically having less say in decision-making.

During the research phase, we found ourselves sitting at the convergence point of multiple streams of statistical data and were only able to present a limited selection in this report. While the analysis per country and continent do not show large variations, by combining variables – for instance, land size and rights, access to services, access to internet – we can highlight crucial elements of a successful small-scale farmer enterprise. It enables farmers to participate more easily in markets and ensure financial and in-kind returns that enable them to buy other necessary goods and services. Readers are encouraged to approach our interpretations with an open mind and be willing to drill down a little deeper with the original datasets provided on our website (www.smallfarmeratlas.info).

Compared to their male counterparts, women farmers seem to be increasingly concerned with achieving a fair income, receiving support in the market, and pursuing agriculture in harmony with the natural environment.

PROSPERITY

It appears that a substantial proportion of small-scale farmers, roughly half, believe that their agricultural income does not reflect the level of effort they put in. Among this group, one third exhibit an acute sense of frustration and sadness regarding the imbalance between their effort and earnings.

The 9,767 small-scale commodity farmers were asked if their income derived from farming is commensurate with the efforts that are invested in the farm. The combined responses of all the interviewees paint a worrisome picture with a third of the farmers acknowledging that they receive insufficient income in relation to their efforts, while another 18% remains neutral. The pattern of responses varies for commodities and among farmers.

For instance, nearly 45% of the farmers who depend on crops like banana, sugarcane, soybeans and cocoa, express dissatisfaction with their income. Similar negative sentiments are shared by a third of the farmers who grow tea and coffee. Although, a high percentage of cotton (65%) and oil palm (63%) farmers perceive that their income justifies their efforts.

Despite the limited rewards of farming commodity crops, a considerable number of farmers have developed resilient and multi-faceted strategies to cope with issues, such as volatile market prices. This could account for the positive responses received from the respondents regarding their ability to generate adequate household income, which facilitates the education of their children and covers basic medical expenses. A closer examination of the data pertaining to farmers' capacity to meet their basic needs such as health, housing, education, nutrition, and sanitation reveals that most farmers can meet these expenses. While it is worth noting that the majority of farmers reported a recent upswing in farm gate prices during the research interviews, the situation takes a marked turn for the worse if the cost of agricultural produce drops by 25%, leaving over half (53%) of farmers feeling uncertain about their capacity to cover their household expenses.

Interestingly, even when we limit our sample to farmers working less than two hectares, we find that these results do not deviate much, as most of the sampled farmers are farming on small plots. However, when we look at farmers working more than ten hectares, we see a different pattern. What we see here is a situation where these farmers are feeling relatively secure when it comes to meeting their basic needs. However, when faced with a significant drop in price for their crops, their outlook becomes much more pessimistic. This is likely because those who own larger plots of land are more reliant on a single cash crop and have made significant investments in their farming operations. Therefore, they are more vulnerable to sudden changes in the world market.

Many respondents have adopted ecologically sustainable farming practices that prioritize biodiversity, and some have even explored novel techniques and technologies to improve their productivity and efficiency. However, despite their efforts, these small-scale farmers often do not receive appropriate compensation for their sustainable practices. This is compounded by the absence of clear incentives that would promote a more favorable business environment for farmers. As a result, farmers are unable to invest in their operations and enhance their resilience to the challenges associated with climate change.

INCLUSIVITY

It seems that many farmers, approximately half, are unsatisfied with their access to markets for their produce.

To address their concerns and solve their risk problems, small-scale farmers need to engage with the broader value chain context. Horizontal linkages with cooperatives and other farmer organizations are instrumental for addressing shared concerns and creating market access. Vertical connections with authorities and companies make it possible for local voices to be heard, and to access external resources to support their farming business. Different agricultural value chains entail different opportunities and constraints for small-scale farmers.

Farmers tend to sell their produce either to an agent, local markets, processing company or government managed auction house. However, every farmer wishes for a market that pays for the quality of the produce, pays on time and gives farmers the respect they deserve. When we asked the farmers on having access to markets to sell their produce, 50% of them responded positively, 34% of them responded negatively and 16% of them remained neutral.

The actual market situation depends on the country's context, among many other factors: the state of the economy, private sector partnership and investment, government policies, and actual demand for the product. For instance, many farmers find it difficult to access export markets, especially for crops like banana, sugarcane and tea. The farmers who grow soybeans, coffee or cocoa have expressed marginal satisfaction. On the opposite end, farmers who grow oil palm or cotton seem quite content with their access to international markets.

Over half of the farmers experience difficulty accessing essential services and inputs to operate their farms.

Irrespective of the small-scale farmers' land size, economic status, gender or level of education, the equitable access to services and inputs is questioned by more than half of the interviewees. Being the prime driver for production efficiencies, farmers rely heavily on their governments, companies or civil society organizations to provide the required services. Almost half of the farmers expressed satisfaction with the access to training and inputs and this figure is largely driven by cotton farmers (78%), soybeans (64%), coffee and oil palm (55%). The farmers growing banana were least satisfied with a meager 13% expressing satisfaction, followed by tea farmers (24%).

In the case of access to markets, geography and location play a critical role in ensuring equitable access to services and inputs. When analyzed from a continent variation perspective, specific nuances emerge. For example, while the overall analysis indicates that soybean farmers are more satisfied with their access to services, a breakdown in variations by continent shows that farmers in Asia are very dissatisfied (64%), while the positive perception has been driven by farmers in Africa, and South and Central America. Similarly, oil palm farmers in Africa have expressed negative perceptions compared with positive perceptions among oil palm farmers in Asia.

BALANCE WITH NATURE

Nearly 3 out of 5 farmers report serious concerns about the quality of their soil and access to water for irrigation.

Small-scale farmers' livelihoods depend heavily on natural resources, including fertile soil, clean water, and diverse ecosystems for pollinators and pest control, making them highly reliant on a healthy and stable environment. Our respondents are extremely concerned about the deterioration of the natural resources they depend on. Their farming activities can have a significant impact on the environment and they feel responsible for preserving it.

For instance, 60% of the interviewees expressed serious concern about the current quality of their soils and capacity to improve the soil health. Farmers from Asia seem more concerned than farmers surveyed in Africa and the Americas. Small-scale farmers across all commodities consistently expressed their disagreement with the assertion that their soil quality is good. This trend is indicative of the ongoing challenge small-scale farmers face in maintaining soil health. The pressure to increase yields has driven many to rely heavily on chemical fertilizers, leading to a rapid decline in soil quality and depletion of soil carbon.

The production of most agricultural commodities depends to a high degree on regular rainfall. With increasing variations in the rainfall patterns, water availability for irrigation has become a critical factor of concern for almost all farmers. Access to water is a major concern in particular for the interviewees active in crops dependent on irrigation, like cotton, oil palm, sugarcane and soybeans. In total, 60% of these farmers express dissatisfaction with the water available for irrigation.

The deterioration of natural resources threatens the ability of small-scale farmers to continue farming and pass on a healthy environment to their children and grandchildren. While the interviewees underline the growing problems related to land-water interactions, the current impacts of climate change add a potent new factor that aggravates an already precarious situation. More than half (57%) do not have sufficient resources to adapt to climate change, even though they already experience climate change in the form of unseasonal rainfall, droughts and floods and temperature variations. The farmers who are answering positively on these questions, often receive some form of support for adaptation or are rewarded for their sustainable production practices.

In summary, investing in specific climate-resilient practices can reduce farmers' vulnerability to price fluctuations and market shocks. It even can provide small-scale farmers with a stronger business case, as it can improve their productivity, profitability, and market opportunities, while also helping them adapt to the challenges of climate change and maintain their livelihoods and food security.

Moreover, 60% of farmers face difficulties in obtaining the financial resources required to address the effects of climate change.

AGRICULTURAL VALUE CHAINS

Small-scale farmers possess valuable knowledge and expertise about their local ecosystems and the challenges they face. By featuring their perceptions in eight commodity snapshots – banana, cocoa, coffee, cotton, palm oil, soybeans, sugarcane, and tea – this atlas seeks to bring small-scale farmers back to the centre of the sustainability discourse and inform more effective and sustainable policy priorities for small-scale agriculture.

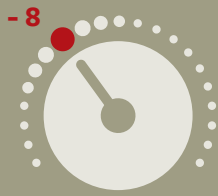
“I grow cocoa, timber trees, medicinal plants, fruit trees, vegetables, and have some livestock on my farm. I especially like the local varieties. I believe that anything can happen in the world, but having a diverse farm ensures that we always have food and protects us from unpredictable weather changes. This helps provide for our livelihood.”

Mercedes Escoto, Cocoa producer, Nicaragua.

“We are facing difficulties in getting access to fertilizers and protection against pests and diseases, leading to a decrease in production. The government promised to provide help, but it has not been received yet. The high interest rates on loans from banks are a burden, and they are hesitant to provide loans because they know that our production is declining.”

Beatriz Herrera de Suarez, Banana farmer, Peru.

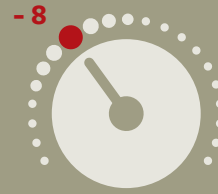
BANANAS



INDIA



PERU



TANZANIA

OVERALL SUSTAINABILITY SCORE



SUSTAINABILITY



PROSPERITY

INCLUSIVITY



NATURE



Do you have the financial means to adapt your farming practices to climate change?

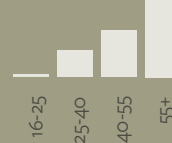


Was the income earned in the last production cycle commensurate with the effort?



Can you manage price volatility if product price drops over 25% in a season?

3 QUESTIONS selected from questionnaire



PROFILE OF RESPONDENTS

AGE



LAND SIZE



LITERACY

BANANAS

Introduction

In contrast to export sectors, such as cocoa or coffee, bananas are predominantly produced by small-scale farmers for domestic consumption. The majority of this group are not banana farmers, but farmers that also produce bananas. When asked about their socio-economic status and challenges, the data reveals a troublesome picture. Farmers growing bananas are very dissatisfied about market inclusion. They perceive a greater threat from climate change and doubt their ability to afford climate adaptive actions and sustain their livelihood.



Export and domestic consumption

Bananas are grown in 135 countries. Farmers produce about 105 million metric tonnes of fruit each year. However, only a small portion of the total production is traded globally. Local consumption is prevalent in large producing countries, such as India, China, (together responsible for 40% of global production), Brazil, and some African countries where bananas contribute significantly to people's daily diet.

While Asia is the largest producing region, Latin America and the Caribbean is the largest exporting region, responsible for approximately 80% of global exports. Based on 2017 figures, 22.7 million metric tonnes of bananas, excluding plantains, were traded. This represents almost 20% of global production and totals 11 billion dollars (US) in export value. The most traded variety is the Cavendish banana, accounting for just under half of global production, popular for export given their resilience to the rigors of global travel.

As a perishable product, bananas require strict logistics and quality control, which are difficult for small-scale farmers to achieve. Trade is organized and dominated by vertically integrated companies that generally manage production, packaging, shipping, import and ripening. This explains why bananas in the major export countries are grown on large-scale monoculture plantations covering several hundred hectares each. Peru, one of the countries we covered in this study, is one of the exceptions. Over the past 20 years they have transitioned from production for local consumption to a premium export market, mostly Fairtrade certified and organic, produced by small-scale farmers.

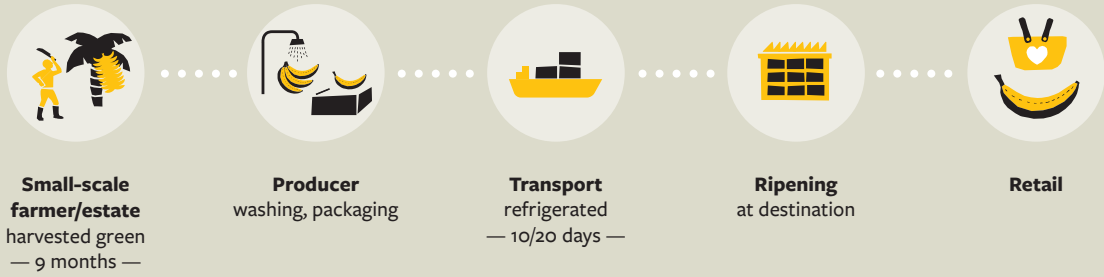
Prosperity

While most of the export production comes from large estates, small-scale farmers typically serve local markets. For them bananas contribute not only to household food security, but also to household income as an important cash crop providing year-round income.

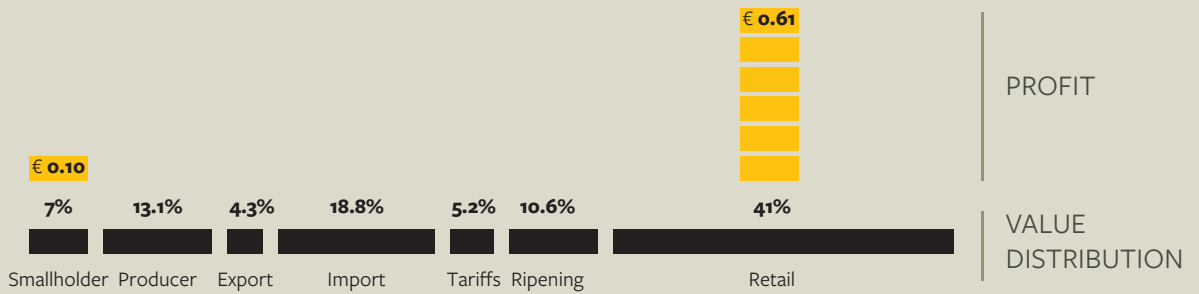
Farmers in Tanzania and India primarily produce for their own consumption and local markets. As such, they are less impacted by global supply and demand trends. This explains why farmers in India responded positively on queries linked to prosperity and farmers in Tanzania remained neutral even though the global banana price has been low over the past years. However, this response is largely driven by their ability to cover basic needs. When asked if the income is commensurate with the effort, 40% of farmers in India and Tanzania disagreed with the statement. Similarly, when asked about their ability to manage price volatility, a third of the farmers in India and more than half in Tanzania responded negatively. Farmers in Peru, depending on niche export markets, responded negatively to the statements on prosperity. This is directly related to high inflation in Europe and North America, where consumers are looking for cheaper alternatives. The division of value distribution in the banana sector is based on data from major exporting countries and does not represent premium export markets or countries focused on local consumption.

BANANAS

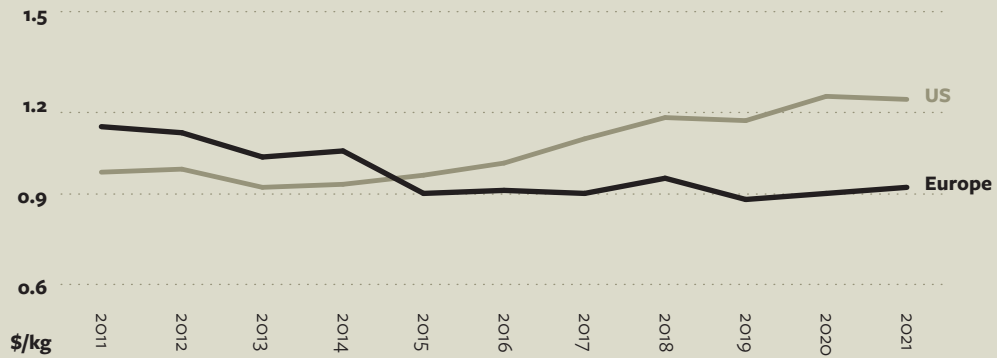
SUPPLY CHAIN



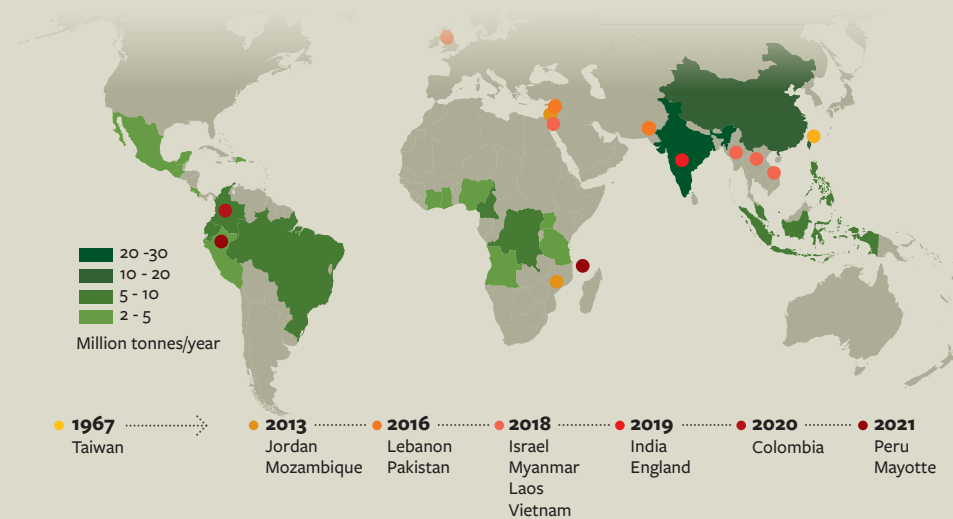
VALUE DISTRIBUTION



PRICE



GLOBAL SPREAD OF TR4



Sources for figures: see page 94

Inclusivity

Market dynamics and characteristics differ drastically between domestic and export focused production countries. In major exporting countries banana production is dominated by large estates, with relatively few small-scale farmers participating. In countries producing mainly for local consumption, bananas are often produced as one of many crops by small-scale farmers. The sector in these countries is fragmented, with limited farmer organization, regulated by middlemen sending trucks to collect bananas.



As such it is not surprising that there has been an overwhelming concern regarding inclusivity among the farmers growing bananas in the three countries examined, including Peru, where the market only recently transitioned from local consumption to export. The majority of the farmers interviewed (strongly) disagreed on statements pertaining to access to inputs, services, commodity prices information, government policies protecting farmer's rights, and farmer organizations that can defend the rights of farmers. The only exception comes from farmers in India where close to half of the farmers indicated satisfaction with their access to credit and commodity price information.

It was further noted that women perceive the statements more negatively than men. This could be due to prevalent social norms that restrict the control women have over income and resources and the lack of access to services, inputs and markets.

Balance with nature

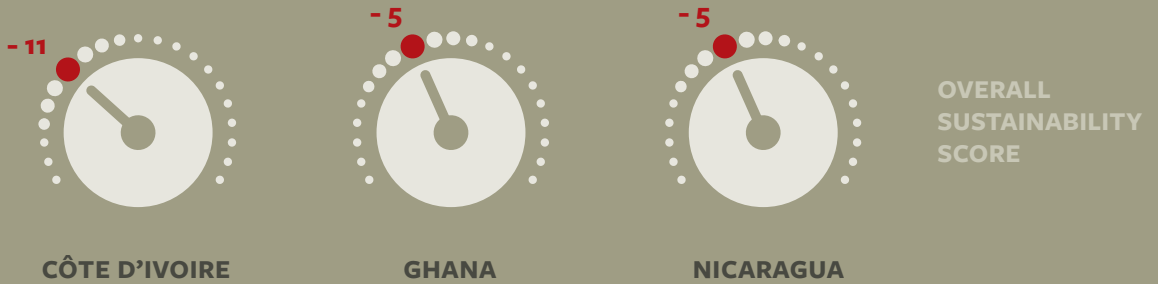
Over the past 50 years, steady increases in global temperatures have been favorable for banana production. However, as global temperatures approach the upper ranges suitable for banana trees, production may start to stabilize or decline. India is expected to be impacted significantly over the next two decades, since adapting bananas to high temperatures will be very challenging and costly. This tension is already experienced, whereby farmers in India, as well as Peru, indicate they face challenges linked to soil quality deterioration and the unavailability of water. Most Tanzanian farmers indicate to have no issues with soil quality or water availability. Probably the result of less intensive farming practices, with bananas as part of an intercropping farm system.

Next to climate change, several strains of fungus pose a great threat for banana production. The continuous spreading of the Tropical Race 4 strain of the fungal disease Fusarium wilt – popularly known as Panama TR4 –, a soil borne disease, has triggered a pandemic on banana farms and is devastating the crop in numerous countries. As of now, there is no cure and prevention requires strict control regulations, such as disinfection of vehicles and booths, clean and certified plant material and fences around plantations. This is difficult and costly to implement on bigger estates and nearly impossible for small producers. Panama TR4 is currently the greatest threat to world banana production.

Challenges

Most sustainable supply chain interventions and regulations are driven by companies or governments operating in major importing countries, such as the USA and in Europe. If we want to be more inclusive of small-scale farmers, this approach will not hold in the banana sector. As most of these farmers operate in informal economies serving local markets, new approaches are required to address the key issues that they struggle with, in particular the impact of climate change and plant diseases that pose a direct threat to the 400 million people worldwide depending on bananas for food security.

COCOA



Can you manage price volatility if product price drops over 25% in a season?

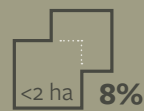
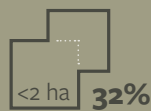


Do you have the financial means to adapt your farming practices to climate change?



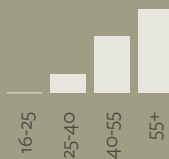
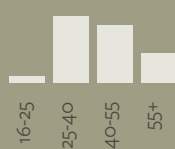
Do you receive price incentives or favorable treatment for producing sustainably?

3 QUESTIONS
selected from
questionnaire



PROFILE OF RESPONDENTS

LAND SIZE



AGE



INTERNET ACCESS

COCOA

Introduction

Poverty, child labor, gender inequality and deforestation are the focus of much interest in developing a sustainable cocoa sector. In recent years, living income has become the key objective for the cocoa sector, however it hasn't changed core business practices so far. Paying a higher price to small-scale farmers, who produce the majority of cocoa, and improving procurement practices are critical if the living income gap is to be breached.



Production

There is a huge demand for cocoa worldwide, yet the product can only be grown in a very small tropical belt. Côte d'Ivoire, and to a lesser extent Ghana, dominate the world's production with a combined market share of 60%. Latin American countries, including Ecuador and Peru, have been increasing their production significantly. Global production volumes of cocoa have gone up by about 20% in the past ten years, from 4.1 million metric tonnes in 2011/12 to 4.9 in 2021/22. This increase in volume is not because of higher productivity per hectare, but because of the enlargement of planted areas.

Small-scale farmers continue to dominate cocoa production, particularly in West Africa, where they produce an estimated 73% of total production. They form part of a highly segmented value chain selling dried and fermented cocoa beans to individual traders or cooperatives, who sell to traders and exporters. At this stage the sector is highly concentrated. The six biggest trading, grinding and processing companies handle 4.5 million metric tonnes of cocoa beans.

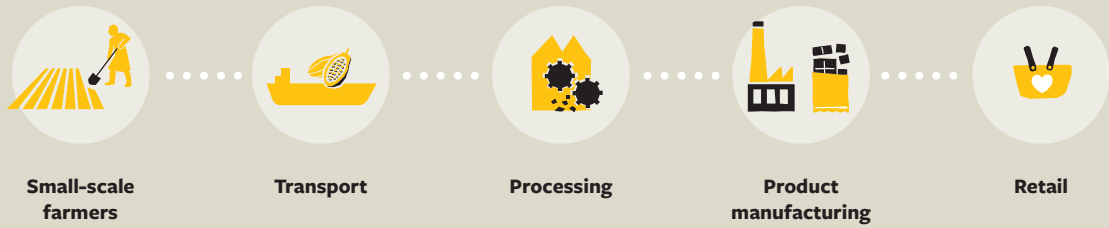
Europe is the largest importer of cocoa beans worldwide, with 61% of global imports. It houses many chocolate manufacturers of all sizes, which work with different cocoa qualities. Globally, six FMCGs represent the bulk of the market for final chocolate products: Mars, Hershey, Mondelez, Nestle, Lindt & Sprungli and Ferrero. Besides Hershey (United States), all of these multinationals have chocolate confectionery production plants in Europe.

Prosperity

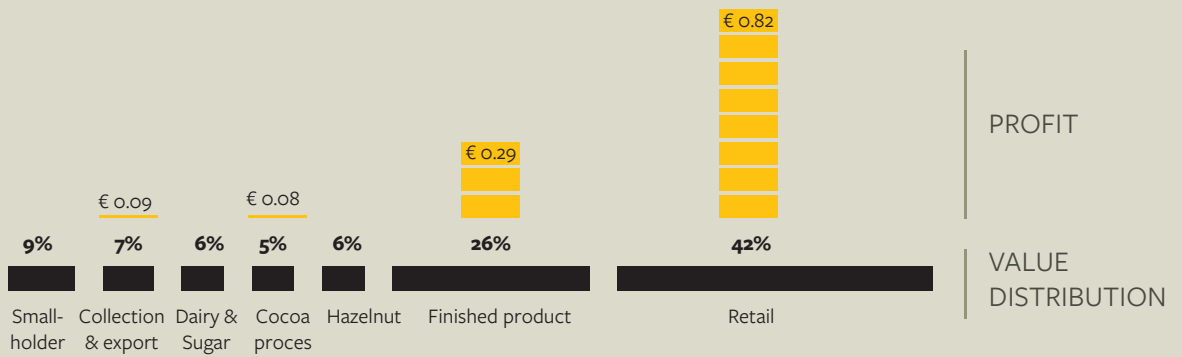
In Côte d'Ivoire and Ghana, the cocoa prices are set by the government, and despite the fact that farmers in Nicaragua focus on higher quality export cocoa, farmers in all three countries score negatively on our prosperity questions. When asked about if income is commensurate with effort, 50% of the farmers in Côte d'Ivoire and Ghana disagreed, however a surprisingly large group of one third agreed to the statement. Drilling down a little deeper, the survey asked about their ability to meet the basic needs of life. Although a substantial percentage of farmers in Côte d'Ivoire and Ghana responded affirmative, a large number of farmers in Nicaragua disagreed.

Small-scale farmers generally rely on cocoa for a major proportion of their household income. To a certain extent these reported perceptions contradict the image of cocoa as a poverty crop. Considering the rather multifaceted nature of the data presented, there are many possible angles from which an analysis could be made. For instance, our group of respondents has relatively large land parcels. In Côte d'Ivoire and Ghana, 21% of the farmers report landholdings of 10 to 50 ha (39% in Nicaragua). Another 24% of the farmers have landholdings of 5 to 10 ha of land. Even the small-scale farmers from Côte d'Ivoire (47% of the farmers) report landholding of 2 to 5 ha. Furthermore, cocoa farming households have a number of income streams – both on- and off-farm – to increase and diversify their incomes. When these activities are taken into account, the per capita income of cocoa farm households in Ghana and Côte d'Ivoire is about 3 dollars (US) per day.

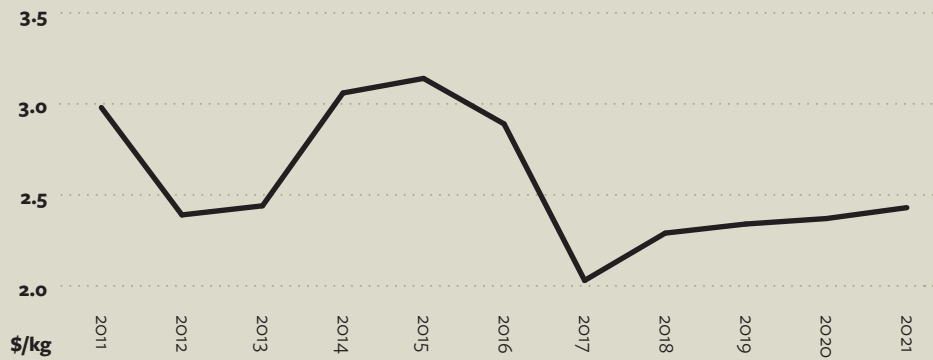
SUPPLY CHAIN



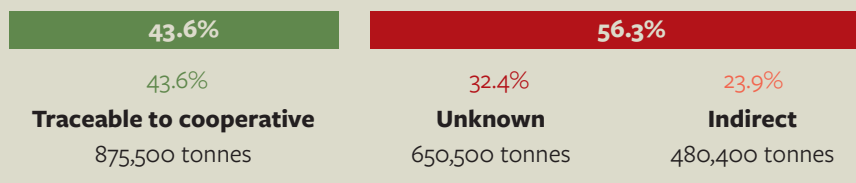
VALUE DISTRIBUTION: AVERAGE PROFIT & VALUE DISTRIBUTION IN SUPPLY CHAIN based on € 8.61/ kg consumer price



PRICE



TRACEABILITY OF COCOA FROM CÔTE D'IVOIRE



Inclusivity

Although the chocolate industry is constantly challenged to contribute to a living income at farm level, actual investments in technical assistance and other services remain insufficient. According to half of the respondents in Côte d'Ivoire, Ghana and Nicaragua access to services, inputs and credits is difficult. Meanwhile, they are slightly more positive about their access to price information and market developments.



When asked about the perception farmers hold toward government policies protecting farming interests, there are noticeable differences among the three countries. Farmers from Côte d'Ivoire scored neutral; in Ghana there was strong agreement and in Nicaragua there was complete disagreement.

For example, in 2019 CCC and COCOBOD (the cocoa marketing boards of Côte d'Ivoire and Ghana, respectively) decided to collaborate to raise the price for cocoa on the world market. Disappointed by the limited progress on the Living Income Differential, both governments boycotted the World Cocoa Foundation's (WCF) Partnership Meetings in October of 2022, a clear signal to the private sector to effectively put their money where their mouth is.

Balance with nature

Cocoa production is a driver of deforestation across the globe. Ghana and Côte d'Ivoire have particularly alarming rates of deforestation: over the last 30 years, Ghana is estimated to have lost 65% of its forest cover, while Côte d'Ivoire has lost around 90% of its forests. The majority has been within cocoa-growing regions of both countries. Surprisingly, environmental concerns are relatively recent additions to the global sustainability discourse in cocoa. Issues such as changing weather patterns and the spread of pests and diseases indicate the urgency to ensure the sustainable management of ecosystems where cocoa is grown.

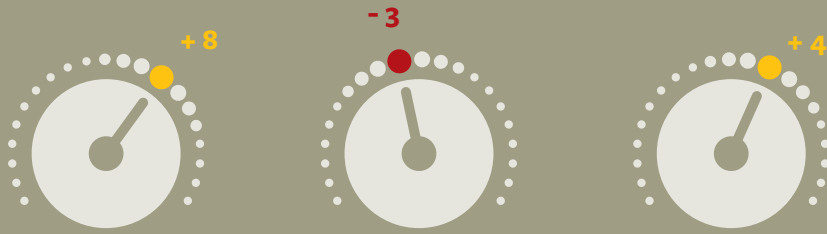
Farmers' main concern is climate change. In Côte d'Ivoire, Ghana and Nicaragua almost 75% of the farmers do not have the financial resources to adapt their farms. A similar percentage indicates deteriorating soil quality affecting their crop negatively.

Meanwhile, farmers are well aware of sustainable cocoa cultivation practices. When asked about the reward for their sustainable cocoa, 57% of farmers from Ghana and 40% in Nicaragua replied positively. However, more than half of the farmers in Côte d'Ivoire strongly disagree, due to a lack of market demand for sustainable cocoa.

Challenges

The upcoming European Commission's "Deforestation Regulation" will require traceability to field plot level. National monitoring and traceability systems are almost ready to be launched in both Ghana and Côte d'Ivoire, and cocoa and chocolate companies have recently announced plans to collaborate and share data into these systems. Despite all the progress made during the last years, roughly half of the cocoa sourced by the big traders and grinders is not traceable (see example Côte d'Ivoire). In this context, the interests of small-scale farmers are paramount and they need support to comply with deforestation measures.

COFFEE



INDONESIA

KENYA

VIETNAM

OVERALL SUSTAINABILITY SCORE



SUSTAINABILITY

PROSPERITY



INCLUSIVITY



NATURE



Was the income earned in the last production cycle commensurate with the effort?



Do you have access to commodity price information in various markets?



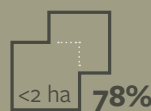
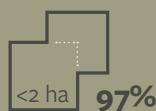
Do you have the financial means to adapt your farming practices to climate change?

3 QUESTIONS selected from questionnaire

PROFILE OF RESPONDENTS



GENDER



LAND SIZE



INTERNET ACCESS

COFFEE

Introduction

Trouble is brewing in the coffee sector. A wide variety of complex issues – environmental, social and economic – jeopardize the future of coffee production. Despite recent increases in the international price of coffee, the dynamics of the coffee market have not shifted in ways that guarantee long-term stability for small-scale coffee farming families. Persistent consequences of climate change is a certainty and remains the defining issue in the sector. Higher temperatures, disruption of rain patterns and dry periods, and pests and diseases could lead to a 50% decrease in land areas suitable for coffee production, as soon as 2050.



Production

Arabica and Robusta are the most widely cultivated species of coffee. A high proportion of Arabica is grown in Brazil, Colombia and Ethiopia. Arabica beans are more highly sought after for their quality and yield higher market prices than Robusta, which is grown in humid areas at low altitudes in Vietnam, Indonesia and Uganda. Compared to Arabica, Robusta is more resistant to diseases and the yield per tree is considerably higher. Robusta production is likely to increase as global warming makes more land suitable for this variety, and less favorable for growing Arabica. There is a widening gap between highly efficient producing countries like Brazil and Vietnam, medium producing countries like Colombia and Indonesia, and nearly every other producing country. This concentration of production will make future access to volume, quality and diversity of coffee increasingly vulnerable, given the risk of climatic and geopolitical events.

Prosperity

In the coffee countries included in our research – Kenya, Indonesia and Vietnam – coffee is primarily an export cash crop. Farmgate prices depend on variety, quality and market destination. Farmers are predominantly price takers since most coffee is exported as green unroasted coffee beans. The majority of coffees from individual farmers are blended and homogenized before shipping, to comply with the quality definitions and standards set by roasters in Europe or the USA.

Because of the current relatively high price levels, as of this writing, most coffee farmers surveyed indicate that they are able to manage their basic household needs. About 66% express satisfaction with the actual income derived from coffee. Opposite to expectations, more than half of the respondents in Vietnam are unhappy with their current income from coffee. Since a farmers' revenue depends on the operating costs, their increased production costs (e.g. fertilizers and labor), in combination with global inflation and a strong US dollar exchange rate has a negative influence on coffee profitability.

Half of the respondents expect to be able to manage basic needs of housing, education, food and health in times of volatile markets and downward pressure on the coffee price. Nevertheless, they admit displeasure at their weak position in the coffee value chain and general lack of influence.

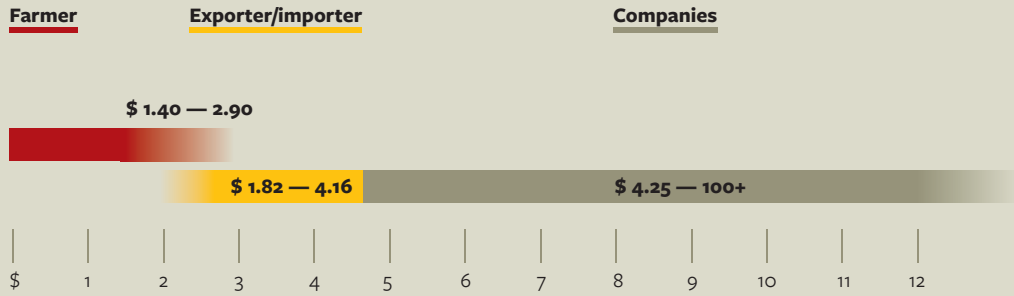
It is estimated that the average green coffee export value accounts for less than 10% of the 200-250 billion dollars (US) of revenues generated in the coffee retail market. Revenues are highly concentrated in consuming countries, where the lion's share of the value is captured by the top ten roasters, who combined receive 55 billion dollars (US) in revenue. While downstream actors are successful in increasing their share of value of the finished product, the

COFFEE

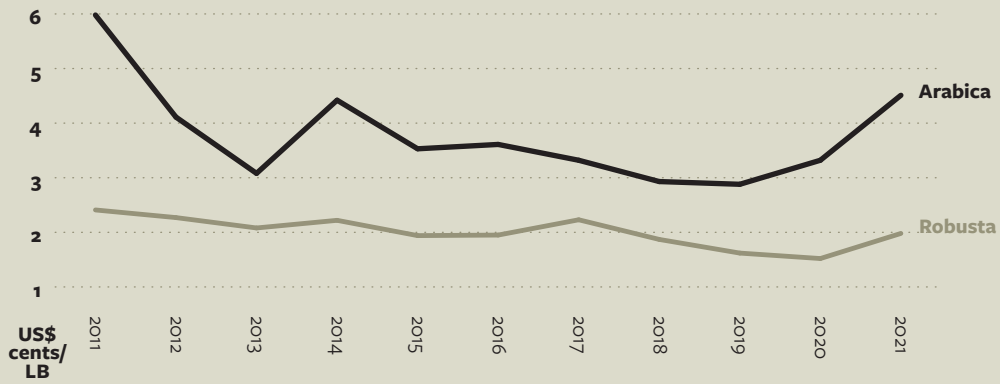
SUPPLY CHAIN



VALUE DISTRIBUTION



PRICE



PROJECTED DECLINE IN LAND WITH THE HIGHEST SUITABILITY FOR COFFEE PRODUCTION DUE TO CLIMATE CHANGE



Sources for figures: see page 94

prices paid to producers are highly volatile and often not economically viable. In this reality, producers are under constant pressure to cut costs, especially those related to labor or the environment.

Inclusivity

This is also the case in Indonesia, Vietnam and Kenya, where – as in all coffee producing regions – coffee is a matter of local economic well-being and political stability. However, actual investments in infrastructure to reduce trade costs or technical assistance to improve inclusiveness and resilience among farmers is a constant challenge.

There is good potential for improvements in farmer income and inclusive economic development, since only half of the farmers express satisfaction with their actual access to finance, extension services or information on prices and markets. In all three countries, the state plays a prominent role, and many farmers seem to question if their government is doing its best to support small-scale farmers. This implies a more prominent role for producer organizations to fill the gap and defend coffee farmer interests. While there are no significant differences between the answers of male and female farmers, farmers with access to the internet and membership in producer organizations tend to be more positive than other respondents.

Balance with nature

Coffee production is under threat by rising temperatures and altered rainfall patterns due to climate change, causing uncertainty in crop yield, damage caused by pests and diseases, and difficulty in achieving consistent quality. Interesting enough, this disruption is not perceived in a consistent way across the coffee farmers consulted for this report. Where farmers in Indonesia responded mainly neutral to the questions, the farmers in Vietnam have no major issues concerning water availability or changes in land quality. The situation dramatically varies for farmers in Kenya, where most of the farmers responded negatively. This could potentially be explained by the fact that Arabica production in Kenya is more susceptible to changing climatic conditions versus Robusta in Vietnam and Indonesia.

Climate models and field evidence show that climate change will gradually drive production into new areas. Such a development would threaten some of the last intact primary forests on earth and the rich ecosystems and biodiversity within them.

Challenges

Although the sector has the image of a frontrunner in sustainable agriculture, coffee is failing to create the conditions needed for a viable and flourishing sustainable value chain. The challenges to adapt to climate change question our concept of sustainable coffee production. As the investments need to be paid now with the promised rewards in the distant future, most corporations are reluctant to forego the assured short term gains. Forest conservation in combination with coffee agroforestry can reconcile economic and environmental goals. Since coffee is a perennial plant that can produce for up to 25 years, this is about long-term planning and investing. Without it, many small-scale farmers lacking the resources, ability and flexibility to relocate, will have to abandon coffee production.



COTTON



CHINA

ETHIOPIA

INDIA

OVERALL SUSTAINABILITY SCORE



SUSTAINABILITY

PROSPERITY



INCLUSIVITY



NATURE



Was the income earned in the last production cycle commensurate with the effort?



Were you satisfied with access to quality inputs last season?



Do you have sufficient access to water for crop production?

3 QUESTIONS selected from questionnaire

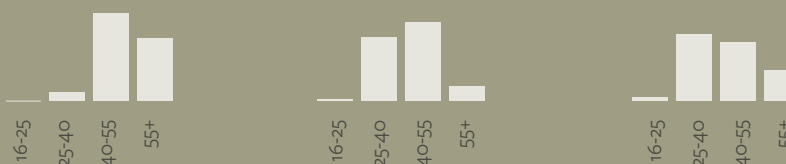


PROFILE OF RESPONDENTS

GENDER



LAND SIZE



AGE

COTTON

Introduction

While crucial for the livelihoods of millions farming families across the world, cotton farming practices often result in ecological harm. Almost every cotton producing region will be negatively impacted by climate change, and small-scale farmers already indicate it's a struggle to adapt fast enough to maintain reliable production. Although the adoption of "more sustainable" cotton certifications has risen over the last decade, many companies continue to lag behind even in meeting basic sustainability standards. While sourcing decisions remain vital to promoting sustainability in the industry, relying solely on voluntary standards is not a viable solution to address the challenges of cotton sustainability.



Production and consumption

The main producing countries of India, China, the US, Brazil, and Pakistan produce more than three-quarters of the annual global production of about 26 million metric tonnes. Cotton consumption refers to the use of cotton fibres by mills to produce yarn. This normally takes place in producing countries with a garment industry. China's textile industry dominates the market, followed by India, Pakistan, Vietnam, and Bangladesh. In the past decade the sector experienced regular supply shortages. World cotton production is projected to grow 1.6% per year and will result from an expansion of the harvested area. Yields in major producing countries have been stagnating since 2004 because of pest problems and water scarcity.

Cotton is a small-scale farmers' affair. An estimated 24 to 32 million farmers grow cotton on tiny landholdings, good for 75% of global production. This is reflected in the farmer profiles of this study, whereby the vast majority of small-scale farmers grow cotton on less than 2 ha in China, Ethiopia and India.

Profitability

Several droughts in key producing regions, in combination with strong demand, has resulted in the highest cotton prices in a decade. Furthermore, the lingering impact of the COVID pandemic, the US ban on cotton from China and the conflict in Ukraine, has created an unparalleled level of stress in the supply chain. Impacting transportation, labor availability, access to inputs and raw materials. In 2021, the recovery in global consumption triggered a strong increase in cotton prices.

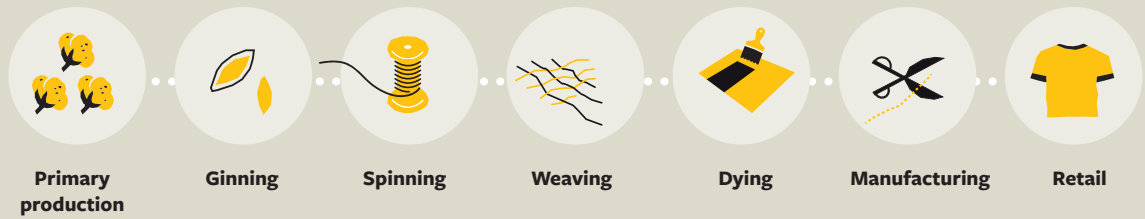
Current (2022) high prices may explain why farmers consulted have a fairly positive perception linked to prosperity. Indicating that they feel reasonably compensated for their efforts and are able to cover basic needs. However, higher input costs (fertilizer, chemicals and labor) due to supply-chain disruptions are likely to increase costs of production. Furthermore, we see that farmers who depend mainly on farming, are comparatively less positive, indicating that a lack of income diversity increases vulnerability. In our assessment, data further shows that farmers with producer organization membership are overall more positive on prosperity aspects than non-members.

Inclusivity

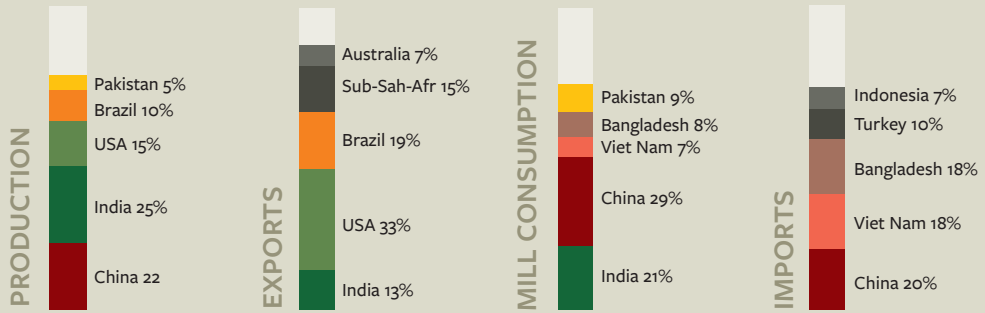
In the three countries where we interviewed farmers – China (the research sample is from the Gansu province only), India and Ethiopia – cotton is a crucial crop for the national economy. Partly as a direct export cash crop, but especially to serve the national textile industry. As such, the government in each country tries to stimulate local production by creating a favorable supportive infrastructure. In India the government uses, among other instruments, a Minimum

COTTON

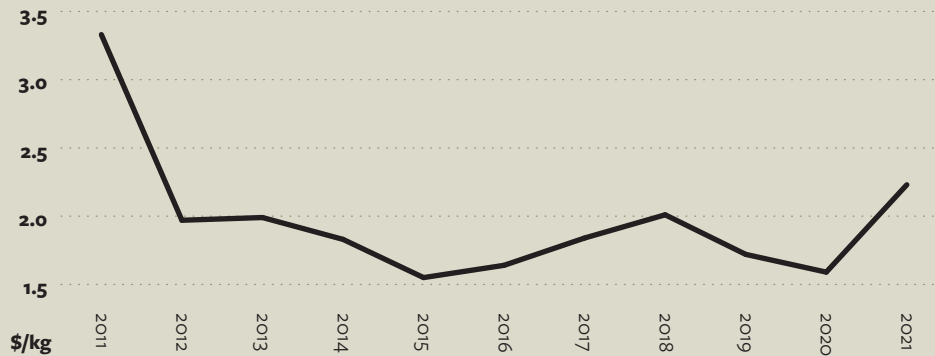
SUPPLY CHAIN



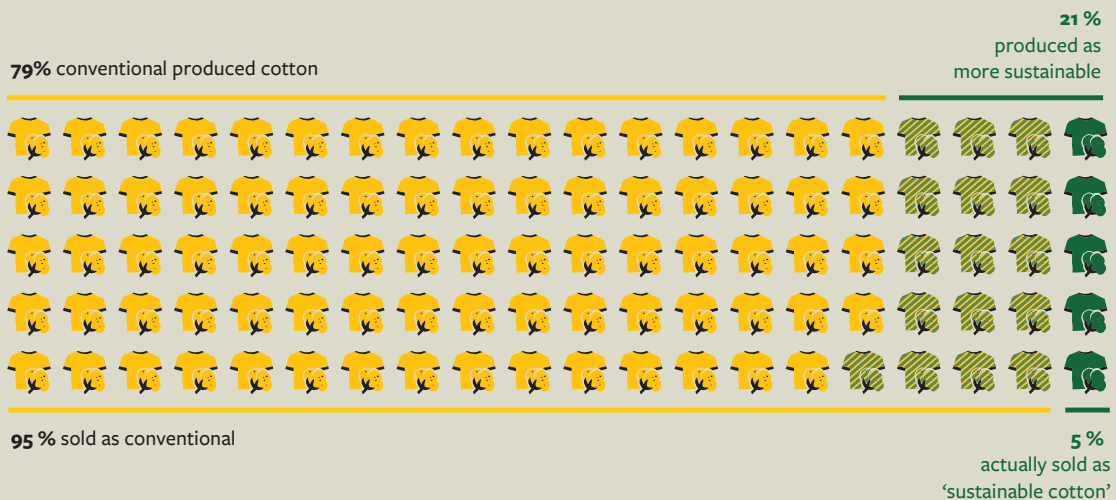
GLOBAL PLAYERS IN COTTON MARKETS IN 2030



PRICE



GLOBAL COTTON PRODUCTION: CONVENTIONAL VS SUSTAINABLE VOLUMES



Support Price to protect the income of farmers where China safeguards local production by setting up trade tariffs and substantial subsidies. China allocates more subsidies per kilogram of cotton than any other country in the world.

This appears to pay off in both India and China, farmers in both countries seem quite content concerning access to inputs, credit, extension services, information on price and policy support from the government. In Ethiopia farmers have a slightly negative perception on both government and farmer organization support. Most farmers in Ethiopia are organized in cooperatives and unions, or under contract with large farms or ginneries. However, while significant in number, their production volume is limited whereby 70% of all cotton in Ethiopia is produced on large estates (200 ha plus). This could clarify governmental support is mainly directed to large farms.

Analyzing the scores across gender, it is noteworthy that women farmers in India and Ethiopia have given significantly lower scores than men linked to inclusivity aspects. This could be explained, as in most agricultural sectors, that participation of women is hardly recognized, making it difficult for them to access services or inputs.

Balance with nature

Despite common perceptions, cotton is not always a water-intensive crop. It boasts a moderate level of drought resistance, over 50% of the world's cotton fields rely solely on rainfall for irrigation. However, if not managed well, its production depletes freshwater resources, causing water stress for local communities. This is most likely to get worse, since climate models reveal that by 2040 water scarcity and erratic rainfall will increase the impact of drought in half of global production regions. For instance, in India climate change is expected to impact one third of India's production regions. Our interview results demonstrate this is not just a future scenario, it's already a daily reality. Practically all farmers in India and China indicate a lack of water availability impacting crop productivity.

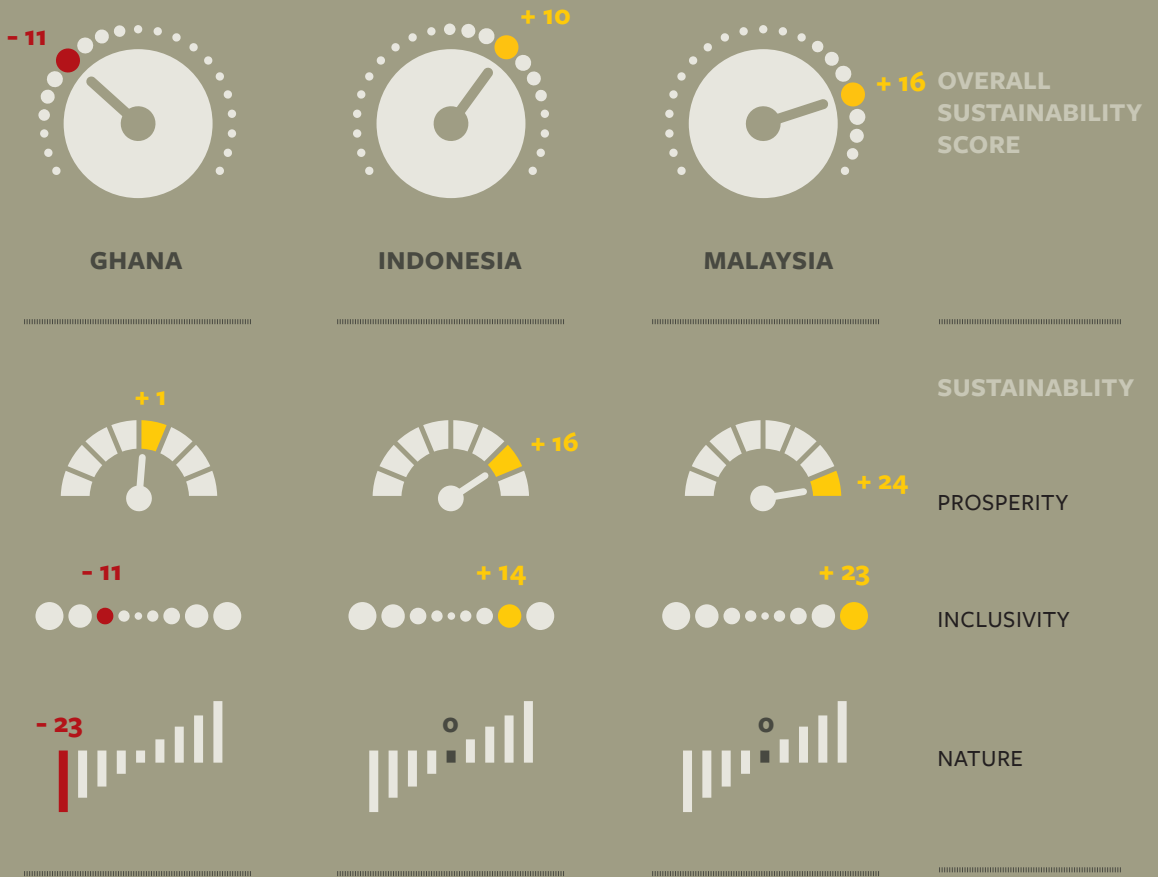
In addition to excessive water consumption, current cotton production practices require heavy pesticide use due to regular pest attacks. While being grown on only 2.5% of the world's agricultural land, cotton is responsible for using 16% of insecticides and nearly 7% of herbicides globally. These agrochemicals, as well as fertilizers, end up in water sources, having a serious impact on farmers and worker's health.

Challenges

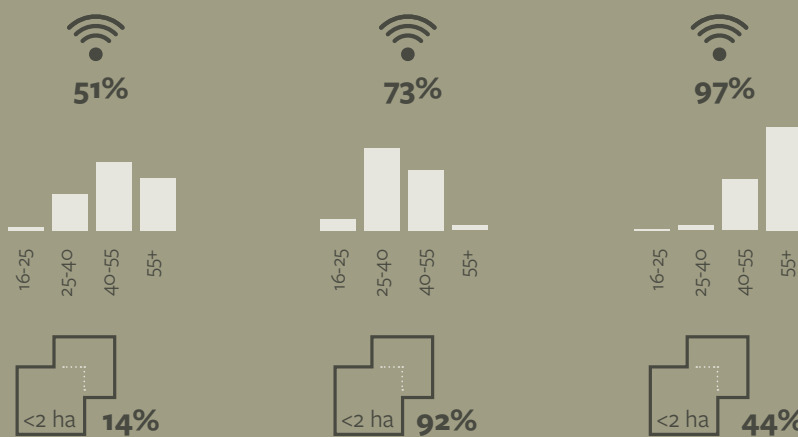
Sustainability considerations will continue to influence future demand and supply of cotton. Looking at the serious environmental impact of conventional cotton production it is difficult not to feel alarmed by the challenges millions of small-scale farmers are facing. Voluntary standards promote the cultivation of sustainable cotton, the Better Cotton Initiative (BCI) is the main player, accounting for more than 45% of sustainable cotton supply in 2018, followed by the Responsible Brazilian Cotton initiative with 35%. However, due to a lack of demand, 75% of this sustainable cotton is sold as conventional cotton on the market. More specific solutions for small-scale farmers are available too, for example organic cotton. Although this is consuming drastically less water (up to 90%), and excluding toxic pesticides, its market share is only 1% compared to the conventional volume (see infographic).



PALM OIL



3 QUESTIONS selected from questionnaire



PROFILE OF RESPONDENTS
INTERNET ACCESS
AGE
LAND SIZE

PALM OIL

Introduction

The prevailing image of palm oil today in many consuming countries is that of a crop that devastates the earth, transforming much of the world's tropical forests into cookies, cosmetics and car fuel. Palm oil figures prominently in the press as the central actor in deforestation, biodiversity loss and climate change. Often it is used to illustrate myriad deeply divisive subjects, including economic development, human rights, and environmental conservation. Although the image of industrial scale companies operating oil palms as a monoculture plantation crop holds true, a diverse base of three to five million small-scale farmers produce roughly 30% of global palm oil, on an estimated 27% of the total cultivated land area.



Production and consumption

In 2021, Indonesia and Malaysia accounted for over 64 million of the 76.5 million metric tonnes of global palm oil production. When considering all production regions, Southeast Asia represents 84% of total production, Africa is responsible for 4% and Latin America for 8% of the volume. In just 20 years global production of palm oil has tripled. About 75% of refined palm oil is processed for the food industry. Palm oil-based products can come in the form of cooking oil, but often palm oil is embedded as an ingredient in other products like margarine, chocolate, cookies and ice cream. One growing use for palm oil is in the bioenergy market, where edible oils like palm oil and its by-products are used as an alternative to fossil fuels. Global demand is on track to push production to 80 million metric tonnes by 2026, compared to the annual average of 73,500 million metric tonnes produced between 2017-2021.

Prosperity

Many small-scale farmers are attracted to growing oil palm for its high yield and potentially higher prices. Most oil palm producers in Indonesia, Malaysia, and Ghana see themselves as relatively well-off compared to the average farmer in their country. In all three countries, farmers perceive the returns from palm oil cultivation to be proportional to their efforts and their ability to meet household needs. The main difference between farmers in Malaysia and Ghana seems to be related to the ability of asset-rich and asset-poor farmers to manage volatile market prices and/or uncertainty in finding a market for their fresh fruit bunches.

While the specific context of palm oil policies and pricing mechanisms in each country can have an impact on small-scale farmers' income, it is important to recognize that the palm oil industry is a buyer-driven chain. Large multinationals often prioritize cost-cutting to maximize profits, which can be at odds with their own sustainability commitments. Even though palm oil is an increasingly lucrative industry, worth 282 billion dollars (US) in 2020, small-scale farmers only generate 17 billion dollars (US) or 6% of the value in the entire chain. In fact, the concept of "profit" may not be applicable to small-scale farmers. On the downstream end of the chain, FMCGs and retailers capture 66% of the gross profits from embedded palm oil.

Inclusivity

For small-scale farmers, growing oil palm contributes to household well-being, food security and rural livelihoods. Because it can be harvested year-round, it provides a steady cash flow and is often regarded as the one crop that can help a family out of poverty within a generation. In their oil palm farming practices, every small farmer must constantly consider multiple needs of diversifying income, ensuring food security, and protecting cultural values.

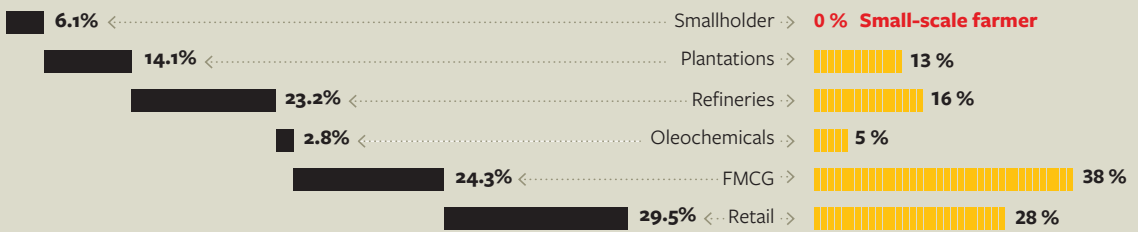
PALM OIL

SUPPLY CHAIN

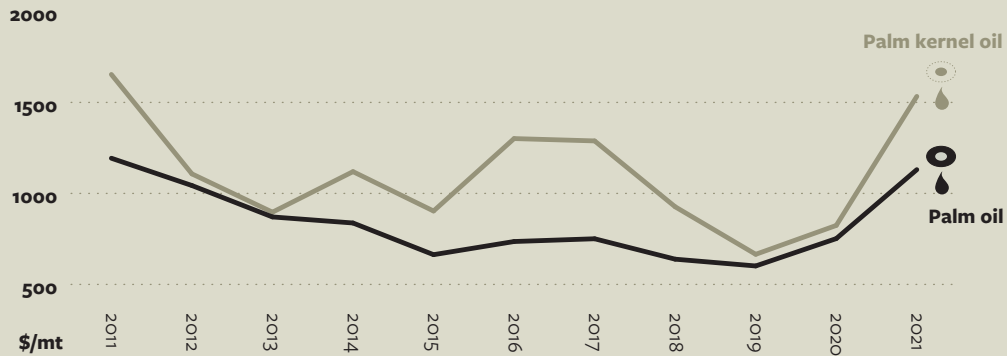


VALUE DISTRIBUTION

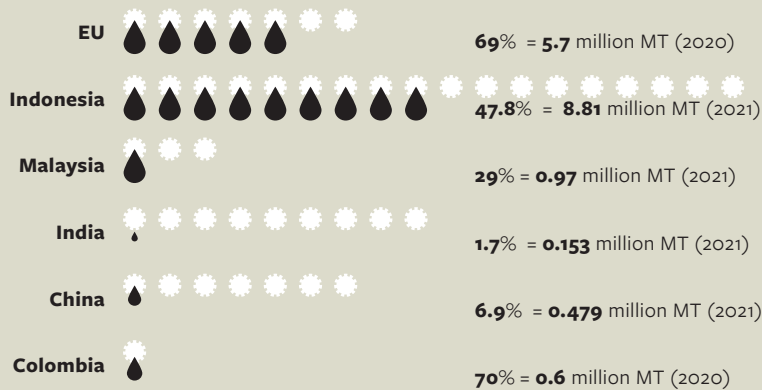
ADDED VALUE ← → PROFIT



PRICE



GLOBAL PALM OIL CONSUMPTION FOR BIOENERGY



palm oil consumption



% used for Bioenergy
Unit = 1,000 MT

While a number of programmes, regulations and supporting schemes are already in place in the palm oil sector, generic interventions focus on capacity development, extension services, access to inputs and market information. Few of them look integrally at the inclusion of male or female farmers in the value chain. This is reflected in the response of female farmers in our survey. When we analyze the data from the farmer surveys across three countries and focus specifically on the responses of female farmers, we find that women have a more negative perception than men about their ability to manage the basic family needs through the cultivation of oil palms.

Balance with nature

Millions of people, many of whom live in remote, fragile environments such as forests and peatlands, will continue to depend on the palm oil industry. As the industry grows, it is increasingly important to ensure that it is managed sustainably, in a way that protects ecosystems, biodiversity, and forests in producing countries. The environmental impacts of palm oil production are significant and include land conflicts, the loss of traditional livelihoods and culture, widespread deforestation, decreasing biodiversity, and increased carbon dioxide emissions from peatlands.

However, it is easy to overlook the challenges faced by small-scale farmers in growing oil palms sustainably when we focus solely on the environmental crisis, rather than also considering its connection to the wider poverty crisis. For example, our survey data shows that 93% of farmers in Malaysia and 58% in Indonesia do not believe that there are any environmental limitations to producing oil palm. In contrast, farmers in Ghana are particularly concerned about the ability to produce oil palm in harmony with nature, citing issues such as deteriorating soils, access to water, and the impact of climate change.

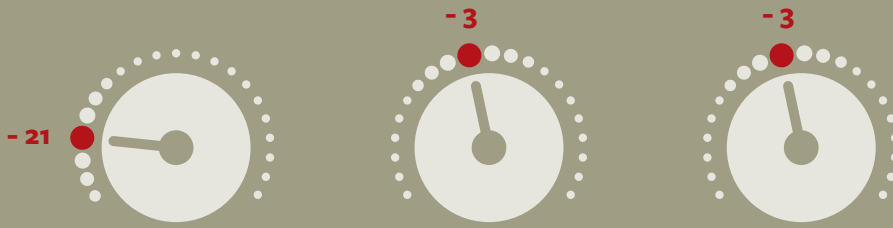
Challenges

One growing use for palm oil is in the bioenergy market, where edible oils like palm oil and its by-products are used as an alternative to fossil fuels. In 2020, 23% of the global production of palm oil was used in biodiesel. Increases in production have been achieved through area expansion, not through improvements in productivity. As the availability of land becomes increasingly limited, the development of effective production strategies for palm oil will require a focus on integrated land management, resulting in potentially higher production costs. To make sustainable palm oil the norm and not the exception at the demand side, we need to demystify palm oil. Opening up communication to the public about the challenges and why they should buy/ask for certified palm oil is essential.

Ideally, the combination of private sector support, international trade policies and multi-stakeholder collaboration will improve household income, food security and well-being. Without significant interventions that compensate for structural disadvantages in relation to risk and reward, it is questionable whether small-scale farmers will be able to successfully compete and prosper. The sector needs fair prices for farmers, for their livelihoods and for investments to ensure the long-term viability of their farms and environments.



SOYBEANS



INDIA

MOZAMBIQUE

PARAGUAY

OVERALL SUSTAINABILITY SCORE

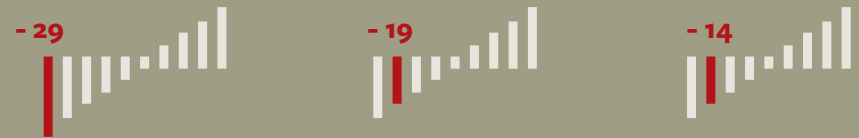


SUSTAINABILITY



PROSPERITY

INCLUSIVITY



NATURE



Are the interests of farmers represented in government regulations and policies?

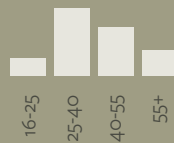
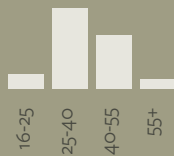


Has soil quality been consistent over the last five years?



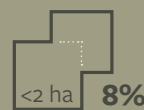
Do you have sufficient access to water for crop production?

3 QUESTIONS selected from questionnaire



PROFILE OF RESPONDENTS

AGE



LAND SIZE



LITERACY

SOYBEANS

Introduction

Global meat consumption has been rising for years, pushing up demand for livestock feed. For animal agriculture, soybeans are one of the most important sources of protein. Almost 80% of soy ends up in feed troughs and remains an invisible ingredient to consumers. The way that soy is embedded within the food system makes it challenging to raise awareness among consumers about negative externalities associated with its production. This, in turn, creates difficulties in persuading retail and brands to stimulate more sustainable practices.



Production and trade

Soybeans are mainly produced in North and South American countries, such as the USA (28% of global production), Brazil (33%) and Argentina (16%). In these countries, most of the production takes place on relatively large-scale farms of more than 1,000 ha. Although hundreds of thousands of family farms derive part of their income from soybeans, they are considered small-scale (depending on the region, between 50 and 100 ha.). Meanwhile in Asia, particularly China and India, and Africa - Mozambique, Zambia, Malawi soy belt, the majority of soybean production is carried out by millions of small-scale farmers who own just a few hectares of land, primarily catering to domestic markets.

The international trade flow is massively concentrated around two 'magnetic' poles. On the one hand, the Americas represent the production/export pole. On the other hand, the import/consumption pole is situated in Asia. It attracted about 80% of global import flows in 2020, with China taking up the lion's share (30%). The EU27+UK is the second largest export market, importing soy in the form of beans, soymeal and cake destined for use as feed for pigs, poultry and cattle.

Prosperity

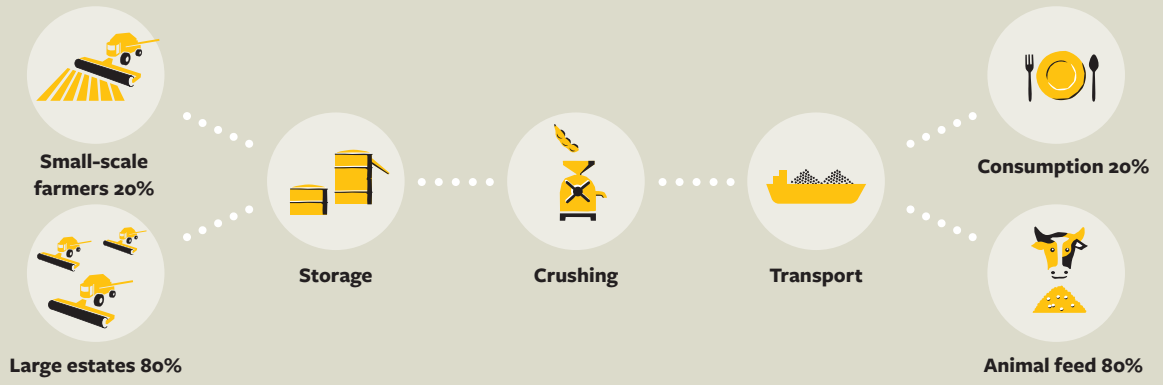
In the soy producing countries included in our research, India, Mozambique and Paraguay, farmers' perceptions differ considerably. This may be influenced by a broad range of factors, especially the extent to which the soybean market is oriented towards meeting domestic demand or exports. When comparing perceptions, a couple of factors need to be kept in mind. These range from weather impacts on harvests, changes in demand caused by the outbreak of African swine fever in China, political developments like the US-China trade war, or the supply chain hiccups and changes in demand due to the COVID-19 pandemic and the Russian invasion of Ukraine.

While the farmers in India cope with extreme weather events, they stress the difficulty to generate sufficient income from their tiny land holdings. Despite higher international prices, farmers in Mozambique and Paraguay express marginal satisfaction with their income directly derived from soybeans. They specifically referred to their marginalized position as price takers and the lack of alternative market opportunities. Soy is a 'just in time' commodity, with users buying quantities frequently to suit their needs. This allows buyers to respond to the fluctuating market and price changes.

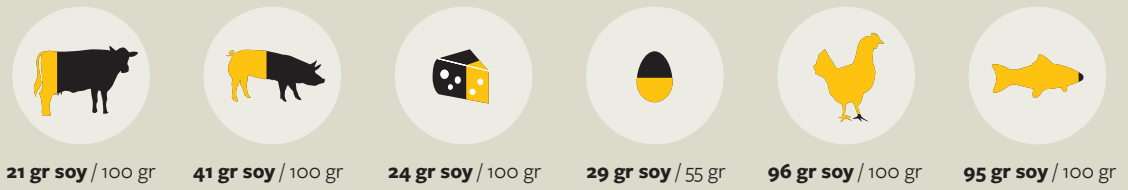
Global soybean trade flows are worth over 58 billion dollars (US) in 2020, with an additional 23 billion for soybean meal trade and 9 billion for soybean oil. The main processors and traders are agribusinesses such as Cargill, Bunge and ADM. Thereafter, the chain fragments as the processed commodities are sold for different purposes. Since most soy products are embedded in the consumption of animal products like meat, dairy, eggs and farmed fish, the total eco-

SOYBEANS

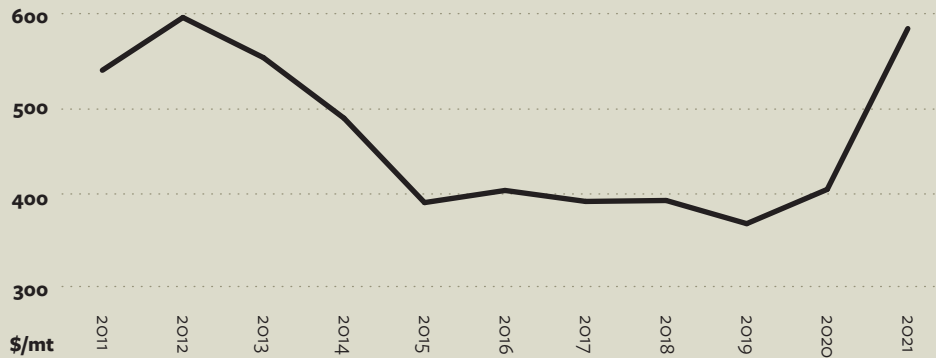
SUPPLY CHAIN



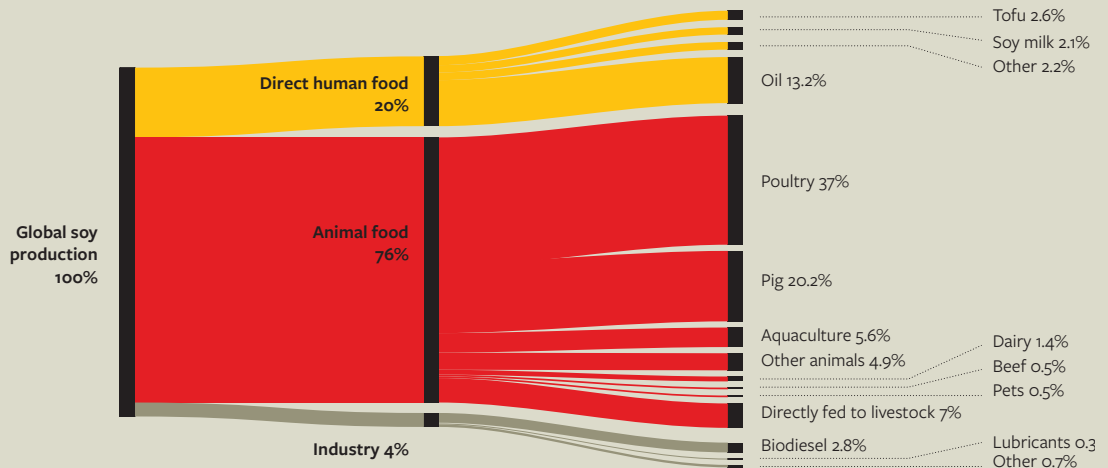
EMBEDDED SOY IN ANIMAL PRODUCTS



PRICE



ALLOCATION OF GLOBAL SOY PRODUCTION TO ITS END USES BY WEIGHT



Sources for figures: see page 95

conomic revenues from the soybean international trade are difficult to analyze. Unfortunately, no specific studies were found that allow us to trace the distribution of value along the soybean supply chain, from the small-scale farm to the retail level.

Inclusivity

The majority of farmers expressed their concern about the lack of supportive governmental policies to protect their interests. The farmers who are members of a farmer organization are less concerned about their ability to voice their interests to the government. Despite the different market structures, in all three countries negative answers are recorded across all inclusivity dimensions measured.

Land size is a crucial factor, since growth in soybean production is generally expansive (in terms of area under cultivation) rather than intensive in nature. Farms in India and Mozambique tend to be small, with the vast majority in India covering less than 2 ha. It's not surprising then that Indian farmers have voiced deep dissatisfaction with their level of inclusion in the value chain. In Paraguay, farmers tend to have a more positive outlook, although competition with large-scale industrial farms is fierce. Yet, the government's support for the export market, through investments in soy processing industries and transport infrastructure, seems to be benefiting small-scale farmers too.

Balance with nature

According to the soybean farmers in all three countries, the environmental outlook is equally troubling. Since soy is largely a rainfed crop, these farmers are deeply worried about the reliability of water sources and the shifting weather patterns that threaten their crops. Additionally, the widespread use of agrochemicals fuels rising worry over the degradation of soil quality, as well as growing health concerns.

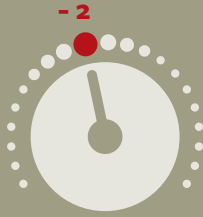
The rapid expansion of soy production in Latin America has been associated with extensive land use change in the form of cattle-ranching driven deforestation and clearance of natural vegetation, and a few years after the newly cleared land is rented out to soy farmers. This leads to the reduction of natural habitats, such as rainforest and savannah, and biodiversity loss. The loss of natural ecosystems due to expansion of cultivated areas, together with the intensification of agricultural practices, reduces the ability of the ecosystem to supply goods and services that support human population and contribute to its well-being. It's encouraging to learn that all farmers we interviewed in Paraguay reside in regions where deforestation is prohibited by law, which has resulted in no new deforestation taking place.

Challenges

As people become wealthier and change their dietary habits to include more meat, dairy products, and vegetable oils, the demand for soybeans has increased exponentially, particularly in China. The Chinese government's strategic decision to use imported feed to develop the domestic pig industry has further fueled this trend. Although soy is an essential agricultural commodity, global demand for sustainably produced soy has been surprisingly low when compared to other commodities. While certifications can help ensure responsible production practices, they alone cannot address the complex issues of deforestation and land conversion associated with soy production. A combination of approaches is needed, including landscape-level investment and cooperation, voluntary standards and mandatory legislation. Ultimately, a smart mix of solutions is necessary to promote responsible soy production practices, while safeguarding landscapes and ecosystems.



SUGARCANE



BRASIL

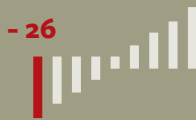


INDIA



MEXICO

OVERALL SUSTAINABILITY SCORE



SUSTAINABILITY

PROSPERITY

INCLUSIVITY

NATURE



Are you satisfied with access to extension services?



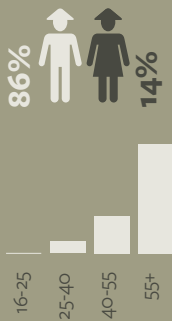
Are the interests of farmers represented in government regulations and policies?



Has soil quality been consistent over the last five years?



3 QUESTIONS selected from questionnaire



PROFILE OF RESPONDENTS

GENDER

AGE



LITERACY

SUGARCANE

Introduction

Sugarcane supplies 86 percent of the world's sugar and grows best in tropical climates. It has the notable quality of serving both as a food and a fuel source. The global South accounts for approximately three-quarters of all sugar consumption. These countries are expected to lead the future market growth of the sector with increasing consumption of processed products and soft drinks. In contrast, demand is expected to stagnate in the markets of the global North due to health concerns related to sugar consumption, such as obesity and diabetes. Prices are projected to trend slightly upwards. This is the result of a tighter balance between global supply and demand than in the past decade. Meanwhile, small-scale sugarcane farmers face important challenges, like climate change and limited access to technological development.



Production and trade

Sugar is derived from three main crops: sugarcane, sugar beet and corn starch. Of global sugar production, one third is sold on the global market, and two thirds in domestic markets. Sugarcane is mainly grown by small-scale farmers in more than 100 countries, with a wide variety of land holdings. Reliable data on the number, size, and production levels of sugarcane farmers worldwide is scant. According to some estimates, as much as 40% of sugarcane may be grown by as many as 60 million small-scale farmers, while the remaining 60% is grown on large plantations.

The largest producers are Brazil, India, China and Thailand accounting for 70% of world production in 2020. Next to cane sugar, another key product from sugarcane processing is ethanol, which is used for producing alcoholic beverages and biofuels. Furthermore, cane bagasse is used for generating electricity, animal feed, and for products like bioplastics (ethylene). The food and beverage sector is a major driver of sugar consumption. Between 2001 and 2018, world sugar consumption increased by around 40%, or an average annual growth of 2%. Major markets include India, the EU, China, Brazil, the US and Indonesia.

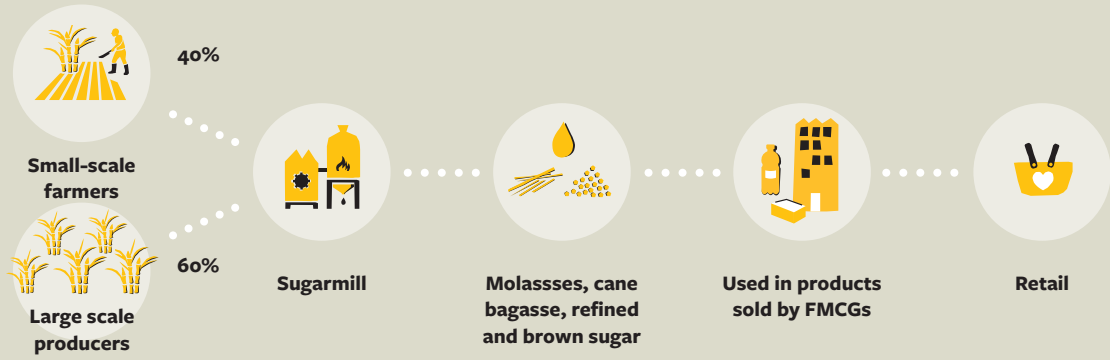
Prosperity

In the sugarcane producing countries of our research (Brazil, India and Mexico), national policies supporting the sugar industry, including production quotas, guaranteed prices and subsidies, play an important role in the market price of sugarcane. Small changes in consumption, production trends or in related policies have immediate impacts on world market prices as Brazil is the main exporter and India is the largest consumer and second largest producer. To protect their domestic markets, most countries use specific policy instruments. For instance, transportation subsidies to stimulate exports of sugar and support domestic sugar prices in India, the implementation of the biofuel programme (Renovabio) in Brazil, or the adjustments of WTO tariff rate quotas to limit the export of Mexican sugar to the United States.

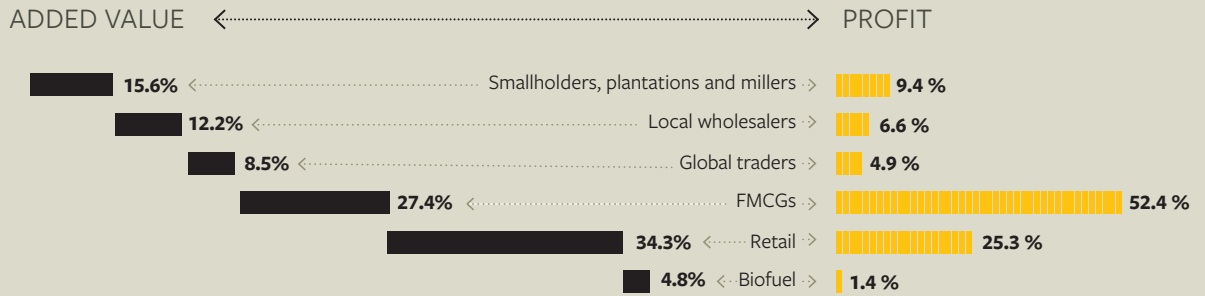
While farmers in Brazil score marginally positive on our prosperity questions, it's a different situation in India and Mexico. Here resource poor sugarcane farmers tend to find it very difficult to earn sufficient income to sustain both household needs and farm activities. The small-scale farmers' income largely depends on the quantity and quality of the sugarcane. Farmers anticipate that the average yield quantity will fall this year (2022), since they will likely have to reduce their fertilizer usage due to a surge in prices after Russia's invasion of Ukraine. Another challenge is shortening the time between harvesting and milling to maintain the sugar content in the crop and deliver a high-quality product. Both options – increase yields and higher transportation costs – require upfront investments from small-scale farmers.

SUGARCANE

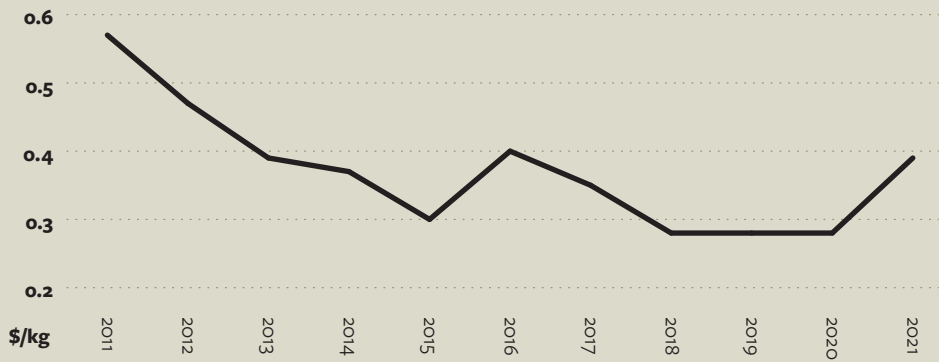
SUPPLY CHAIN



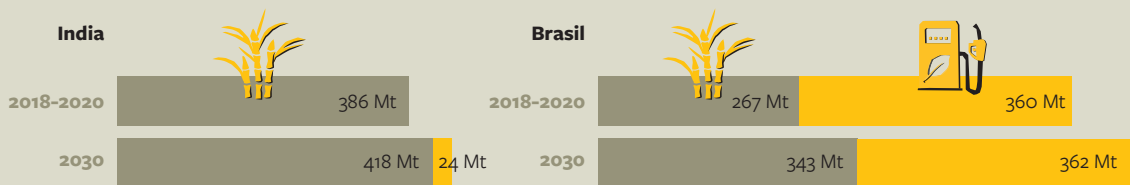
VALUE DISTRIBUTION



PRICE



SUGARCANE USED FOR BIOFUEL



Sources for figures: see page 95



Since the sugar sector is a complex value chain supporting a large number of other industries, revenues are difficult to define. The total value generated in the cane sugar supply chain is estimated at 304 billion dollars (US). Although the values and profits generated by small-scale farmers look positive on a balance sheet, they need to be divided by millions, which explains why many sugarcane farmers are unable to sustain their livelihoods. Value is added during processing and marketing activities, capital-intensive activities that are outside the reach of small-scale producers. The highest value generated on cane sugar is by the FMCG companies. In gross profit and operating profit their share is around 50%. These high percentages are due to the strong pricing-up power by companies like Coca Cola, Nestlé and Unilever.

Inclusivity

Generally, Latin America shows more mechanization in sugarcane production than Asia and is structured with larger sugarcane-producing landholdings. This contrast is illustrated by the productive models of the two largest global sugarcane producers. While production in Brazil is controlled by plantations and large cooperative mills, small-scale farmers dominate in India, and in many other developing countries. Thus, farmers in Brazil tend to be better organized and supported than their counterparts in Mexico and India.

In the context of inclusivity, it's relevant to note that the participation of female small-scale farmers in our survey is only 19 percent. This highlights the persistent issue of women not being considered as farmers (given the requirement of landholding rights). Especially in India, there are prevalent social norms that restrict participation of women in agriculture. In their answers, women in all three countries tend to have a more negative perception of their access to services, agricultural inputs and market information than their male counterparts.

Balance with nature

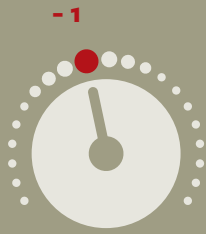
Sugarcane is a water-intensive crop and distressed by slight changes in temperature and other climatic conditions. Of the farmers in Brazil, India and Mexico, who had responded positively to statements on prosperity, 93% responded negatively to balance with nature questions. Their responses highlight that they are seriously worried about the future of cultivation in the wake of climate change, deterioration of the soil quality and low water availability.

Since droughts can significantly reduce production of the water-sensitive sugarcane, the farmers' perceptions reflect recent experiences. For example in Mexico, a historic drought led to a significantly reduced harvest in 2019/20. In India, unfavorable weather conditions negatively impacted sugarcane production in the same season. And Brazil recorded significant lower yields than previous years attributed to droughts and inflated costs of production.

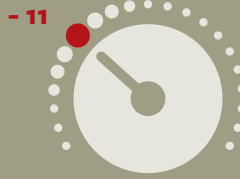
Challenges

Many small-scale farmers deal with low incomes in the sugarcane sector, mainly caused by the lack of negotiating power in a captive market, where large numbers of farmers are dependent on a small number of buyers. Demand for sustainably produced sugarcane is still minor and hampered by the fact that most consumers do not know where the sugar used in company products comes from. There is a lack of product traceability through the value chain that makes sugar the least observed agricultural commodity.

TEA



INDIA



SRI LANKA



UGANDA

OVERALL SUSTAINABILITY SCORE

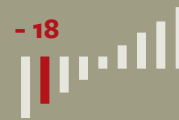
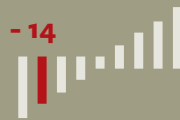


SUSTAINABILITY



PROSPERITY

INCLUSIVITY



NATURE



Are you able to provide a balanced diet for your family?



Is your farmer organization capable of defending farmer interests?



Do you receive price incentives or favorable treatment for producing sustainably?



3 QUESTIONS selected from questionnaire



PROFILE OF RESPONDENTS

GENDER



LAND SIZE < 2 HA



LITERACY

TEA

Introduction

Tea, typically considered a healthy drink, does not present a healthy business case for farmers and workers. Tea is a very labor-intensive crop that requires hand harvesting (generally referred to as plucking). The vast majority of tea pluckers and wage workers, both working on smallholdings and plantations, are female. In practice, the tea plucking, and really all of the responsibilities of maintaining small tea plots, rests on the shoulders of women. Recognizing and addressing gender inequality is vital to achieving sustainability across the tea sector. Tea pluckers struggle to get timely and good quality healthcare, access to clean drinking water, and decent education for their children. As such, the future of the tea industry will greatly depend on how adequately the multifaceted challenges women face are addressed, including wage levels and labor conditions.



Production and consumption

Cultivating tea provides work and income throughout the year, with a low risk of complete crop failure. There are different types of tea, such as black tea, green tea, white tea or Oolong tea. They are all produced from the buds and leaves of the same tea bush, the difference is in processing. Production is highly concentrated in a few countries, with China and India producing 70% of global tea, while Sri Lanka and Kenya focus on tea as an export cash crop. Small-scale farmers family farms – mostly consisting of up to 2 ha – account for over 60% of global tea production. As they grow in prominence, the share of traditional tea plantations is decreasing.

By 2030, world black tea production is projected to increase annually by 2%, underpinned by strong growth in many producing countries in Africa and Asia. Nevertheless, farmers might experience the impact of continuous low prices, as well as changing consumer preferences. There is evidence of stagnating demand in higher income countries, which is attributed to consumers increasingly seeking more diversified and specialty tea products. Although specialty tea allows for improved returns through higher prices, it requires higher quality than traditional tea bags, which adds to complexity and costs for small-scale producers.

Prosperity

The tea sector does not have a stock or future market; prices fluctuate mainly due to changes in production and consumption. Since 2010, the FAO Tea Composite Price, a weighted average price for black tea in the four major auctions, has fluctuated between 2.5 and 3 dollars (US) per KG tea. In the tea producing countries of our research, India, Sri Lanka and Uganda farmers have to sell their tea within this price bandwidth. Respondents in Sri Lanka and Uganda stress the fact that their income from tea growing is economically unviable. In India, the perception of male respondents is slightly more positive, which might be related to the strong market demand and higher price level during the time of data collection.

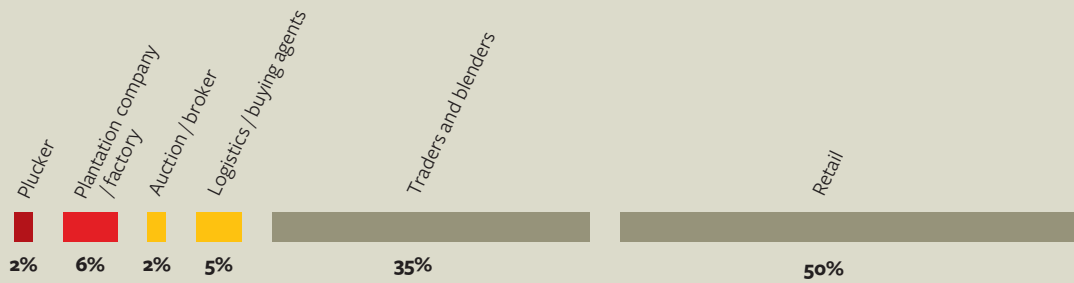
Annual global tea production amounts to over 17 billion dollars (US), while global tea trade is valued at about 9.5 billion dollars (US), indicating an important source of export earnings. The tea sector has grown into a lucrative business downstream, with a few large companies dominating the domestic and export markets. Despite the differences in production costs across tea farms, regions, and countries due to different taxes, input and transportation costs, the overall pattern shows that pluckers only receive 1-2% of the price of tea. While traders and blenders capture around 35% of the retail value, retailers tend to take between 41%-59% of the price consumers pay. The value earned by companies, which blend and sell directly to

TEA

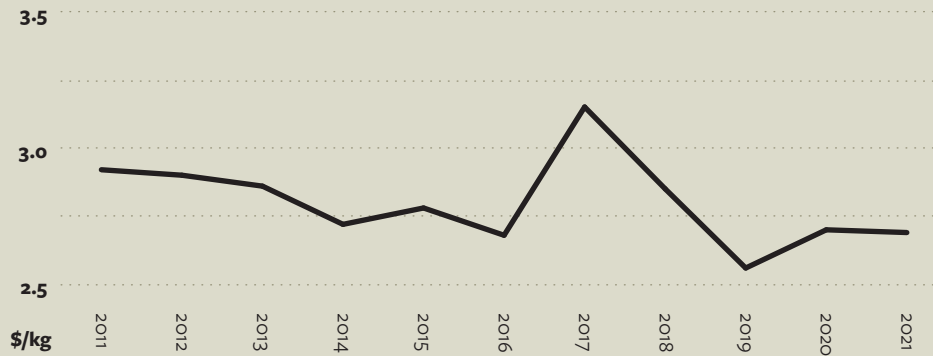
SUPPLY CHAIN



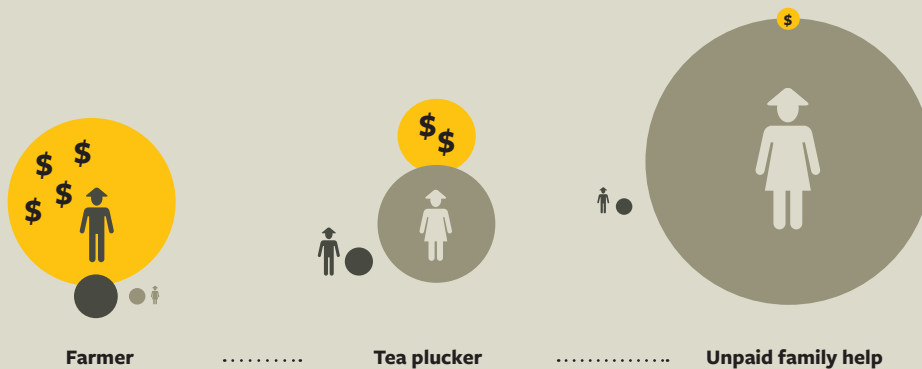
VALUE DISTRIBUTION



PRICE



DISTRIBUTION OF EARNINGS BASED ON GENDER



Sources for figures: see page 95

consumers can be a whopping 90% of the price charged to the consumer. For example, in The Netherlands, supermarkets and tea brands are estimated to receive 83.7% of the final consumer price for black tea bags.

Inclusivity

Since small-scale tea farmers must sell their leaves quickly to tea factories, they have a weak bargaining position and are price takers. As tea cultivation in all three countries has become a high-input/high-output system, farmers are raising concerns about their limited access to inputs, credit or extension services. Farmers in Uganda and Sri Lanka were more circumspect about their future than the farmers in India. Respondents share identical perceptions across the various inclusivity dimensions, like the level of supportive government policies or the representation of their interests by farmer organizations.

Interestingly, the answers of female and male farmers to the questions tend to follow a similar pattern. Effectively, the daily experiences, in combination with the availability of domestic and international market and price information, seems to play a significant role in the differences in country perceptions.

In general, farmers in Uganda and Sri Lanka are concerned that recent trends represent more than mere market wobbles. For example, in Sri Lanka in the wake of 2021's fertilizer ban, tea farmers saw their yields plummet by half, suffering heavy financial losses due to crop failure. Although this policy has been reversed, it's a warning sign in light of the current limited availability and/or increasing prices of fertilizer.

Balance with nature

Since tea is mainly grown under rain-fed, mono-cropping systems and weather conditions determine optimal growth, all growers identify access to water and soil quality as major issues. Irrespective of the farmers' perceptions for prosperity or inclusivity, in all three countries they are quite pessimistic about coping with the challenges related to producing tea in balance with nature. Essential good agricultural practices such as regular pruning, and pest and disease management are often substandard. Furthermore, they question their capacity to build up resilience to increasing climate variability, since they can no longer depend on their own experience, making it harder to manage the uncertainty of climate impacts combined with market pressures facing the tea sector.

Challenges

Labor and the high prevalence of female employment is by far the largest expense and the distinguishing feature of the tea sector. However, most female small-scale tea farmers tend to be categorized as unpaid family help. Addressing gender inequality and improving their position can uplift the economic condition of the whole family, creating better access to nutrition, and other services such as health and education.



REFLECTION

Under the right conditions, small-scale farms can thrive as profitable and sustainable enterprises. Our research on farmers' satisfaction shows that it is not the specific commodities being produced that matter most, but rather the livelihood options, family well-being, and access to natural resources of these farmers. To reclaim sustainability, a radical redistribution of power, opportunities and assets is necessary: small-scale farmers need strong influence in national and international policy-making circles.

“Access to credit has been a great challenge in my line of work. I have had to rely on banks for loans, which I could not pay because of the high-interest rate. I usually run at a loss. After selling my products and deducting my cost of production, and paying off part of the loans, I realized I didn’t make any profits.”

“Getting loans from banks is hard for me. They charge a lot of interest, which makes it hard for me to make any profit. Even after selling my products and paying for the cost of making them, I still have to pay back the loans and I don’t have any money left over.”

Sheila Dwamena, Oil palm farmer, Ghana.

FOOD ON THE TABLE

The 2030 Agenda for Sustainable Development, adopted by the world's governments in 2015, includes 17 Sustainable Development Goals (SDGs) that are intended to address a variety of issues related to global economic, social, and environmental sustainability. These goals range from ending poverty and hunger, achieving gender equality, promoting economic growth and decent work, promoting responsible production and consumption, and taking action on climate change. These SDGs are meant to be indivisible, meaning that all goals should be given equal priority.

However, the current world situation is far from the ideal scenario envisioned when the commitment to eradicate poverty and hunger was made. The COVID-19 pandemic and the conflict in Ukraine have had a major impact on global trade, leading to rising prices for staple crops such as wheat, maize, and edible oils. The combined effects of climate change, the pandemic, and international trade disruption further exacerbate the challenges faced by small-scale farmers. At the same time, there are also new opportunities, as the international trading system is changing rapidly.

Countries, like China, India, and Brazil, are becoming some of the world's largest commodity exporters and importers, as well as the largest consumer markets for products like soybeans, sugarcane and palm oil. This stimulates south-south trade between developing countries, regional trade among neighbors, and domestic trade in growing national markets. Furthermore, the structural transformation of food systems in developing countries – driven by rising incomes and urbanization – is a significant opportunity for small-scale farmers. As people's eating habits change and they demand more meat, dairy, fruits and vegetables, as well as processed foods and restaurant meals, the consumer expectations of food production are growing.

FARMERS' SATISFACTION?

Against this dynamic backdrop, our research shows that sustainable development is not simply about making things bigger, but rather about making things better. To comprehend the successes and challenges in advancing sustainable agriculture and food production, we investigated the perceptions of small-scale farmers with their livelihood options. The 9,767 farmers interviewed must navigate a delicate balance between diversifying their income, guaranteeing food security, and preserving cultural values in their daily farming activities. They offered us a diverse array of perspectives on topics such as income, bargaining power, and land quality.

These farmers, who are crucial to the production of crops such as cocoa, oil palm, and sugarcane, must be at the forefront of any discussions on sustainability. Their responses vary from overwhelmingly positive to harshly negative, but it's crucial to acknowledge the rich subtleties in their experiences, as revealed by the country-specific, commodity-specific, and theme-specific analyses, as well as the breakdown of data based on factors such as gender, literacy, and access to information (see our website: www.smallfarmeratlas.info).

The aggregated interpretation of the data often posed challenges for deciphering and portraying the farmers' perspectives. For instance, if 50% of farmers are content, the remainder are not. The situation faced by farmers is fraught with complexity. While they may exhibit a degree of confidence in their capacity to fulfill their essential requirements, it is evident that they are grappling with the formidable challenge of adapting to price shocks

and enhancing the resilience of their farms in the face of climate change. The absence of incentives for sustainable production and the absence of a persuasive business case only exacerbates their struggles, leaving them without the leverage necessary to negotiate favorable price agreements.

Upon examining the findings, we realized most of our respondents represent small commercial and semi-commercial small-scale farms (see figure 3). These (semi-) commercial farmers aspire to derive their livelihood from their farms, and as such, their predicament is indeed cause for concern. If even these relatively well-off small-scale farmers, who possess the means to bear risk and invest capital, express dissatisfaction with their farm income, credit availability, and soil health, one can only imagine the predicament of those in other rural livelihoods, such as subsistence farmers or landless farm laborers. These individuals are also reflected in the staggering figures: as presented, millions of small-scale farmers are linked to one of the eight cash crop commodities explored in this publication.

While some of these insights may be familiar and seemingly mundane, the notion of a sustainable agricultural sector is illusory when the very individuals responsible for producing the crops face hardship, arduous working conditions, and depleted lands. It's evident that small-scale farmers are not a homogenous group, with farmers ranging from tea subsistence farmers in Uganda, to oil palm scheme growers in Indonesia and medium sugarcane enterprise owners in Brazil. Nonetheless, it is imperative that we reinvigorate the original intent of sustainability for all small-scale farmers; one that prioritizes respect for people, the planet, and equitable distribution of benefits along the supply chain.

COMMERCIAL FARMING

Given the right conditions, small and semi-commercial farms can be profitable and sustainable enterprises. Actually, the results of the farmer perceptions study illustrate that it's not so much about the commodities, it's about their livelihoods, their family well-being, their land and access to natural resources. At the same time, we recognize that the research results do not answer how all of the challenges facing these farmers should be addressed or what will replace current systems, an undertaking that would be impossible to fully tackle in a single report.

Nevertheless, recognizing small-scale farmers for what they truly are – entrepreneurs engaged in a professional business – is a good starting point. Farming requires a combination of skills, knowledge, and entrepreneurship to succeed. To ensure the viability of small-scale farming as a business, it's crucial to shift our focus from securing a living income to fostering entrepreneurial income. Only by prioritizing this type of income can we ensure the continuation of the farming business. The pathway to commercial farming requires investment in the farm to finance a transition towards an inclusive and sustainable farming system. This includes optimizing production, increasing efficiency through circularity, maximizing yields while preserving natural resources, and diversifying production to reduce market risk. Access to reliable data, digital tools and online connectivity will enhance farmers' ability to succeed and thrive in their agricultural practices. For this vision to become a reality, small-scale farmers must be supported by clear and consistent policies that incentivize quality and reward their sustainable production practices in the market.

CLIMATE ADAPTATION

Agriculture, forestry, and other land use activities contribute around a quarter of global greenhouse gas emissions, largely through the production and use of fossil fuels, the release

of methane and nitrous oxide from livestock and fertilizers, and deforestation and land use change. At the same time, agriculture is highly vulnerable to the impacts of climate change, including changes in temperature, precipitation, and extreme weather events. It is here that the respondents seem to be in agreement. Across all commodities and countries, they are highly concerned about soil degradation and reduced soil productivity, as well as the increased risk of erosion. Also, the changes in temperature and precipitation affect water availability for irrigation. These impacts already affect crop yields, the quality of water sources and the price of land.

During our research, we found that the farmers we interviewed had a profound comprehension of the pressing need to modify their agricultural practices in response to the impact of climate change. It is therefore essential to promote integrated approaches to climate change adaptation in various commodity sectors. Such an approach should enable small-scale farmers to make sustainable long-term investments in their agricultural enterprise. Paramount is ensuring that small-scale farmers have a voice in the development of adaptation strategies and policies that affect their lives and livelihoods. In this way, small-scale farmers can benefit from the development of local adaptation plans that take the specific challenges and opportunities faced by their communities into account when adapting to climate change.

Examples include the use of conservation agriculture techniques, such as crop rotation, agroforestry, and the integration of trees and other perennial crops into farming systems, as well as the use of water-saving technologies and drought-resistant crop varieties. The best action small-scale farmers can take to increase their resilience to the impacts of climate change is by diversifying the commodity crops they grow and the sources of income they rely on. This can include the cultivation of a range of crops that are adapted to different climatic conditions, as well as the integration of non-agricultural activities, such as animal husbandry, forestry, or aquaculture.

POWER DYNAMICS

A commonality arising from the eight commodity sectors is the perceived lack of efficient governmental support structures. Policy frameworks that are better suited to the interests and capabilities of small-scale farmers will be necessary to allow them to play a more active role in rural development. However, this raises the question of whether such a shift is likely in a world where decision-makers, often representing the interests of the state and big business, hold significant power. These power dynamics combine to produce a weak, fragmented and market-oriented governance structure for the commodity sectors in our research, one that is reinforcing the expansion of industrial agriculture while doing little to reduce the unequal distribution of costs and benefits.

By positioning corporate investment, international trade and industrial-scale production as vital for conservation, food security and rural development, the dominant narrative is directing criticism towards “unsustainable” production, with small-scale farmers bearing the blame, in particular for practices such as deforestation. In doing so, these efforts do not consider the necessary and more fundamental shift in existing business models. For example, to move away from large-scale monoculture production systems we must consider production models that address small-scale farmer inclusion, landscape conservation and climate resilience.

In many agricultural regions, multinational traders, processors and retailers – rather than the national government – are mostly instrumental for the governance of the agricultural lands. This highlights their critical role in addressing many of the most pressing environmental stressors and social struggles identified by the UN SDGs. By realizing that any of these issues can negatively drive the companies' risks and returns, the sense of urgency to act should be high. Despite claims of corporate responsibility, the reality is that most corporations' sustainability efforts remain disconnected, limited to token charity or CSR initiatives that only superficially address their environmental and social impacts. The size and scale of today's multinationals (see infographic 5) gives them enormous market power, which is critical for understanding the uneven distribution of value in agricultural food chains.

Take the farmers in bananas, tea, cocoa, soybeans and sugarcane, who all find it challenging to make a profit. Meanwhile, the retail industry tends to retain 25-50% of the added value generated, as a rough estimate. In some consumer markets just a handful of companies hold virtual monopolies and their vast market power allows them to influence prices and margins. From the different agricultural value chain overviews in chapter 4, it becomes clear that Fast Moving Consumer Goods companies and retailers do so in ways that allow them to accrue huge profits while pushing ever-lower margins down along their supply chains. Because of their size and market power, the prices these companies choose to pay their first-tier suppliers have knock-on effects throughout the entire chain. This affects not only the margins of all downstream firms, but ultimately the overall livelihood conditions of every small-scale farmer. The tendency to cut costs to optimize profits is in sharp contrast with the individual companies' sustainability commitments and the global climate and SDG agendas.

The underlying concern is that businesses in any of the eight commodity sectors exhibit little willingness to compensate small-scale farmers for operating sustainably, for example by paying a price that is internalizing social and environmental costs and investing in long-term trading relationships. While some individual companies are no doubt doing better than others and should be acknowledged for their efforts, far too many still dismiss small-scale farmers as partners and bar them from participating in the economic mainstream. As the size of many of the agricultural commodity sectors increases relative to its agricultural resource base (see *figure 1*), it becomes even more urgent to manage the ecosystems, biodiversity and forests in producing regions. In an increasingly land-constrained world, sustainability strategies for agricultural commodities will depend on integrated land management, and an almost inevitable increase in production costs.

REGULATING MARKETS

The specific sustainability choices made by the main multinationals, which risk their 'license to operate' if they do not meet public expectations, could leverage sustainability investments in line with their economic size and shareholder values. The combined purchasing power held by these companies gives them significant influence over their suppliers' business practices. Typically, FMCGs expect their first-tier suppliers (traders) to comply with voluntary sustainability standards and they ask that their suppliers in turn ask for compliance from their suppliers – who ideally ask the same from their suppliers (farmers), and so on. In doing so, the industry claims agricultural commodities can be grown sustainably, responsible and conflict-free.

In reality, it is an easy way for firms to push full responsibility and the costs of sustainable practices onto farmers. Clearly, a focus on voluntary commitments alone is not enough, since the scope of sustainability issues is very wide and the underlying power structures of the trade

system are not altered. As long as social and environmental costs are not integrated into the price of goods, businesses will fail to prioritize sustainability over profits, and will be reluctant to pay for initiatives in an attempt to minimize their costs. An illustrative example is the limited market share for certified products (*see figure 5 on page 28*).

The notion that voluntary sustainability measures alone would uplift farmers has been debunked by the revelation of how corporations exploit these efforts to their own advantage, and the widespread failure of various sectors to adopt them. Despite sector-led initiatives failing to produce significant outcomes, our experience with voluntary sustainability standards provides a foundation for creating effective regulations. A combination of voluntary and mandatory sustainability measures is the key to progress, including mandatory due diligence with strong enforcement mechanisms. Such regulations should facilitate collaboration between producers and importers and provide small-scale farmers with the necessary support and resources to meet the standards.

A SEAT AT THE TABLE

However, stricter frameworks could bring about unintended consequences. Only a select few small-scale farmers with adequate support may have the chance to succeed, while the majority face the loss of access to high-demand export markets such as the European Union. For instance, the EU's imports of commodities such as coffee, cocoa, palm oil, and soybeans will be subject to more stringent corporate governance legislation, including mandatory human rights and environmental due diligence. Until now, the design of these mandatory sustainability regulations – aimed at creating positive change – has overlooked the needs and well-being of small-scale farmers, even though the goal is to improve livelihoods and respect for human rights and the environment.

To drive the urgency of sustainability in the different commodity value chains, we need a different scenario. Paramount is to ensure that small-scale farmers have a voice in the development of policies and practices that affect their lives and livelihoods. To reclaim sustainability, a radical redistribution of power, opportunities and assets is necessary: small-scale farmers need strong influence in national and international policy-making circles.

This implies acknowledging local people's interests and agenda setting, rather than developing top-down solutions. By participating in consultative processes at the national, regional, and global levels, small-scale farmers organizations, farmer trade unions and local NGOs can reverse the policy neglect they have experienced in many countries and maximize their contribution to natural resource management, land-use planning and socio-economic development.





“If governments focused on supporting farmers and paying for environmental services to grow food in areas that have already been deforested, many of the world’s environmental issues, even in the Amazon, could be solved.”

José Antônio de Oliveira, Small-scale cocoa and vegetable farmer, Brazil.

ANNEX

- I LIST OF ABBREVIATIONS
- II RESEARCH METHODOLOGY
- III SOURCES OF FIGURES
- IV REFERENCES
- V COLOPHON

ABBREVIATIONS

BCI	Better Cotton Initiative
CSR	Corporate Social Responsibility
EC	European Commission
FAO	Food and Agriculture Organization of the United Nations
FMCG	Fast Moving Consumers Goods company
ICT	Information and Communication Technology
ND-GAIN	Notre Dame Global Adaptation Initiative
NGO	Non Governmental Organization
SDG	Sustainable Development Goal
TR4	Tropical Rice 4
UN	United Nations
VSS	Voluntary Sustainability Standards
WCF	World Cocoa Foundation
WTO	World Trade Organization

RESEARCH METHODOLOGY

This research is based on Solidaridad's internal assessment that sustainability efforts over the last decade have failed to achieve optimum results for the farmers. For that purpose, understanding farmers' perception is captured at a fixed interval is essential to return farmers to the center of sustainability discourse. "Perception" can be defined as how an individual or a group behaves to a stimulus and the response that it generates for the given experience.¹ For the research, the intended goal is to deduce the farmers' perception of their experiences (stimuli) to the engagement in the supply chain, which is translated into a response (in this case, the perception of fairness).

The perceptions are divided into three areas:

1. Prosperity: It is based on the premise that sustainability interventions can only be truly successful if there is a business case for the farmer. If there is no win for them, change will not last. Therefore, our assessment covers economic satisfaction of the farmers with their farm business, resilience against price volatility, and their ability to generate sufficient income to cover basic quality of life.
2. Inclusivity: Covers the ability of farmers for backward and forward integration within the supply chain, access to inputs, services, and transparent access to market information.
3. In balance with nature: We primarily cover the aspects of climate change that are affecting the farmers most; how financially and technically prepared they are to adapt to climate change; and finally, we seek to know if they are rewarded for sustainability practices.

We have adopted a "Rapid perception survey" design to conduct the research on farmers' perception of the extent of fairness in the supply chain that they engage on a regular basis. The research design, termed as "Rapid,"² considers that the research is primarily quantitative and encompasses a limited set of enquiry areas. The methodological choice is based on the premise that there is already a bias in relation to the segment of farmers who are part of this research, the commodity that they are engaged in, and subsequently the typology of the commodity (for example, black tea). Considering the biases, a purposive cluster sampling methodology is administered for the sampling of the farmers. It should be noted that purposive sampling is not intended to offer a representative sample of a population. A sample is representative when it accurately reflects the characteristics and diversity of the population from which it was drawn. In other words, a representative sample should be selected in such a way that every individual in the population has an equal chance of being included in the sample, and the sample should include a wide range of individuals who are like the population in terms of key demographic, social, and economic factors. That is not the case for this study, and it is clearly acknowledged and emphasized in the report: "the methodological choice is based on the premise that there is already a bias in relation to the segment of farmers who shall be part of this research, the commodity that they are engaged in and subsequently the typology of the commodity".

Considering this bias, the applied purposive cluster sampling methodology relies on Solidaridad's (the researchers) knowledge of the population (small-scale farmers in related commodities in targeted countries) to select in a non-random manner the participants for this study. The purposive cluster sampling methodology is used when the research relies on expert knowledge and assumes a non-probability sample. We cover a total of 9,767 farmers across 18 countries and 8 commodities. Further, when using purposive sampling, the re-

1 Garner, W., Hake, H., and Eriksen, C. (1956). Operationalism and the concept of perception. *Psychological Review*, 63(3), 149–159. <https://doi.org/10.1037/h0042992>

2 <https://digitalcollections.sit.edu/cgi/viewcontent.cgi?article=3982&context=capstones>

searcher has the freedom to choose a sample size that has the best suitable characteristics to give in-depth and quality information for the study. The size of the sample is also an important factor in determining whether it is representative. On average, the study “covers 400 farmers across each country per commodity,” which certainly contributes to the reliability of the findings. Generally, larger samples tend to be more representative than smaller samples, as they have a higher chance of including a diverse range of individuals who are similar to the population. While increasing the sample size can reduce sampling error, it will not necessarily increase representativeness. Generalization of the results to other countries and/or commodities is and should not be intended.

During the research period (May 2022 – July 2022), data has been collected through structured in-person surveys administered to farmers, utilizing questionnaires designed for this purpose. The collected data is analyzed through the use of the Likert scale methodology. For each of the area of enquiry, the farmers are asked to elaborate their perception from a range of Completely disagree (-2) to Completely Agree (+2). This captures the negative perspective as well.

Since the range of scores is small (-2 to +2), it is difficult to assess or compare the extent of positive or negative perception from the mean scores. (In the pilot study it is observed that the mean scores are mostly in decimals (<1) which makes interpretations difficult). Hence the scores are scaled from (-2 to +2) to (-50 to +50) by multiplying the scores with a factor of 25. The range of scoring increases from 4 (2 - (-2) = +4) to 100 (50 - (-50) = 100).

Original scoring (Range: -2 to + 2)	Multiplication Factor	New scoring (Range: -50 to + 50)
-2	25	-50
-1	25	-25
0	25	0
1	25	25
2	25	50

The factor of 25 has obtained by using the standard scaling formula:

$$\begin{aligned} & \frac{(new_max - new_min) * (x - old_min)}{old_max - old_min} + new_min \\ &= \frac{(50 - (-50)) * (x - (-2))}{2 - (-2)} + (-50) \\ &= \frac{100 * (x + 2)}{4} - 50 = 25 * x \end{aligned}$$

where,

x = score to be scaled

old_min = Minimum score in old range i.e. -2

old_max = Maximum score in old range i.e. +2

new_min = Minimum score in new range i.e. +50

new_max = Maximum score in new range i.e. +50

SOURCES OF FIGURES

FIGURE 1: GLOBAL GROWTH IN PRODUCTION

FAO (2022). FAOSTAT Crops and livestock products (Database).

<https://www.fao.org/faostat/en/#data/QCL>

FIGURE 2. CLIMATE SCENARIOS

ND-GAIN Country Index (2022). Vulnerability and readiness.

<https://gain.nd.edu/our-work/country-index/>

FIGURE 3: SMALL-SCALE FARMERS BY SECTOR

Bananas:

It is worth noting that there are over 1000 different varieties of bananas grown globally.

Bananas that are produced for local consumption are usually grown in intensive small-scale farming systems, often in conjunction with other crops such as coffee, cocoa, or oil palms.

In order to eliminate the possibility of counting the same farmers more than once, we have excluded the total number of small-scale banana farmers (a rough estimate of 90 million) from our analysis. In Ecuador, the Philippines, Colombia, Peru, and the Dominican Republic, approximately 15,000 small-scale farmers are involved in the cultivation of bananas for the purpose of exportation.

Voora, V., and Bermudez, S, et al. (2023). Global Market Report: Bananas. IISD.

<https://www.iisd.org/system/files/2023-03/2023-global-market-report-banana.pdf>

Cotton and Soybeans:

International Cotton Advisory Committee (2022). Cotton data book 2022. https://icac.org/Content/PublicationsPdf%20Files/b3495f5e_310a_4330_9cf7_78a08c4e100b/DATA-BOOK-2022-a.pdf.pdf

The available global data regarding the population of small-scale cotton and soybean farmers is inconclusive, mainly due to the rotational nature of these crops, which renders the aggregation of figures challenging. While there exist reliable statistics on the number of soybean farmers in India, the corresponding estimate for China is based on our own calculations. ISSS and Solidaridad (2020). Indian standards for sustainable soy.

https://iisrindore.icar.gov.in/pdfdoc/Indian_Standards_for_Sustainable_Soy.pdf

Palm oil:

Solidaridad. (2022). Palm oil barometer 2022. Solidaridad.

<https://www.solidaridadnetwork.org/publications/palm-oil-barometer-2022/>

Ministry of Agriculture (2022). Statistical of national leading estate crops commodity 2019-2021. Republic of Indonesia.

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<https://cocoabarometer.org/en/>

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www.coffeebarometer.org

Tea: Tea Board of India and Solidaridad Asia (2022). ITC bulletin December 2022.

<https://inttea.com/publications/>

Sugarcane: Solidaridad. (2020). A decade of Sustainable Sugarcane Initiative. Solidaridad.

<https://www.solidaridadnetwork.org/publications/a-decade-of-sustainable-sugarcane-initiatives/>

FIGURE 4: CORPORATE CONCENTRATION

Clapp, J. (2018). Mega-mergers on the menu: corporate concentration and the politics of sustainability in the global food system. *Global Environmental Politics*, 18(2), 12–33.

<https://direct.mit.edu/glep/article-abstract/18/2/12/14909>

IPES-Food. (2017). Too big to feed: Exploring the impacts of mega-mergers, concentration, concentration of power in the agri-food sector. IPES Food. https://www.ipes-food.org/_img/upload/files/Concentration_FullReport.pdf

FIGURE 5: SUSTAINABLE PRODUCTION

FiBL, IISD and ITC (2021). The State of Sustainable Markets 2021. Commodity by VSS and country. <https://standardsmap.org/en/trends> Version 29/09/2021

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FIGURE 6: FARMING AND LIVELIHOOD CATEGORY

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FIGURE 8: STATUS OF SUSTAINABILITY

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