

Assessing Labor Abuses in Cocoa Supply Chains

REPORT | APRIL 2026

PRODUCED FOR

U.S. Department of Labor
Bureau of International Labor Affairs
Office of Child Labor, Forced Labor, and Human Trafficking

PREPARED BY

ICF Macro, Inc.

ACKNOWLEDGMENTS

This report presents research on global cocoa supply chains. ICF Macro, Inc., prepared this report in accordance with the terms of its contract with the U.S. Department of Labor. The research team would like to express sincere thanks to all the parties involved for their support and valuable contributions.

The U.S. Department of Labor provided funding for this research under contract number GS-00F-189CA and order number 1605C2-22-F-00060. This material does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does the mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government. These studies were designed to help U.S. businesses map supply chains across multiple tiers and trace raw materials back to their sources, enabling them to detect likely risks and safeguard operations. By exposing where exploitative labor hides in global production networks, these studies contribute to efforts to strengthen supply chain resilience and level the playing field for American workers and businesses.

ICF Team Members

Suteera Nagavajara, Team Lead
Megan Spellacy, Senior International Trade Specialist
Jennifer Jahnke, Labor Remediation Technical Director
Holly Koogler, Lead Research Specialist
Mack Eason, Senior Research Specialist
Yuri Lee, Research Specialist

Cover photo credits: iStock by Getty Images

CONTENTS

ABBREVIATIONS

CDI	Côte d'Ivoire
c.i.f.	cost including freight
CLMRS	Child Labor Monitoring and Remediation System
CMC	Cocoa Marketing Company
COCOBOD	Ghana Cocoa Board
CSSVD	cocoa swollen shoot virus disease
DRC	Democratic Republic of the Congo
EU	European Union
EUDR	European Union Deforestation Regulation
f.o.b.	free on board
GPS	Global Positioning System
HS	Harmonized System
ICCO	International Cocoa Organization
ILAB	Bureau of International Labor Affairs
KII	key informant interview
LBA	licensed buying agent
LBC	licensed buying company
LID	Living Income Differential
MNC	multinational corporation
MT	metric tons
MY	market year
NGO	non-governmental organization
ONCC	National Cocoa and Coffee Board
SICOPS	*Système d'Information et de Contrôle des Opérations de Distribution des Produits Phytosanitaires et de la Sacherie*
TVPRA	Trafficking Victims Protection Reauthorization Act of 2005
TVPRA List	List of Goods Produced by Child Labor or Forced Labor
USDOL	U.S. Department of Labor

GLOSSARY

By-product	An incidental secondary product, resulting from the processing of the main primary good. The by-product may or may not have market value.
Bulk cocoa beans	Also known as commodity beans, bulk cocoa beans are standard quality beans sold in high volumes, tied to international commodity market prices. Distinct from premium cocoa beans.
Certification	Certification bodies are a popular approach for multinational companies to address child labor in their supply chains. The main certifications are Rainforest Alliance/UTZ and Fairtrade. Other certifications cover "organic" production, which does not typically include standards related to child labor. Key elements of these certifications include codes of conduct, an internal management system, traceability requirements, and audits.
Chocolate	A food made from cocoa beans and additional sweeteners. Commonly divided into milk, white, and dark varieties. Different countries and customs areas have legal definitions of chocolate and its three subcategories. These legal definitions typically specify the percentage of cocoa solids and cocoa butter and ingredient ratios.
Chocolate manufacturer	A business entity that manufactures chocolate confectionery at a larger scale than an artisanal chocolate maker. There is not a clear universal definition of the two producers, but many in the industry consider a chocolate manufacturer to have an annual operating capacity of more than 200 metric tons (Gaia Cacao B.V., 2021).
Chocolate maker (artisanal)	A specialized producer that produces higher-quality chocolates in smaller batches than a chocolate manufacturer and is more likely to use premium cocoa beans.
Cocoa	Also referred to as cacao.[1] For this report, the term "cocoa" will be used to reference both cocoa beans and downstream intermediate products.
Cocoa beans	Also referred to as raw cocoa; the seeds of the cocoa tree, removed from the cocoa pod and subsequently fermented and dried.
Cocoa butter	Also referred to as cocoa fat; the fat extracted from cocoa paste through pressing.
Cocoa cake solid	Also referred to as defatted cocoa paste or expeller cake. The remaining solid after cocoa paste is pressed to remove cocoa butter. Cocoa cake solid is further ground to produce cocoa powder.
Cocoa juice	Juice made from cocoa fruit pulp.
Cocoa paste	Also referred to as cocoa paste (liquor), cocoa mass, or unsweetened chocolate, the oil liquid paste is produced from grinding cocoa nibs. This report distinguishes between cocoa paste and cocoa cake solid, and notes explicitly when "cocoa paste" is being used expansively to also include cocoa solids. See notes on Harmonized System mapping and product terminology in Appendix 2: HS Codes.

[1] It is believed the term cocoa, rather than cacao, came into widespread use in the English language due to a mistake in Samuel Jackson's 1775 English language dictionary, confounding the coco tree for the cacao tree (Regalado, 2018; Writer's Reference Center, 2025).

Cocoa powder	An unsweetened semi-processed cocoa product produced by grinding cocoa cake solid into a fine powder.
Cocoa shells	Also referred to as cocoa husks; the fibrous outer shell of the cocoa pod, which is removed after harvest.
Conching	A nuanced process in the manufacturing of chocolate in which a scraping mixer and an agitator combine inputs (such as cocoa butter, sugar, etc.) to produce couverture. The conching process influences both the distinct flavor and textural signature of chocolate, and therefore processing details are often considered business proprietary.
Confectionery products	For the purposes of this study, confectionery will be defined as sugar-based candies and chocolate sweets. It should be noted that this is also a food industry category which, in some industry standards or national legal definitions, can include chocolate and chocolate products, biscuits and other baked goods, cakes and pastries, and sweets and candies.
Cost including freight	The value of the merchandise upon reaching the port of import; includes insurance and freight.
Couverture	A high-quality (high fat) liquid chocolate product, used by pastry chefs for dipping, coating, and molding, as well in chocolate confectionery, especially truffles and chocolate molds. Coverture is produced by combining cocoa paste and cocoa butter with other ingredients such as sugar, vanilla, or powdered milk into a chocolate dough, which is then refined and put through a conching machine.
Dutching	An alkalization process in which cocoa nibs, cocoa paste, or cocoa powder is treated with alkali to reduce acidity. Treated cocoa ground into "Dutch-processed" cocoa powder is less acidic and darker in color, and it prevents the sinking of cocoa powder in cocoa-based drinks, compared to non-treated cocoa powder.
Farmgate price	The price paid to farmers for an agricultural product at the point of sale at or near the farm, before the product enters the supply chain and before additional costs such as transportation, storage, processing, taxes, or trader margins are added.
Free on board	The value of the merchandise upon being loaded onto the exporting ship. This value includes all costs associated with delivery from the manufacturer to the exporting ship/port but excludes freight, insurance, and other fees involved when the carrier leaves the port.
Grinding	A multi-stage process in which cocoa beans are roasted, dried, and ground into cocoa paste. May also include further processing of cocoa paste into cocoa butter and cocoa powder. In this report, the term "grinding" will be used interchangeably with "cocoa processing."
Grinder-traders	Enterprises that buy cocoa beans from exporters, process cocoa, and sell semi-processed products to chocolate or other manufacturers.
Manufacturers	For the purposes of this report, manufacturers are considered to be companies that produce finished consumer products using cocoa as an ingredient. This can include chocolate, cosmetics, and pharmaceutical manufacturers.
Market year	The market year in the cocoa sector is generally October 1 to September 30.

Mega-bulk shipping	Shipping cocoa beans in large bulk shipping containers, rather than jute sacks.
Mid-crop	The mid-crop, or "light crop," is the smaller of two annual harvests, and occurs between April and September, as opposed to the main harvesting season, which occurs between October and March.
Nibs	Product obtained from a clean, dry, cracked cocoa bean. Nibs can be used to produce cocoa paste or can be consumed directly as a health food product. The term "cocoa bean" is commonly used in lieu of the term "nib" in industry discussion of processing.
Premium cocoa	For this report, the term "premium cocoa" will be used to describe non-bulk cocoa. The definition of premium cocoa is controversial in the cocoa industry. The International Cocoa Organization established a classification system that establishes terminology and recognizes countries producing and exporting fine flavor cocoa according to pre-established criteria.[2]
Pulp (cocoa)	The pulp surrounding the beans, also known as mucilage or sweatings, is another by-product that becomes available during the fermentation process when it drains away from the beans. This sweet, white substance makes up about 5–7% of the pod's weight and is rich in sugars, pectins, and citric acid (Bantu Chocolate, 2023). The cocoa pulp can be used to create juices, jellies, and alcohol products, while its natural fermentable sugars can be used in the production of industrial alcohol and other fermented products (CocoTerra, 2024c).
Specialty chocolate	Also known as artisanal or craft chocolate. Specialty chocolate is produced by small chocolate makers who usually purchase the beans directly, "bean-to-bar," or through an importer. This form of chocolate may be expected to include premium cocoa beans, but definitions vary.[3]
Winnowing	The process of removing the outer shell of the cocoa bean, leaving the nib.

[2] Premium or "fine flavor" cocoa, distinct from bulk chocolate, is defined in Article 2.2. of the *International Cocoa Agreement 2010 (Amended)*: "Fine flavour cocoa is cocoa characterized by a complex sensory profile, composed of well-balanced basic attributes with aromatic and flavour notes; the complementary attributes can be clearly perceived and identified in the expression of its aromas and flavours; it results from the interaction between (a) a particular genetic composition, (b) favourable growing conditions in a given environment/terroir, (c) specific plantation management techniques, (d) specific harvesting and post-harvest practices and (e) stable chemical and physical composition, and integrity of the bean." (International Cocoa Organization, 2025b).

[3] Industry terms also vary. The Fine Chocolate Industry Association indicates that artisan chocolate must be made under the care and supervision of a knowledgeable chocolate maker who could be defined as an artisan (Fine Chocolate Industry Association, 2010). The Fine Chocolate Industry Association defines artisanal/craft chocolate as the product obtained from cocoa beans, cocoa butter, milk or milk products, and sugars that contains not less than 20% cocoa butter and not less than 14% dry milk solids obtained by partly or wholly dehydrating whole milk, semi- or full-skimmed milk, cream, or from partly or wholly dehydrated cream, butter, or milk fat, of which not less than 3.5% is milk fat (Fine Chocolate Industry Association, 2010).

EXECUTIVE SUMMARY

PURPOSE OF STUDY

The objective of this study is to examine how cocoa originating from countries where child labor or forced labor has been documented in cocoa production moves through domestic and international supply chains. The study aims to trace cocoa beans and semi-processed cocoa products through major importing, processing, and re-exporting markets, with particular attention to the Netherlands as a global hub for cocoa trade and processing, and to examine how cocoa is processed, consumed, or re-exported by major global importers. It also seeks to evaluate the strengths and limitations of current sourcing and traceability practices in the cocoa sector and to clarify how trade structures and supply chain organizations shape downstream exposure to child labor and forced labor risks.

CONTEXT

Cocoa production involves approximately 5 to 6 million smallholder farmers and supports a $130 billion chocolate industry. Ten countries account for approximately 94% of global cocoa bean production, with more than half originating from Côte d'Ivoire (CDI) and Ghana. Europe is the world's largest importer and processor of raw cocoa beans and the largest exporter of chocolate products. The cocoa market is highly concentrated, with three companies (Barry Callebaut, Cargill, and ofi (formerly Olam Food Ingredients)[4] processing half of the world's cocoa and six companies (Nestle, Ferrero, Mars, Mondelēz International, Hershey, and Lindt & Sprüngli) producing nearly half of the world's chocolate.

The study focused on nine cocoa-producing countries: Brazil, Cameroon, CDI, Ghana, Guinea, Nigeria, Sierra Leone, Ecuador, and Indonesia. These nine countries collectively account for more than 90% of global cocoa production. The study also examined select major importing countries that function as processing and trading hubs, including the Netherlands, Germany, Belgium, Switzerland, and the United States.

METHODOLOGY AND DATA COLLECTION

The methodology included a comprehensive review of secondary literature and quantitative data, including production and trade statistics from FAOSTAT, the International Cocoa Administration, Trade Data Monitor, UN Comtrade, and national government customs offices. Key informant interviews were conducted with cocoa sector experts, including sustainability specialists, traceability researchers, industry representatives, and civil society organizations, using an iterative snowball sampling method.

KEY FINDINGS

The study found persistent child labor and forced labor throughout the global cocoa supply chain, with structural traceability gaps that allow products made with exploited labor to enter domestic and international markets undetected.

Child Labor and Forced Labor

- **Forced labor or child labor—or the structural conditions predictive of forced labor or child labor—are documented across every major cocoa-producing country examined in this study.** In CDI and Ghana—which together account for roughly 60% of global production—child labor affects an estimated 41% and 94% of children in cocoa-growing

[4] Olam Food Ingredients rebranded as "ofi" starting in 2020–2021, and the cocoa business that was formerly "Olam Cocoa" now operates under the ofi brand as "ofi Cocoa."

households, respectively, with the large majority performing hazardous tasks (U.S. Department of Labor & NORC, 2020). Nigeria is designated on the U.S. Department of Labor List of Goods Produced by Child Labor or Forced Labor (Trafficking Victims Protection Reauthorization Act of 2005 [TVPRA] List) for forced labor and child labor: a 2024 Corporate Accountability Lab investigation documented systematic forced labor indicators across more than 90 cocoa farms in 34 Local Government Areas, including movement restrictions, debt bondage, and withholding of wages (Ryerson, 2024a). Although a cocoa-sector-specific child labor prevalence estimate is not available for Nigeria, national child labor rates stand at 39.2% of children aged 5–17 (International Labour Organization & Nigeria National Bureau of Statistics, 2024). In Cameroon, a Fair Labor Association study found 55% of children in surveyed cocoa-producing households engaged in labor on cocoa farms, and child trafficking for cocoa work has been documented (Furlan, 2024a). Brazil is designated on the TVPRA List for child labor, with both hazardous child labor and forced labor (characterized by debt bondage and degrading working conditions) documented on cocoa farms through government inspections and non-governmental organization investigations (Sevilla et al., 2024). In Guinea and Sierra Leone, cocoa-specific prevalence data are limited, but national child labor rates reach 31.2% in Guinea—with prefecture-level rates as high as 66–70%—and both countries are embedded in regional child trafficking networks that move children into agricultural labor (Centre on Human Trafficking Research and Outreach, 2023; U.S. Department of Labor, 2025b). Ecuador, though not TVPRA-listed for cocoa, identifies cocoa as a sector in which child labor occurs, and forced labor risks are documented in the broader agricultural sector (U.S. Department of Labor, 2024b). Indonesia presents the lowest documented risk among countries examined, but the smallholder structure—95% of farmers on plots under 2 hectares, relying on family labor—represents known structural conditions for child labor. Across all producing countries in this study, documented child labor or forced labor or the structural conditions predictive of it are present in cocoa production.

- **Severe poverty among cocoa-growing households drives labor exploitation.** In West Africa, 16% of Ghanaian cocoa farmers earned below $1.90 per day, and 72% of Nigerian farmers lived below this threshold. Poverty rates reached 69% among Cameroonian cocoa-farming families. Farmers' income dependency on cocoa sales intensifies vulnerability, with cocoa representing 79% of income for farmers in Brazil's Bahia region and approximately 50% for Cameroonian cocoa farmers.
- **Price volatility and harvest instability push cocoa farmers toward informal markets, increasing labor exploitation risk and undermining supply chain transparency.** Cocoa commodity pricing is volatile, and smallholder farmers bear the greatest exposure to price swings and harvest instability. When farmers face liquidity constraints or when farmgate prices in regulated markets fall short of what informal sales would yield, they have strong incentives to sell outside formal channels to traders who offer immediate cash, bypassing the cooperatives and licensed buying systems through which traceability is maintained. These same poverty and liquidity conditions that push farmers toward informal markets are also the primary structural drivers of reliance on unpaid family labor, including children: when hiring adult workers becomes prohibitively expensive, families draw on household labor to reduce costs. Volatility is therefore not merely an agricultural or financial issue—it is a recurring mechanism through which both child labor risk and supply chain opacity are periodically intensified.
- **Independent assessments reveal persistent gaps between corporate claims and reality.** The 2025 Cocoa Barometer notes that child labor increased 14% between 2015 and 2020, despite widespread implementation of programs intended to mitigate child labor (Fountain & Huetz-Adams, 2025). Investigations by Mighty Earth, Corporate Accountability Lab, Global Witness, and others have documented cocoa from illegal operations entering supply chains of major companies, child labor on certified farms, and deforestation on certified operations. The

lack of standardized disclosure requirements allows companies to report favorable metrics while obscuring unfavorable ones.

Downstream Risk Findings

- **Co-mingling of cocoa beans begins at or near the first point of aggregation and continues at every subsequent stage of the supply chain, making farm-level traceability structurally difficult to maintain even where it is attempted.** Beans from multiple farms are routinely mixed during drying, at cooperative buying stations, at district depots, and again at port warehouses, where co-mingling to satisfy quality requirements is common practice. While segregation to preserve traceability is technically possible, it is rarely done in practice. The initial transaction from farmer to first buyer remains largely outside formal tracking systems across all major producing countries. These early-stage mixing points matter most because traceability, once lost at aggregation, cannot be reconstructed downstream. The cumulative result is that cocoa produced under exploitative labor conditions can enter the supply chain at any early stage and become indistinguishable from compliant cocoa before it reaches exporters or processors.
- **Co-mingling of semi-processed cocoa into end products creates the final barrier to child labor and forced labor detection.** A majority of cocoa beans are ultimately used in the production of chocolate, although additional end uses include baked goods, beverages, ice cream, other food products, pharmaceuticals, and cosmetics. Downstream applications typically involve sourcing semi-processed cocoa from extremely large processors or multiple suppliers. The co-mingling of semi-processed cocoa products into a single end use product creates additional blind spots through which cocoa produced with exploited labor may enter consumer goods undetected.
- **Co-mingling of cocoa from high-risk origins throughout the supply chain means that most cocoa-containing end products are at risk of containing inputs made with forced labor or child labor.** Global cocoa supply chains are structurally incapable of excluding cocoa produced with child labor or forced labor from end products at scale. CDI and Ghana alone—where child labor affects an estimated 41% and 94% of children in cocoa-growing households, respectively—account for roughly 60% of global production (U.S. Department of Agriculture Foreign Agricultural Service, 2025a, 2025b; U.S. Department of Labor & NORC, 2020). Child labor and forced labor have been documented across every other major TVPRA-listed producing country examined in this study; in the few countries where direct evidence is limited, cocoa production is dominated by the same conditions—rural poverty and smallholder dependence—that are established risk factors for both. A small number of artisanal and bean-to-bar producers maintain segregated, identity-preserved supply chains with direct farm relationships that provide meaningful origin verification. Organic certification, which mandates physical segregation rather than permitting mass balance, also supports a limited degree of genuine traceability. However, these models collectively represent a negligible share of global cocoa volume. For the vast majority of the market, cocoa is physically co-mingled at or near the point of origin and again during processing, and mass balance accounting creates only administrative rather than physical traceability, leaving no mechanism in widespread use that would exclude child labor and forced labor-tainted cocoa from the processing stream. There is therefore reason to believe that the majority of cocoa-containing products sold in U.S. and European markets are at risk of containing inputs produced with child labor or forced labor.

Structural/Enabling Factors

- **Cocoa pricing and market structure concentrate unmitigated risk at the farm level.** Cocoa bean prices are volatile and impacted by supply and demand. Cocoa beans are traded in financial markets, which establish a global daily pricing benchmark for cocoa beans that impacts

the amount farmers are paid for their cocoa. These financial markets allow businesses within the cocoa industry to hedge their business risk, as well as allow liquid speculators to seek profits from price movements. Smallholder farmers, however, have fewer risk mitigation options and are primarily price-takers.

- **Concentration of processing increases co-mingling and complicates traceability.** Traders, processors, and chocolate manufacturers occupy different yet overlapping positions in the supply chain. Each transaction point creates opportunities for co-mingling of cocoa from different sources, thereby obscuring origin information. There are varying degrees of vertical integration among entities, yet a global perspective reveals a concentration at the grinding and processing stage. Three companies, Barry Callebaut, Cargill, and ofi, process half of the world's cocoa beans.
- **Indirect supply chains create structural blind spots affecting the majority of cocoa bean volumes.** Companies typically report traceability rates for "direct sourcing," referring to cocoa purchased by companies or traders directly from organized farmer groups or cooperatives. However, available data suggest that approximately 40–60% of global cocoa beans move through indirect channels, meaning that they are acquired through intermediaries such as local traders or informal buying networks. Estimates of traceability through indirect channels have not been sufficiently researched but suggest that only around 20% of indirect supply chains are traceable to the farm level. Existing traceability documentation does not accurately reflect trading patterns, leading to a potentially misleading perception of the comprehensiveness of current traceability efforts.
- **Semi-processed cocoa products are traded in equal volume and value as cocoa beans.** Semi-processed cocoa products (cocoa paste, cocoa butter, and cocoa powder) are collectively traded in volumes and values comparable to cocoa beans. Cocoa beans may be traded through multiple buyers and re-exported to third national destination markets. Once imported, they are processed into cocoa paste and may be further processed into cocoa butter and cocoa powder. This processing amplifies the opportunity for co-mingling of each product and deepens the opacity of supply chain tracing into downstream goods.
- **Mass balance accounting undermines physical traceability across all programs.** Mass balance allows certified and non-certified cocoa to be physically mixed while maintaining certification claims based solely on matching volumes on paper. All six major cocoa-buying companies use mass balance as standard practice, with fully segregated cocoa offered only in limited quantities or at added cost. Third-party certification programs also rely heavily on mass balance.

CONCLUSION AND RECOMMENDATIONS

This study provides a comprehensive picture of the global cocoa supply chain as a complex, highly intermediated trading system shaped by concentrated processing capacity, repeated cross-border transformations, and volatile market dynamics. Looking ahead, the global cocoa trade is entering a period of heightened scrutiny as importing jurisdictions strengthen deforestation, forced labor, and due diligence regulations. These developments place new demands on traders, processors, and manufacturers to demonstrate product-level knowledge across increasingly complex value chains. Effective oversight, risk management, and market transparency will require approaches that account for the full range of cocoa trade flows across products, intermediaries, and borders while aligning traceability expectations with the operational realities of global cocoa markets.

Recommendations

This study offers the following recommendations:

To Foreign Governments:

- Support transparent market-based solutions to manage price volatility for cocoa farmers.
- Increase transparency in national traceability systems, allowing external evaluation of systems to build industry trust and facilitate acceptance of national traceability platforms.
- Implement improved risk management mechanisms for smallholder farmers that protect against price downturns while allowing farmers to capture benefits from price increases.
- Design holistic anti-child labor interventions that address both farm plot size and productivity yields, recognizing that small plots combined with low yields generate insufficient income to lift families out of poverty. Interventions may include support for yield improvement, input access, and cooperative aggregation that allows small farms to achieve viable income without requiring land consolidation. Where plot expansion is considered, interventions should include explicit protections for smallholder land tenure and should be evaluated for their risk of displacing the most vulnerable farming households from formal supply chains. Interventions designed to improve farm viability should be sequenced and coordinated with the technological assistance and traceability transition support described previously, to ensure that productivity improvements do not come at the cost of smallholder inclusion.
- Strengthen labor inspection systems by increasing the number of labor inspectors in cocoa-producing regions, ensuring periodic farm visits focusing on indirect supply chain suppliers, and coordinating inspection data with traceability platforms.
- Increase monitoring of cocoa pod health and encourage cocoa seed research to increase domestic capacity to anticipate and mitigate agricultural risk.
- Establish formal registration and licensing requirements for cocoa intermediaries, including first-mile traders, buying agents, and informal aggregators, operating in domestic cocoa supply chains. A publicly accessible registry of licensed cocoa traders, linked to national traceability platforms, would bring the intermediary layer through which the majority of cocoa moves into formal oversight frameworks, improving supply chain visibility without requiring farm-level technological infrastructure. Registration requirements should be designed to reduce barriers to entry for small-scale intermediaries rather than consolidate the intermediary market among large traders, and they should include protections against exclusive purchasing arrangements that eliminate competitive price alternatives for farmers.
- Initiate dialogue with major grocery retailers and chocolate buyers to strengthen supply chain accountability and encourage procurement policies that prioritize labor standards and traceability. Such policies should be designed to ensure that compliance costs are not passed up the supply chain to smallholder farmers, whose poverty is a primary structural driver of child labor and forced labor risk. Dialogue should address whether procurement price structures adequately reflect the cost of verified labor compliance, whether long-term purchasing commitments can reduce the income volatility that pushes farmers toward informal markets and labor cost-cutting, and whether retailer and manufacturer margin expectations are compatible with farmgate prices that support living incomes. Procurement policies that impose traceability and labor requirements without corresponding price support risk deepening farmer poverty while creating the appearance of supply chain accountability.
- Adopt comprehensive due diligence regulations, including mandatory corporate disclosures on supply chain transparency and due diligence requirements for sustainability and human rights protection.
- Mandate disaggregated reporting, requiring companies to separately disclose traceability percentages for direct and indirect supply chains, by cocoa product category (beans, paste,

butter, and powder), and by geographic region of origin, to prevent aggregated claims from obscuring performance gaps across supply chain types, product forms, and sourcing regions.
- Require independent third-party verification of traceability claims by entities without financial relationships to assessed companies, with public disclosure of verification methodologies and findings.
- Provide technology assistance programs for smallholder farmers, including subsidized Global Positioning System devices, connectivity support, digital literacy training, and adequate transition timelines, to prevent exclusion from formal supply chains. Smallholder farmers who cannot meet technical compliance requirements risk losing access to licensed buying systems and cooperative networks, pushing them toward informal intermediaries where labor monitoring is absent and exploitation risk is highest. Assistance programs should be designed and sequenced in parallel with traceability mandate rollouts, not treated as an afterthought to them.

To Private Sector Actors:

- Increase transparency regarding indirect supply chains by publicly disclosing locations of Tier 1 suppliers and requesting geographic information for Tier 2 suppliers, avoiding unsubstantiated claims that data protection regulations prohibit such transparency.
- Processors and manufacturers operating in major downstream hubs that source cocoa beans or semi-processed cocoa from TVPRA-listed origins should conduct and publicly disclose input-level child labor and forced labor risk assessments that separately address beans and semi-processed cocoa by country of origin—not country of dispatch—to accurately characterize their exposure. Aggregate traceability figures and hub-country sourcing data that obscure the producing country origin of inputs should not be represented as evidence of reduced labor risk.
- Ensure through active verification that Child Labor Monitoring and Remediation Systems (CLMRS) achieve comprehensive coverage in all sourcing regions, including indirect supply chains, with adequate funding earmarked for remediation services.
- Integrate living income benchmarks into traceability and sourcing systems by tracking and publicly disclosing farmgate prices paid to directly and indirectly sourced farmers relative to established living income benchmarks for each producing country and region. Traceability systems that document supply chain origin without capturing whether farmers in traced supply chains earn a living income provide incomplete information about labor risk; income data should be treated as a core traceability metric rather than a separate sustainability objective. Where farmgate prices in traced supply chains fall below living income benchmarks, companies should disclose the gap and report concrete steps, including pricing commitments, long-term contracts, or productivity support, being taken to close it.
- Invest in appropriate technology solutions matching local infrastructure and farmer capabilities, prioritizing SMS-based systems over smartphone applications in which device access is limited and offline-capable applications that function without continuous connectivity.
- Collaborate with industry peers to establish standardized traceability definitions, methodologies, and verification requirements, enabling interoperability between systems and reducing administrative burden on farmers managing multiple certification programs.
- Collaborate with industry peers to establish shared technical standards and software interoperability protocols to ensure technical interoperability with other national cocoa traceability registries, industry-created traceability and labor monitoring platforms, and importing country due diligence systems.
- Provide transparent public reporting on traceability performance disaggregated by supply chain type (direct vs. indirect), cocoa product category (beans, paste, butter, and powder), and geographic region of origin, with independent third-party verification of claims. Traceability

figures that apply only to direct supply chains should be clearly labeled as such and should not be presented as representative of overall sourcing performance.
- Eliminate mass balance systems allowing physical mixing of certified and conventional cocoa, and transition to segregated or identity-preserved systems that enable reliable origin verification and accountability for specific supplier performance.
- Evaluate whether certification schemes are adequately mitigating regulatory risk under forced labor import prohibitions and other regulatory requirements.

To Civil Society and Other Stakeholders:

- Conduct systematic, independent farm-level research verifying corporate traceability claims through multi-country field investigations. Research should be designed to distinguish between two outcomes that may appear similar in corporate reporting but have substantially different policy implications: genuine reductions in child labor and forced labor prevalence on monitored farms, and improvements in the documentation or disclosure of existing conditions without corresponding reductions in prevalence. Where monitoring and remediation programs show improved reporting metrics but no measurable change in labor conditions on the ground, findings should be reported as such and used to evaluate whether program design, funding levels, coverage rates, or enforcement mechanisms require revision.
- Develop community-controlled engagement systems complementing corporate and government traceability platforms, integrating local knowledge, and ensuring meaningful community participation in system design, data collection, grievance mechanisms, and CLMRS programs.
- Establish farmer education programs explaining traceability systems' purposes, farmer rights regarding data provision, and mechanisms for reporting labor violations or system failures.
- Monitor smallholder inclusion and exclusion patterns as digital traceability mandates expand, documenting which farmer populations are at risk of losing access to supply chains and advocating for capacity-building support, preventing marginalization of vulnerable populations.
- Advocate for living income pricing integration with traceability systems by documenting farmer income levels in traced supply chains. Research and advocacy should focus specifically on whether traceability programs, including certification schemes and corporate CLMRS programs, are associated with measurable progress toward living income benchmarks, or whether they operate independently of farmgate pricing in ways that leave the primary structural driver of child labor and forced labor unaddressed.
- Coordinate across organizations to share traceability data, labor violation documentation, and monitoring findings, creating comprehensive assessments of supply chain conditions, and enabling targeted advocacy for systemic reform.
- Pressure certification bodies to strengthen audit protocols by requiring unannounced farm visits, increasing sampling percentages beyond current levels, and implementing consequence mechanisms for certified entities where violations persist.

Implementation of these recommendations requires coordinated efforts from all stakeholders. Improving labor conditions in the global cocoa sector will require addressing both immediate labor violations and underlying socioeconomic factors—including informal employment, economic desperation among smallholder farmers, complex intermediary arrangements, and infrastructure gaps—while simultaneously strengthening oversight, traceability, and accountability throughout the supply chain. The sector's continued growth and strategic importance present both risks and opportunities. Without proactive intervention, expansion of cocoa production could exacerbate child labor and forced labor as demand increases in regions with limited oversight. The persistence of labor exploitation despite decades of voluntary industry initiatives demonstrates that corporate programs alone are insufficient to eliminate forced labor and child labor from cocoa supply chains.

1 INTRODUCTION AND METHODOLOGY

This report presents a supply chain analysis of cocoa from countries at risk of producing cocoa with forced labor and child labor. The study quantifies global production and trade of cocoa beans and semi-processed products, outlines the commercial structure of the cocoa industry, and traces cocoa flows from major producing countries—including those on the U.S. Department of Labor (USDOL) List of Goods Produced by Child Labor or Forced Labor (Trafficking Victims Protection Reauthorization Act of 2005 [TVPRA] List)[5]—through processing and trading hubs to consumer markets. The analysis examines how supply chain organization, trade structures, and traceability limitations shape downstream exposure to labor exploitation risks.

There is evidence of child labor and forced labor in cocoa growing in many of the major cocoa-producing countries (see, e.g., Furlan, 2024b, 2024b, 2024a, 2025b, 2025c; U.S. Department of Labor, 2024c; Sevilla et al., 2024; Verité, 2019; Zegers, 2024).[6] Approximately 1.5 million children work in cocoa production in Côte d'Ivoire (CDI) and Ghana, with 95% exposed to hazardous conditions, including work with dangerous tools and harmful pesticides (U.S. Department of Labor & NORC, 2020). Forced labor indicators documented across West African cocoa production include debt bondage, deceptive recruitment, geographic isolation, and restrictions on freedom of movement (Verité, 2019).

Cocoa production involves approximately 5 to 6 million smallholder farmers and supports a $130 billion chocolate industry, and the bulk of cocoa trade and processing is dominated by a small number of countries (Global Market Insights, 2025a; Mujica Mota et al., 2019). Ten countries account for approximately 94% of global cocoa bean production, with more than half (54%) originating from CDI and Ghana (FAOSTAT). Europe is the world's largest importer and processor of raw cocoa beans and the largest exporter of chocolate products (International Cocoa Organization, 2025).

The cocoa market is concentrated among a small number of multinational firms at the grinding and chocolate manufacturing levels, and vertical and horizontal integration is increasingly common[7] (Ingram et al., 2018). Three companies process half of the world's cocoa: Barry Callebaut, Cargill, and ofi (formerly Olam Food Ingredients)[8] (Global Market Insights, 2025b). Six companies produce nearly half of the world's chocolate: Nestle, Ferrero, Mars, Mondelēz International, Hershey, and Lindt & Sprüngli (Global Market Insights, 2025b).

Chocolate confectionery is the dominant downstream use of cocoa (Gaia Cacao B.V., 2021; Global Market Insights, 2025b, 2025c; International Cocoa Organization, 2024).[9] However, cocoa's versatility as

[5] The TVPRA List is maintained by the USDOL's Bureau of International Labor Affairs (ILAB) pursuant to the TVPRA, which requires the Secretary of Labor to develop and make available to the public a list of goods from countries that ILAB has reason to believe are produced by child labor, forced labor, or forced child labor in violation of international standards. The current TVPRA List is available at: https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods.

[6] Cocoa from Brazil, Cameroon, Ghana, Guinea, and Sierra Leone is on the TVPRA List for production using child labor. CDI and Nigeria are on the list for cocoa production for both child labor and forced labor (U.S. Department of Labor, 2024b).

[7] Of note, this trend toward integration is not a universal one. As of late 2025, Barry Callebaut leadership were reportedly considering spinning off the company's cocoa division to insulate the remainder of the company from cocoa price volatility (Crowley et al., 2025).

[8] Olam Food Ingredients rebranded as "ofi" starting in 2020–2021, and the cocoa business that was formerly "Olam Cocoa" now operates under the ofi brand as "ofi Cocoa."

[9] Estimates vary of the percentage of cocoa ultimately used in various downstream industries. One report estimated the global cocoa market to be valued at $111.4 billion in 2024, of which downstream industries using cocoa were estimated to be $89.4 billion (80%) in confectionery and chocolate, $11.0 billion in food and beverages, $3.2 billion in cosmetics and personal care, $2.2 billion in pharmaceuticals, and $5.6 billion in other industrial end uses (Global Market Insights, 2025b).

a raw material extends beyond its familiar role in food and beverages to the cosmetics, pharmaceutical, agricultural, and biofuel sectors.[10]

Cocoa beans and semi-processed cocoa products[11] are traded, re-sold, transformed, and re-exported across borders. In 2024, semi-processed cocoa product exports totaled $25.5 billion (see Appendix 3: Import and Export Statistics). The complexity of this supply chain—in which the same cocoa may pass through multiple transactions, processing stages, and national borders before reaching consumers—heightens the risk that cocoa produced with forced labor or child labor enters final products undetected.

Global attention on labor exploitation in cocoa production has raised public awareness and spurred renewed commitments from governments, civil society organizations, and private sector actors to improve working conditions and supply chain transparency in recent decades, although existing social responsibility and traceability interventions are widely perceived as insufficient, with notable exceptions. Many chocolate producers have pledged to eliminate child labor from their supply chains, but progress has been mixed (see Section 6).

Third-party certification programs, including Rainforest Alliance (which merged with UTZ in 2018) and Fairtrade, have emerged as a primary mechanism for companies to address labor and sustainability concerns in their supply chains. However, certification has not proven equivalent to sustainability. Child labor has been documented on certified farms (Ryerson, 2021; Voller, 2020), and most certification schemes permit mass balance[12] accounting, which allows certified and non-certified cocoa to be physically mixed while maintaining certification claims on paper (Fair Trade USA, 2019; Rainforest Alliance, 2025b). Independent investigations have found child labor and poor labor conditions on certified farms (Ryerson, 2021; Voller, 2020), and the 2025 Cocoa Barometer found that child labor increased 14% between 2015 and 2020, despite widespread implementation of certification programs (Fountain & Huetz-Adams, 2025). Experts interviewed for this study characterized certifications as "compliance theater" that provide reputational cover without meaningful on-the-ground improvements.

Structural features of cocoa supply chains create persistent traceability challenges. Available data suggest that 40–60% of global cocoa moves through indirect supply chains[13] (CBI, 2024b; Renier et al., 2023), with some industry experts interviewed providing estimates as high as 78–90%. Only 22% of indirect supply chains are traceable to the farm level (Retailer Cocoa Collaboration, 2024). Companies that report high traceability rates often apply those figures only to the proportion of cocoa they purchase directly from farmers or cooperatives, while cocoa they purchase indirectly through traders and intermediaries (by far the larger portion of overall cocoa sourcing) remains untraceable. Without comprehensive supply chain tracking systems, downstream consumers and importers cannot verify whether their cocoa ingredients were produced with forced labor or child labor.

This study provides a comprehensive analysis of the global cocoa supply chain, with particular attention to market structure, trade flows, labor risks, and traceability. Section 1 discusses the study's methodology, data sources, research questions, and limitations. Section 2 outlines the global cocoa supply chain and market structure, covering production and harvesting, processing and downstream

---

[10] Non-retail sales are also known as "business to business" industry sales, such as the sale of goods between a manufacturer and wholesaler.

[11] For the purposes of this report, "semi-processed cocoa products" refers to cocoa paste, cocoa butter, and cocoa powder.

[12] Mass balance is a supply chain accounting method that allows certified and non-certified cocoa to be physically mixed together at various stages—cooperatives, transport, processing—while maintaining certification claims based solely on matching volumes on paper. Under this system, companies and certifiers track volumes administratively: if a facility receives 100 tons of certified cocoa and 400 tons of non-certified cocoa, it can sell 100 tons as "certified," regardless of which physical beans end up in that batch (Rainforest Alliance, 2025b). See Section 6.3.2 for further discussion of this method.

[13] The term "indirect supply chains" refers to supply chains involving intermediaries such as local traders or informal buying networks. See Section 6.3.1 for further discussion of indirect sourcing.

uses, and cocoa pricing (including futures markets and risk management). Section 3 examines supply chains in cocoa-producing countries, focusing on productivity, regulated markets, poverty, fragmented intermediary systems, smuggling, and traceability challenges. Section 4 analyzes cocoa in international trade, detailing national and regional trading patterns, key processing and redistribution hubs, and trade flows by product. Section 5 provides a comparative analysis of labor conditions across producing countries, assessing structural economic drivers, social infrastructure gaps, governance and enforcement weaknesses, and recent responses. Section 6 evaluates traceability and corporate responsibility systems, including regulatory drivers, company and certification programs, public sector initiatives, and their structural shortcomings. Finally, Section 7 synthesizes the findings, draws conclusions on labor and traceability risks across the cocoa sector, and presents recommendations.

1.1 METHODOLOGY

This study analyzes the global cocoa supply chain with a specific focus on the downstream use of cocoa beans produced in Brazil, Cameroon, CDI, Ghana, Guinea, Nigeria, and Sierra Leone. The methodology employed in this study included a comprehensive review of secondary literature and quantitative data, including global production and international trade statistics, as well as interviews with key informants.

Given the extensive existing literature documenting labor exploitation in cocoa production, this study prioritizes analysis of cocoa supply chain structure, trade flows, and downstream product use, with limited regional contextualization as relevant. The research examines supply chain linkages between selected cocoa-producing countries on the TVPRA List and major importing and processing countries in Europe, Asia, and the Americas. The analysis identifies key domestic and international stakeholders and evaluates cocoa production patterns, including on-farm production of cocoa beans and any domestic processing into semi-processed cocoa products. Building on this foundation, the study traces cocoa through downstream processing centers, exporters, and international markets to assess how cocoa originating in high-risk contexts is incorporated into global supply chains.

The following research questions guided the analysis:

- What are the risks of child labor and forced labor in the production of cocoa in countries listed for cocoa on USDOL's TVPRA List (Brazil, Cameroon, CDI, Ghana, Guinea, Nigeria, and Sierra Leone), and how can cocoa be traced into domestic and international supply chains? What conclusions can be drawn about the likely downstream use of cocoa beans that originated from selected countries on the TVPRA List?
- The Netherlands is a leading importer of cocoa beans and semi-processed cocoa from West Africa and functions as a global hub for processing, warehousing, and exporting. How is cocoa processed or exported from the Netherlands and used in destination markets, especially in Europe?
- For all major global importers of cocoa beans and intermediate processed goods, how are these products processed domestically? How are these goods processed, consumed, or re-exported?
- What are the limitations and advantages in current sourcing and traceability efforts in the cocoa sector? How do these findings illuminate our understanding of child labor and forced labor risks within the global cocoa supply chain?

1.1.1 Data Collection

Data for this study were collected through a combination of secondary literature review, key informant interviews (KIIs), and analysis of international production and trade statistics.

Secondary literature review. The research began with a review of existing literature and reports related to the supply chain of cocoa. This review informed both the study design and the final analysis.

KIIs. Twenty qualitative supply chain interviews were conducted to ensure a robust understanding of cocoa processing and downstream transformation and movement of goods. Initial KII candidates were chosen using an iterative snowball sampling method. The secondary literature review led to the identification of an initial list of KII candidates who were expected to offer insights into specific national and corporate market dynamics, trade patterns, and traceability through various stages of the supply chain. Suggestions from the initial respondents led to additional respondents.

Quantitative data. Research included a review of production data through FAOSTAT and the International Cocoa Organization (ICCO) and a review of international trade data through Trade Data Monitor, UN Comtrade, DataWeb, Eurostat, and national government customs offices.

1.1.2 Limitations

Production and trade data are presented for calendar year (2024). ICCO grinding statistics are reported by market year (MY) (October 1 to September 30) 2023/2024. The different time frames create discrepancies when comparing data sets but allow for the identification of trends. Exact quantitative comparisons are not possible, even with exact time frames due to shipping delays, inaccurate data, and errors and omissions.

Trade data. For consistency and accuracy, trade data collected from Trade Data Monitor use importer data as reported by the importing country's national customs authority. Values are reported in USD (cost including freight [c.i.f.]) and quantities in metric tons (MT). Since re-export of cocoa within Europe is a significant trade pattern in the cocoa sector, the report also includes additional intra-European Union (EU) trade data from Intrastat.[14] Intrastat data are most useful for identifying trends and patterns but tend to provide less precise bilateral data and less accurate trade figures than international trade data. As the two sets of trade data are derived from different measurement systems, it is not possible to reconcile the data (European Central Bank Data Portal, 2025).

Harmonized System (HS) classification. Product classification presents additional constraints. USDOL HS mappings for cocoa products differ from ICCO classifications. ICCO separates cocoa cake solid (HS 1803.20) from cocoa paste not defatted (HS 1803.10). The analysis in this report applies the appropriate conversion rates for each HS code for cocoa paste (HS 1803). This differs from ICCO reporting, which reports totals for "cocoa powder and cocoa cake solid" (HS 1803.20 and HS 1805) (International Cocoa Organization, 2025c).

2 GLOBAL COCOA SUPPLY CHAIN AND MARKET STRUCTURE

This section provides an overview of cocoa bean production and harvesting, which form the foundation of the global cocoa supply chain. It summarizes the biological, geographic, and seasonal characteristics of cocoa cultivation and highlights key production regions and volumes. It also outlines structural risks—

[14] EU countries report trade through two fundamentally different systems, each with distinct quality characteristics. Import and export data with the EU are referred to as "extra-EU" trade and are recorded through traditional customs declarations at borders. This system provides highly reliable data with comprehensive coverage of all transactions, mandatory verification by customs officials, and relatively small bilateral discrepancies. In contrast, "intra-EU" trade between EU member states does not require customs procedures within the EU. Instead, trade is tracked through Intrastat, a statistical survey that only requires reporting from businesses whose annual trade exceeds country-specific thresholds. Intrastat captures a smaller percentage of traded products directly (the rest is statistically estimated), and data are self-reported by traders instead of customs officials. Therefore, asymmetries in data may exist between Eurostat data and national data, either from errors in reporting or from differences in the concepts and definitions applied by the partner countries.

including climate variability, disease pressure, and aging tree stocks—that shape global supply stability and influence downstream markets.

2.1 PRODUCTION AND HARVESTING OF COCOA BEANS

The cacao tree produces cocoa pods, which encase the cocoa beans, the primary raw material that is processed into semi-processed cocoa goods and ultimately used in downstream chocolate production. Cacao trees require a three- to five-year maturation period before they start producing pods. A healthy mature tree can support 20–30 pods simultaneously and yield between 20 and 70 pods annually, with each pod containing 30–40 beans (Adet et al., 2024; Afoakwa, 2014a; CocoTerra, 2024d).[15] Cacao trees thrive in tropical regions and therefore are primarily grown in the geographical region around the equator. As shown in Figure 1, the majority of the cocoa beans (54.2%) produced in 2023 were grown and harvested in CDI (42.5%), Ghana (11.7%), and Indonesia (11.5%) (FAOSTAT).

The market year for cocoa runs from October 1 to September 30. Cocoa pods are primarily harvested between October through March, and smaller crops are often harvested throughout the rest of the year.[16] Harvesting requires farmers to use machetes or specialized tools to cut down ripe pods (Afoakwa, 2014a). These pods are then collected and stored for 7–10 days before being split open to extract the beans and surrounding pulp from the pod's outer shell. The cocoa beans and pulp are then fermented and dried (Adabe & Ngo-Samnick, 2014; Afoakwa, 2014b; CocoTerra, 2024b, 2024a; Hotel Chocolat, 2020).

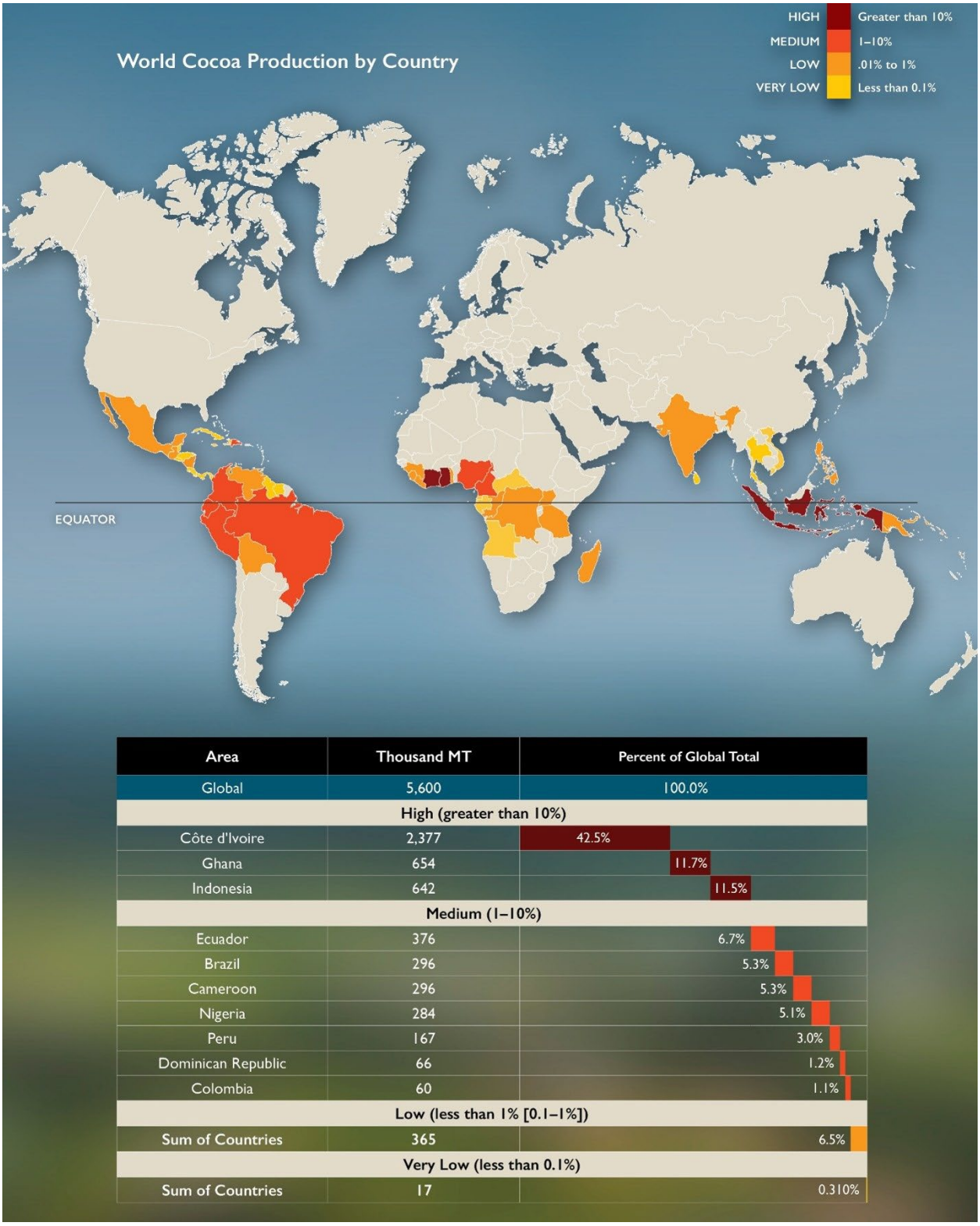
Global cocoa production is subject to external shocks, especially changes in weather, rainfall, crop disease, and government regulations. West Africa faces challenges such as cocoa swollen shoot virus disease (CSSVD), but no major disease of equivalent magnitude has occurred in Latin American countries in recent years (ICCO 2024/25 Quarterly Report). Aging trees are of critical concern, as many cocoa farms contain trees well past their peak production age of 20–25 years, leading to declining yields;[17] however, farmers often lack the resources or financial security to wait 3–5 years for new trees to produce pods (Kongor et al., 2024). The fluctuation in annual production is closely monitored by industry due to supply impacts on cocoa prices.

[15] This is an estimate of optimal pod yield. Actual yields can be significantly lower, depending on the age of the tree, environmental stressors, and other factors. Environmental stressors, particularly temperature increases and irregular rainfall patterns, have further compromised yields, with some estimates suggesting 30–40% reductions in productivity due to these factors (Decker, 2019).

[16] The lighter second harvest between April and September is generally referred to as the "mid-crop" or "light crop" (U.S. Department of Agriculture Foreign Agricultural Service, 2025c).

[17] As cocoa trees age, their yield decreases. After 25–30 years, a tree's productivity typically declines by 30–40%, and many of the world's cocoa-producing regions are now grappling with aging tree populations, with trees in some plantations now as old as 50 years (Djuideu et al., 2021).

Figure 1. Map of global production of cocoa beans, 2023



Area	Thousand MT	Percent of Global Total
Global	5,600	100.0%
High (greater than 10%)		
Côte d'Ivoire	2,377	42.5%
Ghana	654	11.7%
Indonesia	642	11.5%
Medium (1–10%)		
Ecuador	376	6.7%
Brazil	296	5.3%
Cameroon	296	5.3%
Nigeria	284	5.1%
Peru	167	3.0%
Dominican Republic	66	1.2%
Colombia	60	1.1%
Low (less than 1% [0.1–1%])		
Sum of Countries	**365**	6.5%
Very Low (less than 0.1%)		
Sum of Countries	**17**	0.310%

Source: ICF (graphic), FAOSTAT (data, see Appendix 4)

2.2 PROCESSING AND DOWNSTREAM USE OF COCOA

After cocoa beans are harvested, fermented, and dried on farms, they are sold through intermediaries and ultimately purchased by grinders, who convert cocoa into intermediate goods (Figure 2) (Adabe & Ngo-Samnick, 2014; Afoakwa, 2014a). Processing facilities first roast the beans to enhance the chocolate flavor and decrease moisture levels. After roasting, the beans are cooled, and the outer shell is removed, leaving behind the cocoa nib (Afoakwa, 2016; Galanakis, 2022). These nibs are crushed to create a liquid, which solidifies into cocoa paste. This cocoa paste is subsequently pressed to extract cocoa butter. The remaining solid is referred to as cocoa cake solids, which are then dried and ground into cocoa powder (Afoakwa, 2014b; Barry Callebaut, 2019; Royal Duyvis Wiener B.V., 2023).[18]

The grinding process can be nuanced; different grinders produce cocoa powder with unique and distinct characteristics. As a result, some downstream manufacturers purchase cocoa powder and others purchase cocoa cake solids so they can control and customize the grinding process. As highlighted in Figure 3, Europe is the dominant regional grinder of cocoa beans, but CDI is the single largest national grinder (Gaia Cacao B.V., 2021).

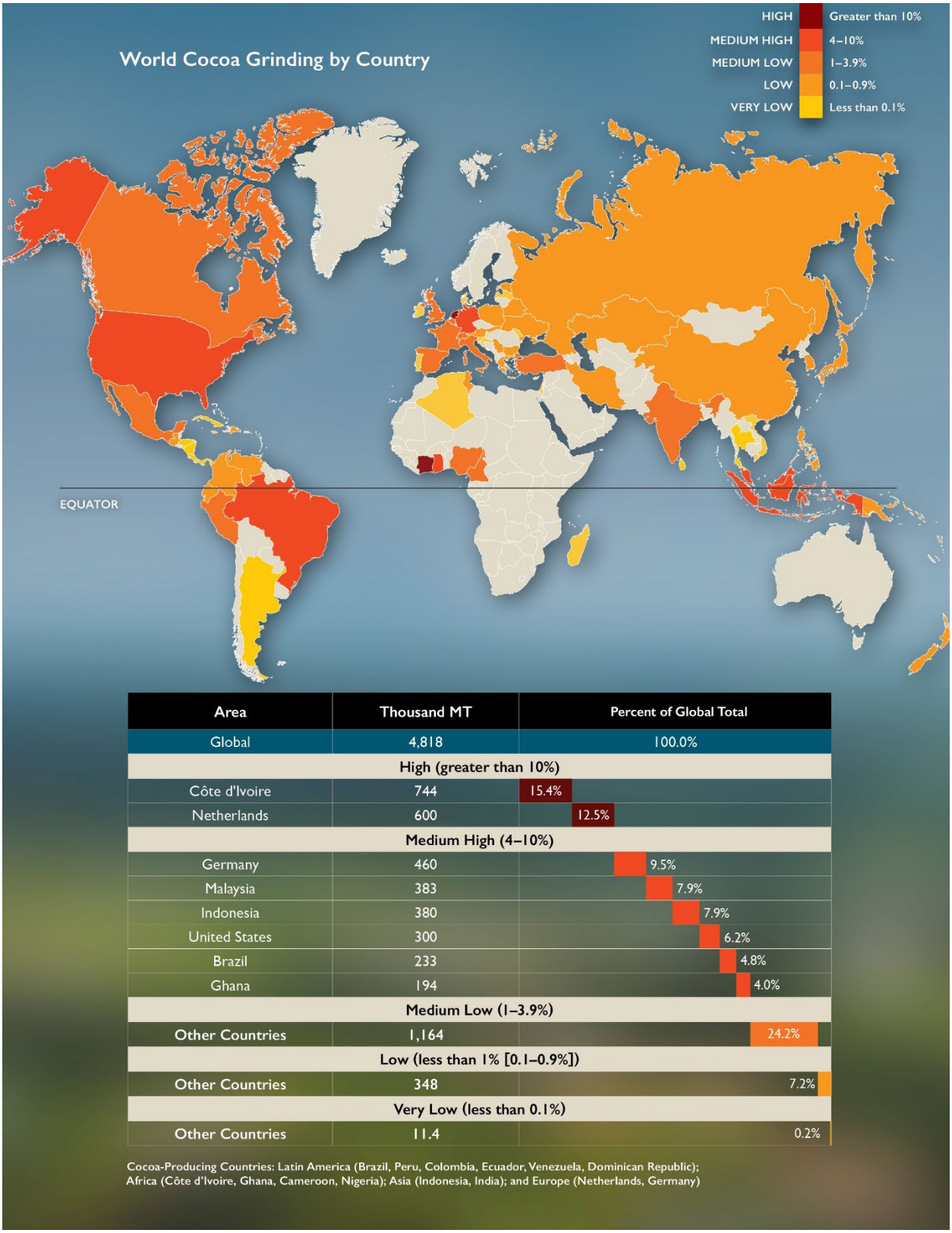
A chocolate manufacturer produces chocolate through a process in which cocoa powder, cocoa butter, sugar, and other ingredients are mixed and aerated (Afoakwa, 2016). These ingredients form a chocolate dough, which is then finely refined and put through a conching machine to produce couverture, the material from which finished chocolate products are made (Galanakis, 2022; Squicciarini & Swinnen, 2016). Conching methods are often considered business proprietary, as different processing techniques and ingredients impart a distinctive flavor and texture to the end product. Different ratios of cocoa solids, milk fat, and cocoa butter create different chocolate categories of dark, milk, and white chocolate (Konar, 2013; Konar et al., 2018; Perez et al., 2022).

[18] If cocoa cake solids include excess broken cocoa shells and husks, they may be deemed as too low of quality for processing into cocoa powder and can be sold as cocoa waste.

Figure 2. Cocoa processing flowchart

Source: ICF

Figure 3. Global grinding of cocoa beans by country, MY 2023/2024



Area	Thousand MT	Percent of Global Total
Global	4,818	100.0%
High (greater than 10%)		
Côte d'Ivoire	744	15.4%
Netherlands	600	12.5%
Medium High (4–10%)		
Germany	460	9.5%
Malaysia	383	7.9%
Indonesia	380	7.9%
United States	300	6.2%
Brazil	233	4.8%
Ghana	194	4.0%
Medium Low (1–3.9%)		
Other Countries	1,164	24.2%
Low (less than 1% [0.1–0.9%])		
Other Countries	348	7.2%
Very Low (less than 0.1%)		
Other Countries	11.4	0.2%

Cocoa-Producing Countries: Latin America (Brazil, Peru, Colombia, Ecuador, Venezuela, Dominican Republic); Africa (Côte d'Ivoire, Ghana, Cameroon, Nigeria); Asia (Indonesia, India); and Europe (Netherlands, Germany)

Note: Quantity refers to the weight of cocoa beans ground.
Source: ICF (graphic), ICCO (data, see Appendix 5)

Chocolate confectionery is the dominant downstream use of cocoa (Gaia Cacao B.V., 2021; Global Market Insights, 2025b, 2025c; International Cocoa Organization, 2024), but cocoa is also used in the cosmetics, pharmaceutical, agricultural, and biofuel sectors.

The **food sector** is the largest consumer of cocoa products. Cocoa paste and cocoa powder are used in baked goods such as cakes, cookies, pastries, and desserts, while cocoa powder provides both flavor and color. Ice cream manufacturers incorporate cocoa powder, butter, or chocolate pieces into frozen desserts and toppings (Coetzee, 2024). In the beverage industry, cocoa powder serves as the foundation for hot chocolate drinks, chocolate milk, and protein shakes, and as a flavor enhancer in coffee-based beverages and smoothies (ScienceDirect Topics, 2025).

In the **cosmetics sector,** cocoa butter's excellent moisturizing properties and natural antioxidants make it a valued ingredient in lipsticks, body lotions, and anti-aging creams (EasyBuy Ingredients, 2025; Theobroma Cosmetics, 2020).

In the **pharmaceutical sector,** companies use cocoa butter's unique melting point (just below body temperature) to manufacture suppositories and other medications, while cocoa's flavonoids are being studied for their cardiovascular benefits in dietary supplements (Pharmlabs, 2024; Sesso et al., 2022; Steinberg et al., 2003).

In **agriculture,** cocoa shells/husks and cocoa cake solids are used as fertilizer or mulch in gardening (Hill Country Chocolate, 2024). The **biofuel sector** is exploring whether cocoa pod husks can be used as bioethanol and biodiesel fuel (Mendoza-Meneses et al., 2021).

2.3 ACTORS, INTERMEDIARIES, AND PRODUCT FLOWS

The global cocoa supply chain is characterized by an "hourglass supply chain" in which millions of smallholder farmers sell their cocoa beans through multiple intermediaries to a concentrated number of large-scale grinders, traders, and chocolate manufacturers, and ultimately spans to reach millions of international retail consumers. An overview of the global cocoa supply chain is illustrated in Figures 4a and 4b.

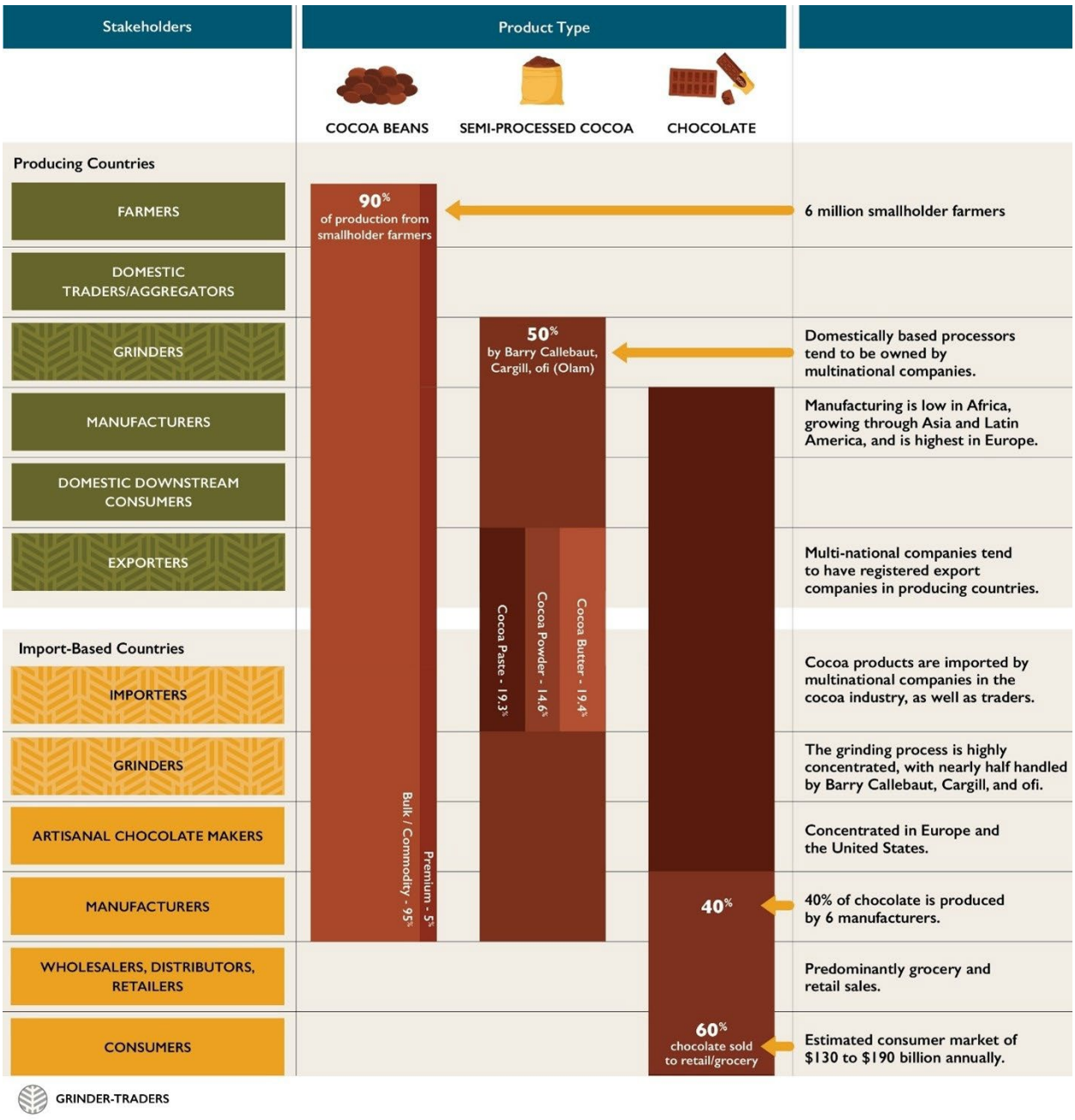
Cocoa **growers** form the first layer of the global cocoa supply chain. Approximately 5–6 million smallholder farmers produce 90% of the world's cocoa beans. Many smallholder farmers rely in part on family labor, including child labor (Fairtrade International, 2025a; International Institute for Sustainable Development, 2023).

Cocoa growers sell their production through a range of market channels that vary widely in level of formality. In some cases, farmers sell directly to exporters or grinders. More commonly, however, cocoa beans pass through multiple domestic intermediaries, including **cooperatives** and **local traders.** These intermediaries aggregate small volumes of wet, fermented, or dried beans from individual farmers or farmer groups and resell them to larger **domestic traders/aggregators**, who then sell onward to **exporters** or **domestic processors**. While the rules and regulations governing these transactions vary widely by country, aggregation at each stage typically involves the co-mingling of beans from multiple farmers, creating consistent traceability risks at this point in the supply chain.

If cocoa beans are intended for export, they may either be bagged prior to reaching the port or stocked in port warehouses to undergo quality grading. These warehouses frequently include conditioning plants, in which cocoa beans are dried to prevent spoilage due to moisture. In some countries, the beans from multiple suppliers are co-mingled to satisfy buyers' quality requirements. When it is time for shipment, cocoa beans not previously bagged are loaded onto cargo vessels in traditional jute bags, or they may be

shipped loose in shipping containers through mega-bulk shipping.[19] Therefore, although the tracking and storage process varies from one country to another, this stage of the supply chain commonly involves the co-mingling of beans from various intermediaries.

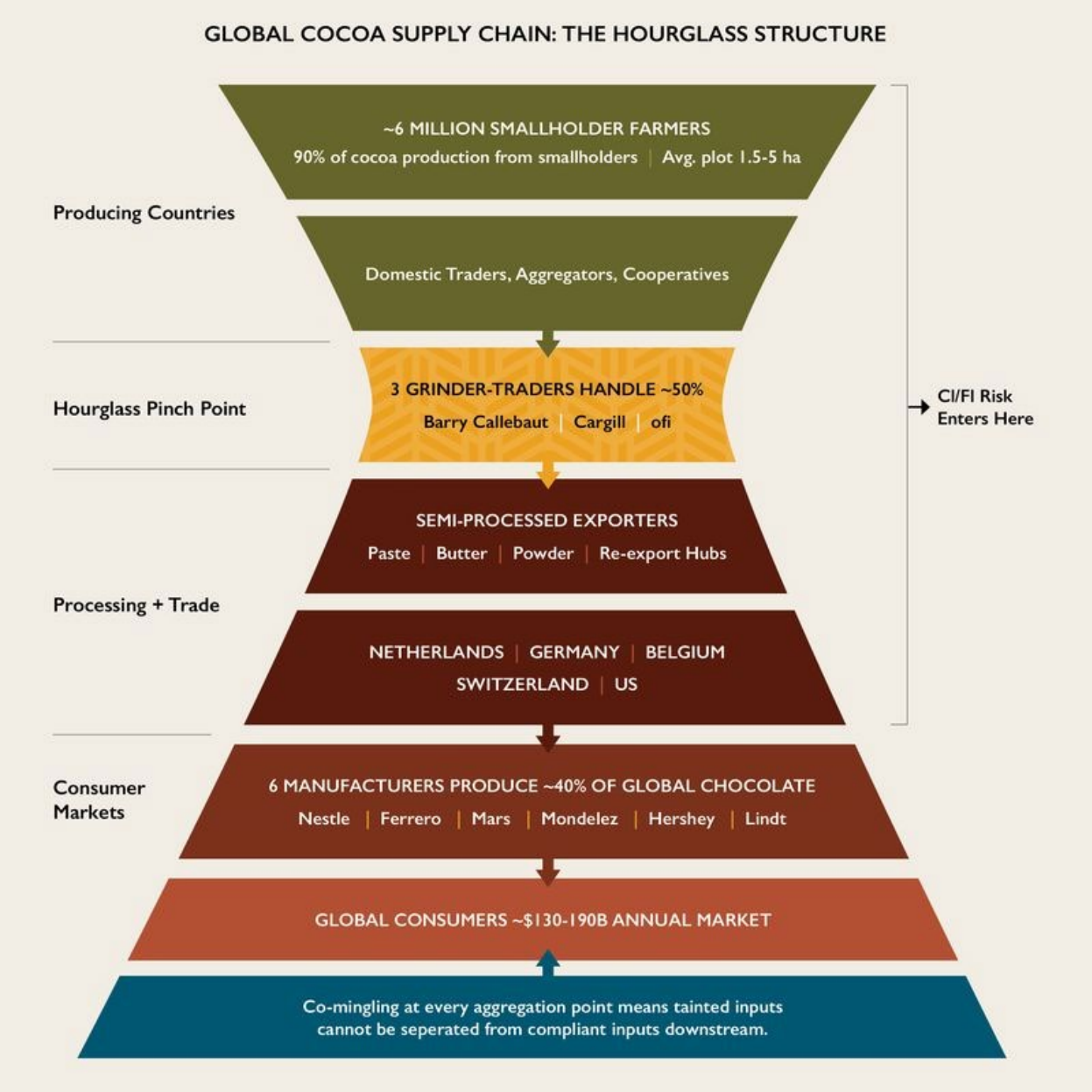
Figure 4a. Global cocoa supply chain flowchart



Source: ICF

[19] Mega-bulk shipping is estimated to save up to one-third the cost of shipping in jute bags (International Cocoa Organization, 2025e).

Figure 4b. Global cocoa supply chain's "hourglass" configuration



Source: ICF

Cocoa **grinders** are located in both producing and importing countries and are commonly large companies that grind cocoa beans into intermediate products at high volumes.[20] Increasing industry consolidation in recent years has resulted in grinding companies of massive scale, driven in part by

[20] The European Cocoa Association's current grinding statistics include 19 companies operating in Europe; the National Confectioners' Association reports 10 companies in Canada, the United States, and Mexico; and the Cocoa Association of Asia reports 8 companies in Asia (European Cocoa Association, 2025).

manufacturers' moving away from grinding themselves due to high costs and risks.[21] Thus, the remaining grinders source and co-mingle cocoa beans from hundreds of thousands of cocoa farmers (Ferro et al., 2021a). Traders and grinders Barry Callebaut, Cargill, ofi (Olam), ECOM, Sucden, Touton, CEMOI, Cocoanect, and Blommer (Fuji Oil) account for 60–80% of global cocoa processing (A. Fountain & Huetz-Adams, 2022). Some processors are vertically integrated and maintain all processing in-house, from cocoa beans to final chocolate retail products.

Grinders sell intermediate cocoa products to various downstream **manufacturers** in the confectionery, food, cosmetics, and pharmaceutical industries. Even though some manufacturers have a hybrid sourcing model, in which they buy cocoa beans directly from a producer, cooperative, exporter, or importer, the vast majority of chocolate manufacturers buy ground cocoa from large commercial grinders (Fountain & Huetz-Adams, 2022). Despite the risks and costs of grinding, some chocolate manufacturers prefer to grind cocoa beans in-house to control quality. Grinders sell semi-processed cocoa in a variety of forms. Cocoa paste and cocoa butter are sold in solid blocks, thin wafers, chips, or liquid. Liquid cocoa paste and cocoa butter can be transported in containers or specialized food-safe heated tanker trucks to maintain product liquidity for ease of use in chocolate manufacturing. Cocoa powder is sold in bulk bags or airtight containers.

Whether cocoa is exported in the form of cocoa beans or semi-processed goods, trade is facilitated by **exporters** that are regulated by national governments. Multinational entities typically have a registered export company in the processing country to facilitate sales between their international subsidiaries or business-to-business sales to chocolate manufacturers (Deam, 2020; Gaia Cacao B.V., 2021). In addition to multinational corporation (MNC) exporters, independent export traders specialize in either bulk or premium cocoa, and more specialized traders may focus on organic or certified cocoa.[22] As bulk cocoa constitutes more than 90% of cocoa beans, the premium trader segment tends to be smaller due to lower volumes and more specialized natures of premium cocoa consumption.

Premium chocolate is distinguished from mass-market chocolate primarily by the quality and origin of its cocoa beans rather than by certification status (International Cocoa Organization, 2025b). The ICCO classifies "fine flavor" cocoa as beans with complex sensory profiles resulting from specific genetic varieties (typically Criollo or Trinitario rather than the Forastero used in bulk production), favorable growing conditions, and careful post-harvest practices (International Cocoa Organization, 2025b). Fine flavor cocoa, estimated at approximately 5% of global production, is mainly sourced from Ecuador, Venezuela, Peru, and Madagascar, and commands significant price premiums—historically up to $1,000 per ton above bulk prices (CBI, 2025d). This cocoa is typically used by artisanal "bean-to-bar" chocolate makers and high-end manufacturers like Lindt & Sprüngli for dark chocolate products in which the fruity and floral flavor attributes can be tasted, whereas bulk cocoa is used in milk chocolate, in which flavor must compete with sugar and milk (Lindt & Sprüngli, 2025). Importantly, the premium/fine flavor distinction operates largely independently from sustainability certifications. Organic, Fairtrade, or Rainforest Alliance certifications address production practices and supply chain standards but do not determine flavor quality, and much of the certified cocoa ends up in mainstream chocolate products rather than premium markets. Conversely, fine flavor beans may or may not carry sustainability certifications, depending on the producer.

[21] Typical annual revenues for large global processors range between $500 million to more than $5 billion, compared to $20 to $100 million for a mid-sized cocoa processing facility. Profitability margins for processors tend to vary between 5% to 20%, depending on global coca prices, operation scale and efficiency, and raw material costs (Keylink Limited, 2025).

[22] An exhaustive list of traders is not available, but bulk traders include Albrecht & Dill, Cocoanect, Dietz Cacao Trading, Facta International, Huyser Moeller, Kemofina, Theobroma, and Walter Matter. Premium traders include Bohnkaf Kolonial, Crafting Markets, Daarnhouwer, Le Cercle du Cacao, Meridian Cacao, Silva Cacao, and Uncommon Cacao (Gaia).

Manufacturers produce final consumer products that use cocoa as an input, either under their own brands or under private labels. According to a non-governmental organization (NGO) interviewed for the study, the top 6 chocolate brands account for approximately 40% of chocolate manufacturing. At the end of the supply chain, chocolate or other manufactured products are sold through commercial distribution networks, including **wholesalers, distributors, and retailers,** to reach the final retail consumer. Globally, it is estimated that a majority (60%) of downstream cocoa products are sold through retail or grocery outlets, followed by 30% in business-to-business industrial sales (Global Market Insights, 2025b).[23] While there is a high degree of concentration at the cocoa trading, grinding, and chocolate manufacturing levels, there is significant decentralization at the global retail level, even though grocery/retail buyers can be concentrated at the national level.[24] For example, the biggest retailer in the Netherlands and Belgium may be inconsequential in Germany or France. One NGO representative interviewed discussed a complex dynamic between size and geography; while these retail buyers hold incredible commercial power at the national level, they do not perceive themselves as global players in the cocoa supply chain and are difficult to engage in global accountability efforts.[25] However, this NGO representative also said that a chocolate brand will readily acknowledge that they would be in dire straits "the minute a retailer doesn't want to put them on the shelves."

2.4 GLOBAL COCOA MARKETS: PRICE AND RISK MANAGEMENT

Cocoa beans are generally divided into two categories: bulk commodity cocoa and premium cocoa. Beans in these categories command different market prices (International Cocoa Organization, 2025b).[26] The cocoa industry, like many soft commodity markets, is inherently volatile, with cyclical peaks and troughs due to agricultural conditions and financial market activities. Industry actors use financial markets to hedge business risk,[27] while speculative investors trade to profit from price fluctuations (Grabs & Carodenuto, 2021; Staritz et al., 2022).[28]

Price volatility is an ongoing challenge for cocoa farmers, and efforts to stabilize cocoa prices for smallholder farmers have been criticized and often prove ineffective (Fountain & Huetz-Adams, 2025; Staritz et al., 2022). CDI and Ghana established the CDI and Ghana Cocoa Initiative in 2018 to mitigate the impact of downward cocoa bean price swings on smallholder farmers. To stabilize farmer earnings when cocoa prices drop, the Initiative introduced the Living Income Differential (LID)—a $400 per-MT premium added to the futures market price—aimed at boosting income when the amount farmers

[23] Of the estimated $111.4 billion in cocoa products in 2024, $66.7 billion were sold through retail/grocery, $32.4 billion through business-to-business industrial sales, $6.7 billion through food service, $3.3 billion online, and $2.2 billion through specialty/premium outlets (Global Market Insights, 2025b). Cocoa is ultimately primarily consumed as chocolate for human consumption in confectionery, food, or beverages. Europe's chocolate consumption in 2024 is estimated to be as large as $47.3 billion (Trase, 2024). The National Confectioners Association reported $28.1 billion in chocolate confectionery sales in the United States in 2024 (National Confectioners Association, 2025). Consistent with global trends, retail/grocery sales were the most common distribution network (National Confectioners Association, 2025).

[24] An industry expert noted that concentration among national grocery chains is much more highly concentrated in Europe than the United States.

[25] An NGO representative stated that there are exceptions, and some retailers are joining global conversations on labor standards in cocoa, including Colruyt in Belgium.

[26] Bulk cocoa beans are typically from the Forastero tree variety, are known for their consistent standard flavor profiles, and are primarily used for mainstream large-volume chocolate production (International Cocoa Organization, 2025b). Premium cocoa beans, estimated to be 5% of global production, are typically produced from Criollo or Trinitario cocoa tree varieties, are mainly sourced from Ecuador, Venezuela, Peru, and Madagascar, and are valued for their distinct flavor profiles and typically used in smaller batches by high-end specialty manufacturers (Gaia Cacao B.V., 2021; International Cocoa Organization, 2025b). Even among bulk and premium, there are various quality factors that impact price, including country of origin.

[27] Other corporate risk management tools in the cocoa industry include physical inventory/stocks, verticalization, and sourcing diversification.

[28] Speculative investors play an important role in providing liquidity to the market, although their role in the cocoa market is also criticized because it can exacerbate price fluctuations (Mackenzie et al., 2024; Ryerson, 2024b).

receive at the point of sale, known as farmgate prices, falls too low to sustain the most vulnerable smallholders (Fountain & Huetz-Adams, 2025; Reuters, 2019). By incorporating this premium into the market price of cocoa from these two nations, the Initiative made cocoa beans from other countries more appealing to global buyers. However, CDI and Ghana's dominant supplier role (more than 50%) offered some assurance that buyers would still need to purchase from Ghana and CDI, despite the option to also source from other regions that do not have a LID surcharge.

Despite intentions to reduce smallholder farmer exposure to market volatility, the fund has faced extensive criticism (Blackmore & Berger, 2021; Boysen et al., 2023). Farmers reportedly did not receive the minimum promised funds when global cocoa prices were low. In addition, LID farmgate payments to CDI and Ghanaian farmers relied on government forward-selling contracts set 18 months in advance. Consequently, due to the forward-selling arrangements and set farmgate prices, farmers did not experience income increases like those seen globally when prices were high (Fountain & Huetz-Adams, 2025).

The complexity of cocoa bean valuation and the lack of transparency in many forms of trading complicate supply chain traceability. The historic spike in cocoa bean values and volatility in 2024 was largely driven by a reduced supply due to declining yields from the two largest global producers (CDI and Ghana), as well as financial market speculation (Reuters, 2024b).[29] While cocoa bean prices were unprecedented, the market movement of prices highlights the underlying risks, variables, and risk management options of all stakeholders. The following sections briefly outline basic market operations and contextualize the impact of the boom on 2024 cocoa prices.

2.4.1 Futures Contracts

After moving through domestic supply chains, cocoa is traded internationally through a combination of physical markets and financial mechanisms, including exchange-traded futures markets and private over-the-counter contracts that govern most physical transactions (Dand, 2010; Reuters, 2024d). Most cocoa beans are initially sold through direct contracts between sellers (producers, cooperatives, traders, governments) and large trader-grinders (such as Cargill, Barry Callebaut, and ofi [Olam]).[30] Physical settlement of a cocoa bean purchase and purchase of a futures contract are distinct processes. Futures markets are used to manage price risk rather than to settle physical trades (Dand, 2010; Reuters, 2024d).

In most cocoa-producing countries, cocoa is traded in a relatively free market. Ghana and CDI are exceptions to this rule; their national governments directly regulate the cocoa market, and buyers purchase cocoa beans through government contracts or licensed suppliers 12 to 18 months ahead of harvest (Chambers and Partners, 2026; U.S. Department of Agriculture Foreign Agricultural Service, 2025a, 2025b). Cocoa beans can be purchased both for the buyers' direct use or for future resale.

Industry actors and speculators also trade cocoa in commodity and financial markets, primarily through futures contracts (Dand, 2010; Reuters, 2024d). Futures contracts are for the delivery of cocoa beans at

[29] Due to insufficient supply in 2024, CDI and Ghana defaulted on contracts and temporarily stopped selling forward contacts for the next market year.

[30] The actual amount of cocoa directly sourced by companies varies, but multiple KIIs indicated that company-reported direct tracing numbers likely overstate the amount of direct tracing due to use of mass balancing and inclusion of purchases from traders, and the actual percentage of directly traced cocoa is estimated to be around 30%. As one expert explained, "We see that their [companies'] direct supply chains are actually less than half of their of the total. Rather around 30%, around one-third so."

a future date, whereas spot contracts are for immediate delivery.[31] Both contracts specify the price based on origin, grade, quantity of cocoa beans, and delivery date.[32]

Futures contracts are fundamental in determining international cocoa prices. All traders, processors, and manufacturers use futures contracts to hedge risk (Dand, 2010; Reuters, 2024d). A large chocolate manufacturer can typically forecast demand a year in advance, allowing it to hedge business risk by acquiring futures contracts or engaging in private trades. As one cocoa expert key informant explained:

> *"A chocolate brand will hedge their risk by buying on the futures market, and when they buy the physical cocoa, they buy the differential and then they swap their futures hedge with the physical what's called price fixation (in most origins) using the futures market."*
>
> *—Cocoa expert*

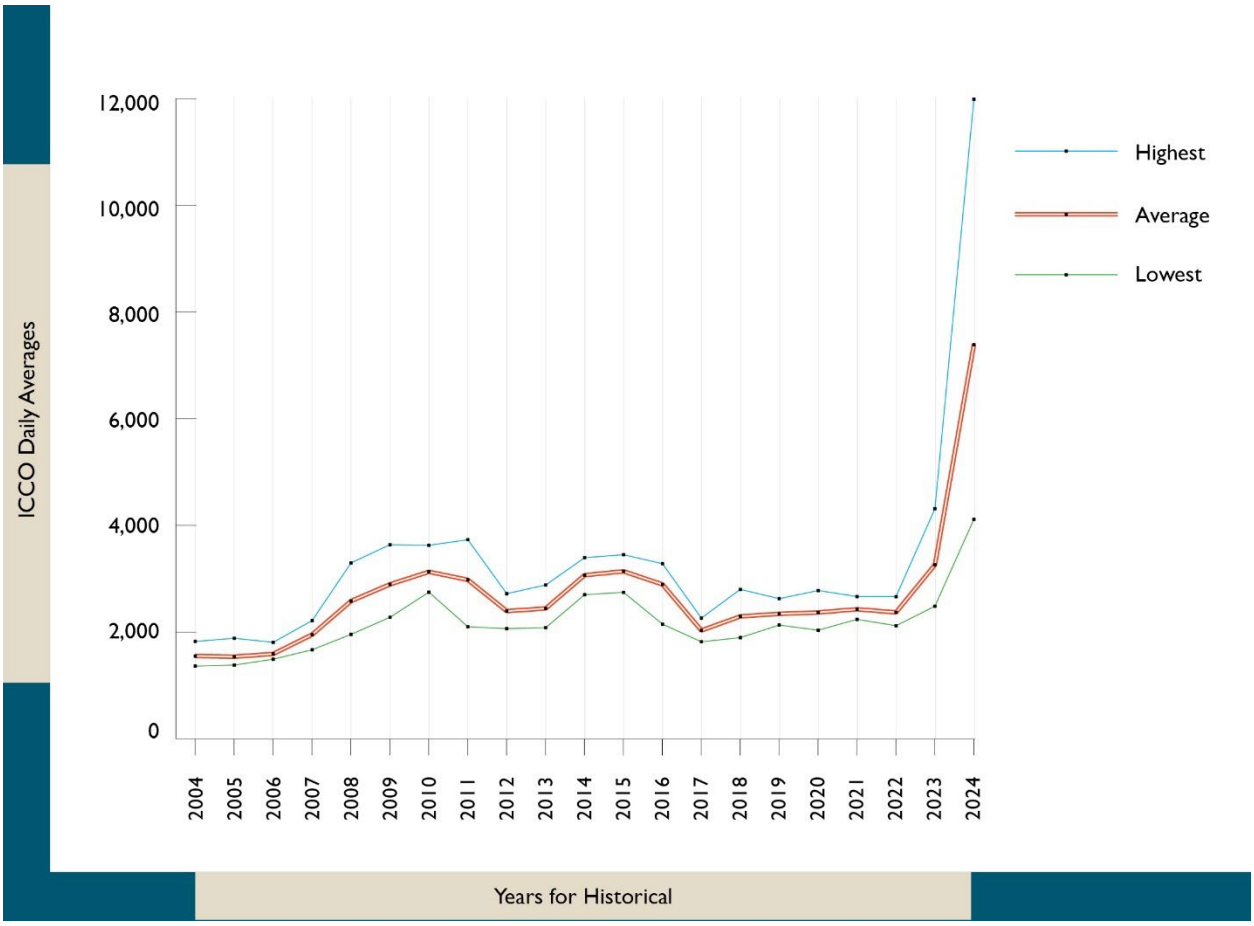
There are currently two venues in which cocoa futures contracts can be traded, ICE Futures U.S. (New York) and ICE Futures Europe (London), both of which take into account the ICCO's daily cocoa bean price (International Cocoa Organization, 2024).[33] Figure 5 illustrates the fluctuation in annual prices from 2004 to 2024, and highlights both the volatility and historically high prices seen in 2024.

[31] Approximately 95% of cocoa beans are traded on international commodity markets; the remaining 5% of cocoa beans de-linked from financial markets are almost exclusively premium beans (Staritz et al., 2022; Swiss Platform for Sustainable Cocoa, 2025).

[32] Valuation is also impacted by the "combo," which is the value of the semi-processed products (cocoa paste, cocoa butter, cocoa powder) that can be extracted from a particular cocoa bean. ICCO publishes average international conversion rates, but extraction rates vary by country. See Section 4: Cocoa in International Trade: National Trading Patterns.

[33] The ICCO calculates the daily cocoa bean price by averaging the closing quotations of the nearest three active futures trading months on both the ICE Futures Europe (London) and ICE Futures U.S. (New York) exchanges. The London prices are then converted into U.S. dollars per MT using the prevailing six-month forward exchange rate in London at the time of closing (International Cocoa Organization, 2025d).

Figure 5. ICCO cocoa bean daily price: Annual average, high, and low for 2004–2024 (USD/MT)



Source: ICF; ICCO, 2025

2.4.2 Spot Contracts and Physical Differential Trading[34]

Spot transactions involve a contract for the sale of physical cocoa beans for prompt delivery, although that delivery may not be realized. In spot contracts, exporters or companies offer cocoa beans for sale to buyers (grinders and traders), typically through over-the-counter contracts (Dand, 2010; International

[34] Adding to the complexity of valuation and trade of cocoa are traders who conduct private trades based on the physical differential, both in over-the-counter trades and on exchanges. In cocoa trading, the physical differential is the price premium or discount of an actual physical lot of cocoa beans relative to the standardized price of a cocoa futures contract.
An industry expert noted that the physical differential valuation is based on the futures benchmark, but adjusted for quality, origin, quantity, combo, LID, and market conditions. This means that in addition to the actual quality of the beans, the valuation can change daily based on market conditions. When the futures price is higher than the spot price (a situation known as "contango"), there is an incentive for buyers to wait and buy cocoa in the future when prices would be lower; therefore, cocoa beans would trade at a discount. When the spot price is higher than the futures benchmark (a situation called "backwardation"), buyers are incentivized to buy immediately as prices will be higher in the future; therefore, cocoa beans would be traded at a premium.
When traders quote cocoa prices, they quote the additional value above or discount below the futures price rather than the futures price itself. As an industry representative explained, "*If you said to me today, what is Ghana trading at? I would give you a physical differential. I would say it's trading at $200 over. I wouldn't say it's trading at $5,670.*" Buyers then decide whether to purchase beans at the physical differential, considering processing costs and sale of semi-processed goods. If buying beans at the physical differential is profitable, the physical differential increases as demand rises. If it is not profitable, the physical differential falls. The physical differential market thus impacts futures markets and can increase price volatility.

Trade Centre et al., 2001). Pricing of spot contracts is tied to the anticipated future price of cocoa, as indicated by futures contract prices (Dand, 2010; United Nations Conference on Trade and Development, 2023). Spot and future prices are closely interlinked, as the price reflects the cost of buying a futures contract to hedge against risk. Chocolate manufacturers rarely buy on the spot market; they generally buy from private traders or grinder-traders and make a separate financial transaction to hedge in the futures market (Dand, 2010; Staritz et al., 2022).[35]

> *"Most companies aren't really on the spot market unless there's a real urgent need to because they tend to trade a lot longer beforehand because, especially the brands like Hershey, they've got a pretty good idea of how much cocoa they're going to need at any given quarter of the year."*
>
> *—Cocoa sector NGO representative*

2.4.3 Industry and Farmer Responses to Price Volatility

Price fluctuations posed significant challenges for companies in 2024, requiring them to employ a wide variety of risk management strategies (Food Industry Executive, 2024). Rising cocoa bean costs increased the capital needed to maintain reserves and required a larger margin for future hedges. To mitigate business risk, companies not only employed financial risk management strategies but also diversified their sourcing, particularly from Nigeria, Cameroon, and Ecuador. They tapped into existing cocoa reserves, experimented with product reformulation, and raised prices for certain downstream consumer chocolate products (Langton, 2025; Voora et al., 2019). Exponential increases in market prices put pressure on cooperatives and small domestic firms, which often struggled to make full upfront payments in the face of rapid price increases to smallholder farmers (Clarmondial, 2025; Roy, 2024; SPPGlobal, 2025).

Governments and large cocoa industry stakeholders possess a variety of advanced risk management tools, but smallholder farms have very few options to hedge risks (International Cocoa Organization, 2024). Many smallholder farmers live in poverty, face immediate liquidity needs, have limited buyer options, lack warehousing for perishable cocoa beans, and employ inadequate agricultural practices to stabilize yields (Ridgwell, 2023). Risk management strategies for smallholder farmers vary across countries, but they often involve avoiding government price setting through illegal domestic trades or smuggling, deforestation to expand arable land, or repurposing land to grow other crops or allow illegal mining (Darko et al., 2025; Reuters, 2025).

3 LABOR EXPLOITATION IN SUPPLY CHAINS IN COCOA-PRODUCING COUNTRIES

Child labor and forced labor remain significant and well-documented risks in global cocoa production, particularly in major supplying countries. In CDI, 41% of children in cocoa-growing households are engaged in child labor, representing approximately 790,000 children, with 86% performing hazardous tasks (U.S. Department of Labor & NORC, 2020). In Ghana, the prevalence rate is 94%, affecting approximately 667,800 children, with 89% performing hazardous tasks (U.S. Department of Labor & NORC, 2020). Independent investigations have also identified indicators of forced labor among adult and migrant workers in cocoa production, including cases involving coercion, debt bondage, retention of identity documents, abusive working conditions, and restrictions on freedom of movement in CDI, Ghana, Nigeria, Cameroon, Brazil, and Ecuador (U.S. Department of Labor, 2024b; Verité, 2019). Despite widespread corporate commitments and certification programs, multiple assessments conclude that child labor prevalence has remained persistent and, in some cases, increased over time, and that

[35] This separate financial transaction is often called "Differential Pricing" or "Basis Trading." Many manufacturers buy physical cocoa at a price specified as "Futures Price + or - a Differential" (Dand, 2010).

cocoa produced with child labor or forced labor continues to enter international supply chains and downstream consumer markets (U.S. Department of Labor, 2024b; U.S. Department of Labor & NORC, 2020).

3.1 STRUCTURAL ECONOMIC FACTORS

Severe poverty among cocoa-growing households represents the most pervasive structural driver of labor exploitation across all major producing regions. In West Africa, 16% of Ghanaian cocoa farmers earned below $1.90 per day, slightly higher than the national poverty average (Tulane University & Walk Free Foundation, 2018), and 73–90% of cocoa households failed to achieve the "Living Income" benchmark (van Vliet et al., 2021). Across all crops, 72% of Nigerian smallholder farmers lived below $1.90 per day (Free the Slaves, 2024). Poverty rates reached 69% among Cameroonian cocoa farming families (Frontiers, 2021). Although the rate of poverty among cocoa farmers in Guinea could not be found, 43% of Guinea's population lived below the poverty line (World Bank, 2025). Similar conditions prevailed beyond Africa: half of rural farmers in Bahia, Brazil earned monthly incomes below $320 against a net living wage of $512 (Sevilla et al., 2024), and Ecuadorian small-scale producers averaged just $494 annual profit, or $1.35 daily (Sevilla et al., 2024). Sierra Leonean farmers received only 6% of final chocolate bar value, earning $1.90–$3.20 daily (Techagro, 2023).

The degree to which farmers' income is dependent on cocoa sales intensifies vulnerability. Cocoa represented 79% of income for cocoa farmers in Bahia's cocoa territory (Sevilla et al., 2024) and approximately 50% of income for Cameroonian cocoa farmers (Frontiers, 2021). This dependency, combined with seasonal income variations and price volatility, results in families relying on unpaid household labor, including children, when hiring adult workers becomes prohibitively expensive.

Many smallholder farmers have low yields per hectare. This low productivity contributes to the poverty that many farmers face. Capital constraints limit improvement prospects, with approximately 80% of Ecuadorian farmers lacking credit access (Sevilla et al., 2024; U.S. Department of Labor, 2024a) and Nigerian farmers facing complicated application processes that force reliance on informal financing with poor terms (Free the Slaves, 2024).

3.2 SOCIAL INFRASTRUCTURE DEFICITS

Limited educational access in cocoa-growing regions creates vulnerability across all contexts. Education in Ghana has experienced persistent challenges with long distances to schools, security concerns, poor infrastructure, and quality issues in remote areas (NORC, 2020; Zegers, 2024). Brazil experienced 9.5-month COVID-19 school closures, resulting in a 171% increase in out-of-school children aged 6–14 by 2021 (Sevilla et al., 2024). Cameroon faced student-teacher ratios of 49:1 alongside inadequate infrastructure, including a lack of toilets and sanitation (U.S. Department of Labor, 2025b). Sierra Leone confronted barriers that included indirect costs, illegitimate school fees, lack of qualified teachers and secondary schools, and violence in schools despite recent reforms (U.S. Department of Labor, 2025b).

Geographic remoteness isolates cocoa-farming communities from essential services across producing regions, and cultural attitudes normalize children's work within family-based production systems. For example, Nigerian farmers reported viewing their children's engagement in cocoa farming not as child labor but as necessary socialization perpetuated across generations (Free the Slaves, 2024; Williams & Famuyiwa, 2016).

3.3 GOVERNANCE AND ENFORCEMENT GAPS

Weak labor inspection capacity represents a near universal constraint across cocoa-producing countries. Ghana faced social welfare staff struggling to carry out work due to the lack of transportation and logistics, with insufficient capacity to address violations in rural areas, creating environments in which

labor abuses occurred with impunity (Zegers, 2024). Ecuador had only 160 labor inspectors against an International Labor Organization-recommended 556 for its workforce (U.S. Department of Labor, 2024a; Sevilla et al., 2024). Cameroon had 224 inspectors covering 11.6 million workers—29% of recommended capacity—yielding an inspector-to-worker ratio of 1:49,638 (U.S. Department of Labor, 2025b). Sierra Leone had 28 inspectors for 2.8 million workers who conducted 600 inspections in 2023, finding zero child labor violations, indicating monitoring limitations rather than compliance (U.S. Department of Labor, 2024a). Indonesia's Ministry of Manpower acknowledged lacking financial resources and personnel to enforce child labor laws across the archipelago's remote farming areas, complicated by fragmented smallholder production involving more than 1.4 million farming households (U.S. Department of Labor, 2024a).

Cross-border trafficking vulnerabilities persist due to porous borders and migration flows. West African countries faced documented trafficking routes with networks of recruiters facilitating movement of vulnerable migrants from Mali, Burkina Faso, and Togo (Verité, 2019; Zegers, 2024). Ecuador confronted vulnerabilities from Venezuelan and Colombian migration flows, with limited documentation and irregular status increasing exploitation risks (Sevilla et al., 2024). Guinea's informal economy, accounting for 96% of the country's employment and 42% of the gross domestic product in 2023, created conditions in which informal hiring without written contracts, wage transparency, or legal oversight allowed exploitative practices (African Development Bank, Guinea Economic Outlook 2023).

3.4 RECENT DEVELOPMENTS AND PERSISTENT CHALLENGES

Government efforts to address child labor and forced labor in cocoa production have varied substantially. West African nations implemented successive national action plans, with CDI establishing a national Child Labor Monitoring and Remediation System (CLMRS) and Ghana creating both a CLMRS and Child Labor Free Zones through its National Steering Committee (Zegers, 2024). Ecuador passed the 2023 Law Against Human Trafficking and trained all 160 labor inspectors on child labor prevention (U.S. Department of Labor, 2024a). Sierra Leone enacted the Anti-Human Trafficking and Migrant Smuggling Act of 2022 prescribing minimum 25-year imprisonment penalties (U.S. Department of State, 2024). Guinea adopted a National Action Plan against Trafficking in Persons (2023–2026) after years of limited political action (U.S. Department of State, 2024).

However, implementation gaps persist. Ecuador's Prevent and Eradicate Child Labor Policy (2021–2025) faced delays due to political instability and resource constraints (U.S. Department of Labor, 2024a). Nigerian farmers reported "nobody, no government, no partnership, nothing done to us" regarding interventions (Free the Slaves, 2024). Ghana experienced insufficient decentralized government funding to implement needed community-level activities (Zegers, 2024). In Brazil, there was a reduction in social programs addressing child labor from 2016 to 2022, and rebuilding of these programs continues (Sevilla et al., 2024).

Private sector traceability efforts have expanded, with Cameroon achieving 99% cocoa-coffee sector traceability ahead of EU requirements (Business in Cameroon, 2025) and Barry Callebaut achieving 100% traceability in Ecuador (U.S. Department of Labor, 2024a). Yet certification programs reach only a minority of producer populations, with Brazilian cooperatives covering approximately 11% of cocoa farmers (Sevilla et al., 2024) and industry-backed child protection systems in Cameroon covering only an estimated 10–20% of the supply chain (Verité, 2021). Unlike West African comprehensive monitoring systems, Indonesia lacks systematic child labor monitoring specific to cocoa.

4 STRUCTURAL FACTORS SHAPING SUPPLY CHAINS IN COCOA-PRODUCING COUNTRIES

This section synthesizes cross-cutting themes from the country-level supply chain profiles presented in Appendix 7, which provides detailed national summaries and trade data for nine producing countries: CDI, Ghana, Brazil, Indonesia, Ecuador, Nigeria, Cameroon, Guinea, and Sierra Leone. The following discussion draws on those profiles to identify common structural factors—including production trends and constraints, market regulation, poverty dynamics, supply chain fragmentation, smuggling, and traceability challenges—that shape cocoa supply chains across producing regions.

4.1 PRODUCTION TRENDS AND CONSTRAINTS

Cocoa production faces interconnected challenges across producing countries: shifting regional output, constraints on land expansion, and wide variation in farm-level productivity. These factors shape both current supply patterns and future growth potential.

Prospects for future production growth are constrained by three interrelated factors: price volatility, deforestation, and competing land uses (including diversion of cocoa farms toward other agricultural crops and illegal gold mining). Country-specific land constraints further complicate expansion. In Brazil, opportunities for new cocoa plantings are limited by competition with more profitable crops and the presence of protected rainforest (Nicholson & Teixeira, 2018). Land expansion in Cameroon and the Democratic Republic of the Congo (DRC) would likely encroach upon remaining forest areas, rendering cocoa ineligible for European markets under the EU Deforestation Regulation (EUDR) (KII, Industry Expert; Due Diligence Design, 2025). Indonesia is unlikely to expand cocoa acreage, given that alternative crops offer higher returns (Dröge et al., 2025).

In contrast, Ecuador is comparatively well-positioned: approximately 90% of cocoa is grown on the coastal side of the Andes, on land deforested centuries ago, allowing for expansion without triggering EUDR concerns. Ecuador also has scope to repurpose land currently used for other crops, such as bananas (Bloomberg, 2026).

There is a shift in some countries, most notably Brazil and Peru, toward a revival of large-scale plantation models through industrial agricultural investments, although the economic sustainability of large-scale cocoa farming is unproven to date (Bloomberg, 2024a, 2024b). Despite decades of investment by multinational firms such as Mars and Barry Callebaut, industrial cocoa production has struggled to deliver consistent profitability. High upfront capital requirements, long maturation periods, and the cyclical nature of cocoa prices undermine returns, raising questions about the scalability and durability of plantation-based models (KII, Industry Expert).

Beyond environmental and economic considerations, land use decisions are shaped by social, cultural, and intergenerational factors. In West Africa, land is often inherited and subdivided across generations, resulting in small plot sizes. Even under favorable price conditions, the limited scale of production means that cocoa income alone is frequently insufficient to lift households above the poverty line, constraining long-term investment and resilience (KIIs, Industry Experts).

Productivity varies dramatically across and within producing countries, reflecting fundamental challenges related to tree genetics and farm management. Smallholder farmers in Ecuador can achieve yields of 1.5 tons per hectare using improved varieties, while farmers in CDI and Ghana produce only 0.15–0.6 MT per hectare. Cocoa yields in Sierra Leone average 0.34–0.41 MT per hectare (KII, Industry Representative). In Indonesia's West Sulawesi region, average productivity is estimated at 0.4 MT per hectare, although sources suggest that potential yields could reach 1.5–2.0 MT per hectare (KII, Industry Representative).

These disparities can be explained in large part by three factors: choice of cocoa varietal, farming techniques, and the age of existing tree stock. Ecuador's relatively high productivity is broadly the result of recent and widespread adoption of the CCN51 cocoa varietal (KII, Industry Expert). In contrast, regulatory restrictions in countries such as Ghana and CDI limit farmers' access to clonal material, grafting techniques, and alternative rootstock systems that could significantly enhance yields (KII, Industry Expert).

Disease represents an ongoing and systemic threat. CSSVD lurks in West African plantations, and experts warn that the next major weather event, such as an El Niño, could devastate crops due to widespread tree weakness and unknown infection rates (Fountain & Huetz-Adams, 2025). Inadequate disease surveillance and limited intervention capacity heighten the risk of further yield declines. One expert noted:

> *"And everybody knows that CSSV is lurking in the background. So next time there's a big weather event like an El Niño, it's going to have a massive hit on those two crops [the cocoa crops in Ghana and CDI] because of the weakness of the trees, because of CSSV and nobody knows how many trees are infected and impacted."*
>
> *—Industry representative*

4.2 REGULATED MARKETS

The cocoa sector exhibits stark contrasts in market organization. CDI and Ghana operate highly regulated systems with government-controlled pricing mechanisms and selling structures, while other producers maintain more liberalized markets (U.S. Department of Agriculture Foreign Agricultural Service, 2025a, 2025b). This regulatory divergence had pronounced effects in 2024, when fixed farmgate prices in regulated markets failed to keep pace with rapid increases in international cocoa prices. The resulting price differentials created strong arbitrage incentives, fueling cross-border smuggling into neighboring countries with more favorable pricing.

4.3 POVERTY

Persistent poverty and chronic liquidity challenges shape farmer behavior and short-term decision making throughout the cocoa sector. When farmers lack access to timely payment or credit, they may engage with informal traders who offer immediate cash at lower prices (Fountain & Huetz-Adams, 2025; Susie Lonie et al., 2017).[36] Without reliable cash flow, participation in formal systems becomes untenable for those at the bottom of the value chain.

Chronic price and income volatility reinforces these short-term pressures. When farmers cannot predict whether next season's prices will cover their costs, they are unlikely to invest in productivity improvements such as replanting aging trees, adopting improved varieties, or implementing better agronomic practices—all of which require upfront capital and years to generate returns. The resulting low yields perpetuate low incomes, which in turn perpetuate the liquidity constraints that push farmers toward informal markets. This cycle entrenches dependence on immediate cash sales outside formal systems, making sustained participation in regulated supply chains structurally difficult even when farmers recognize the potential long-term benefits of traceability and certification programs.

Recent production volatility in CDI and Ghana, including the 2023–24 harvest shortfall attributed in part to the spread of CSSVD and adverse weather, has placed additional downward pressure on farmer

[36] Counterintuitively, this dynamic was exacerbated by the 2024 surge in international cocoa prices. While cocoa commodity prices rose sharply, farmgate prices in regulated markets failed to adjust proportionally, leading to a situation in which farmers willing to sell through unregulated and informal markets benefitted from the rise in global cocoa products more than those who continued to sell through regulated markets (Haar et al., 2025).

incomes in a context of government-controlled farmgate prices that failed to track rising world market prices (KII, Cocoa Trader). Key informants noted that when farmgate prices fall short of what open-market sales would yield, side-selling increases and cocoa moves outside traceable channels, directly undermining the supply chain transparency on which forced labor and child labor monitoring depends (KII, Sustainability Expert). These dynamics suggest that harvest instability is not merely an agricultural issue but a structural driver of both child labor risk and supply chain opacity.

4.4 FRAGMENTED SUPPLY CHAIN: INTERMEDIARIES

The cocoa supply chain in producing countries is highly fragmented, with beans typically passing through multiple informal intermediaries, which severely hinders traceability. Farmer organization remains critically weak: only 21% of Ivorian farmers, 11% of Ghanaian farmers, 30% of Ecuadorian farmers, and 20–30% of Cameroonian farmers belong to cooperatives or associations (Gaia Cacao B.V., 2021). This lack of collective organization can undermine farmers' bargaining power in the value chain, leaving them vulnerable to price exploitation and unable to negotiate favorable terms.

The rising prices of 2024 created additional challenges for cooperative systems. Many cooperatives lacked the liquidity needed to pay farmers upfront, due to delays between bean delivery and payment from traders. This liquidity constraint incentivizes farmers to sell to informal traders who offer immediate cash payment, further fragmenting the supply chain and reducing traceability (Lartey, 2026; Reuters, 2026).

4.5 SMUGGLING

Smuggling undermines efforts to build transparent, sustainable supply chains. In CDI and Ghana, illegal domestic trade and smuggling also put pressure on the system that is designed to support farmers' income during boom-and-bust years. Smuggling flows in the 2023/2024 season were primarily directed from Ghana (estimated 160,000 MT) to CDI, Togo, Guinea, and Liberia; from CDI to Guinea and Liberia (estimated 150,000 to 200,000 MT); from Cameroon to Nigeria (estimated 200,000 MT); and from DRC to Uganda (up to 80,000 MT) (Atabong, 2023; Ecofin Agency, 2025a; France 24, 2024; Furlan, 2025a; International Cocoa Organization, 2023; Reuters, 2024c; Wahome, 2025).[37] Smuggled cocoa lacks traceability and cannot meet sustainability certification requirements, yet it enters legitimate supply chains through various points of mixing and opportunistic procurement.

4.6 CO-MINGLING AND TRACEABILITY CHALLENGES

The structural features described in the preceding sections—fragmented intermediary networks, weak farmer organization, poverty-driven liquidity needs, and cross-border smuggling—combine to create persistent traceability challenges. Cocoa beans pass through multiple points of aggregation and co-mingling as they move from farm to final product, obscuring the origins of individual batches and making it difficult to verify whether cocoa was produced under exploitative labor conditions.

Co-mingling begins at the farm level. Cocoa beans are typically fermented on smallholder farms, then cleaned and dried before sale. During this process, beans from several plots are often mixed to meet quality or quantity requirements. Farmers frequently sell to multiple buyers and may belong to several cooperatives, creating uncertainty about the destination of any given batch. The sale of cocoa from farm to trader is generally informal and undocumented.

[37] DRC presents an extreme case, in which up to 80% of cocoa passes through opaque criminal circuits involving armed groups and corrupt military personnel before being smuggled to Uganda, where it receives Ugandan certificates of origin and enters international markets (Furlan, 2025a).

At the cooperative and buying station level, cocoa from multiple farms and traders is further aggregated. In Ghana, Licensed Buying Companies co-mingle beans from multiple farmers into standardized jute bags and can pay for segregation to maintain traceability, but this is rarely done in practice. At district depots, beans are aggregated again before sale to exporters. Similar patterns exist across producing countries: the upstream transaction from farmer to first buyer remains largely outside formal tracking systems.

The instability of sourcing relationships compounds these challenges. Farmers frequently switch between buyers across seasons, and when liquidity constraints or price differentials arise, they have incentives to sell to informal traders who offer immediate cash, bypassing formal systems entirely. One researcher estimated that companies' direct supply chains—in which traceability systems can be applied—represent less than half of total volumes, with the remainder flowing through indirect channels that lack systematic monitoring.

Smuggled cocoa, which lacks any traceability documentation, enters legitimate supply chains through various points of mixing and opportunistic procurement. Even major trading companies cannot fully avoid smuggled beans when completing procurement targets under competitive market conditions.

At export and processing stages, co-mingling continues. Corporate consolidation at the grinding stage—in which a small number of companies control the majority of global processing—multiplies aggregation points as grinders source beans from hundreds of thousands of farmers across multiple countries. Semi-processed cocoa products are then traded internationally at volumes comparable to raw beans, introducing additional complications as cocoa moves across borders and between companies.

The cumulative effect is that cocoa produced with child labor or forced labor can enter supply chains at any stage and become indistinguishable from compliant cocoa by the time it reaches processors or importers. Without comprehensive traceability systems that track cocoa from individual farms through all points of aggregation, downstream consumers and importers cannot verify whether their cocoa ingredients were produced with exploitative labor. The cycle of poverty, fragmented supply chains, volatile prices, and inadequate structural investment perpetuates a system in which labor abuses remain undetected.

5 COCOA IN INTERNATIONAL TRADE: NATIONAL TRADING PATTERNS

This section examines international trade patterns in cocoa beans, semi-processed cocoa, and chocolate products, with attention to the major importing countries and regional processing hubs that shape global flows. Appendix 8 provides detailed country profiles, including import volumes, source markets, and domestic processing and manufacturing activities, for five key importing countries: the Netherlands, Belgium, Germany, Switzerland, and the United States. The following discussion draws on those profiles to identify broader patterns in cocoa trade and the role of major destination markets in the global supply chain.

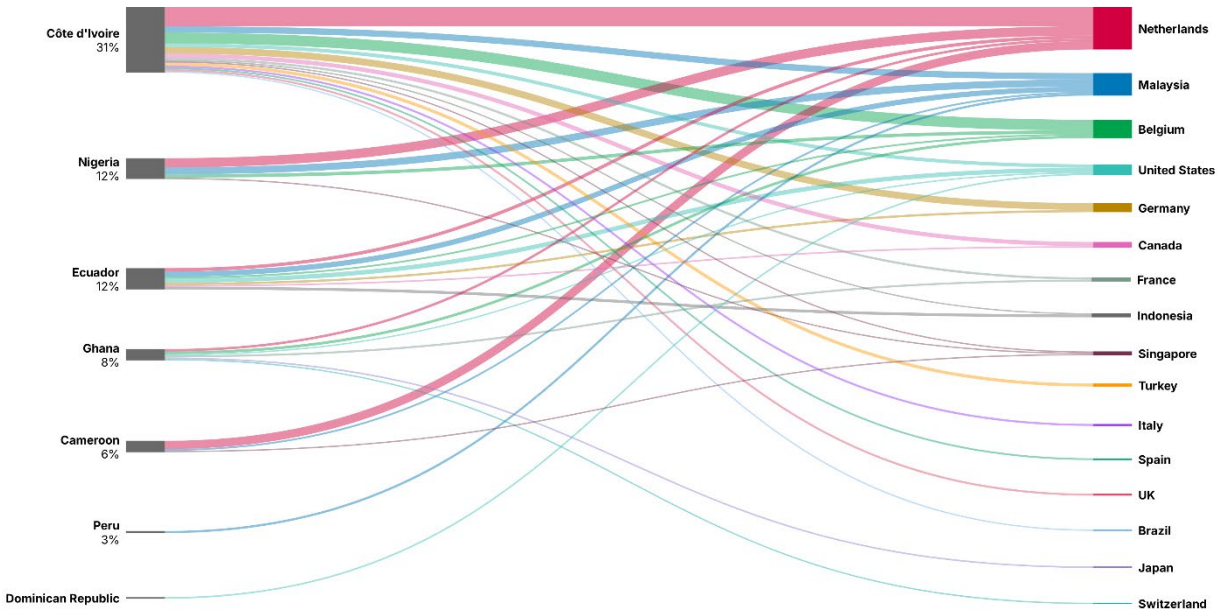
5.1 GLOBAL COCOA TRADE OVERVIEW

The global cocoa supply chain is highly complex, characterized by extensive international trade, multiple stages of processing, and frequent co-mingling of cocoa beans and semi-processed products from different origins. Given the documented presence of child labor and forced labor in major cocoa-producing countries (See, e.g., Furlan, 2024a, 2024b, 2024c, 2025b, 2025c; Sevilla et al., 2024; U.S. Department of Labor, 2024c; Verité, 2019; Zegers, 2024), the complexity of this supply chain creates a

high risk that downstream and intermediate cocoa and chocolate products contain cocoa produced with exploitative labor.[38]

The trade of cocoa from producing countries remains heavily weighted toward raw bean exports. In 2024, West African countries led bean exports, along with Ecuador and Peru. Following significant yield declines in CDI and Ghana, Nigeria and Ecuador became the second and third largest exporters, surpassing Ghana (Trade Data Monitor, 2025) (see Appendix 3). West Africa (comprising CDI, Ghana, Nigeria, Cameroon, and Guinea) accounted for 64% of global cocoa bean exports by volume and 60% by value (Trade Data Monitor, 2025). Figure 6 shows trade flows from top exporting countries.

Figure 6. Cocoa bean exports of top producing countries by value to destination markets, 2024



Notes: This figure does not include exports from non-cocoa-producing countries, as those trade flows represent a re-export; nor does it include the export of semi-processed goods from producing countries.[39] In this figure, trade flow figures are reported by value (USD) to reflect the relative economic weight of each origin-destination corridor.
Source: Created by ICF; Trade Data Monitor, 2025

Brazil, the fifth largest producer in 2023 at 5% of global production, is notably not one of the world's major cocoa-exporting countries (Trade Data Monitor, 2025). Unlike other major South American exporters, such as Ecuador and Peru, Brazil is a net importer of cocoa that uses most domestic beans to supply its processing industry (Sevilla et al., 2024).

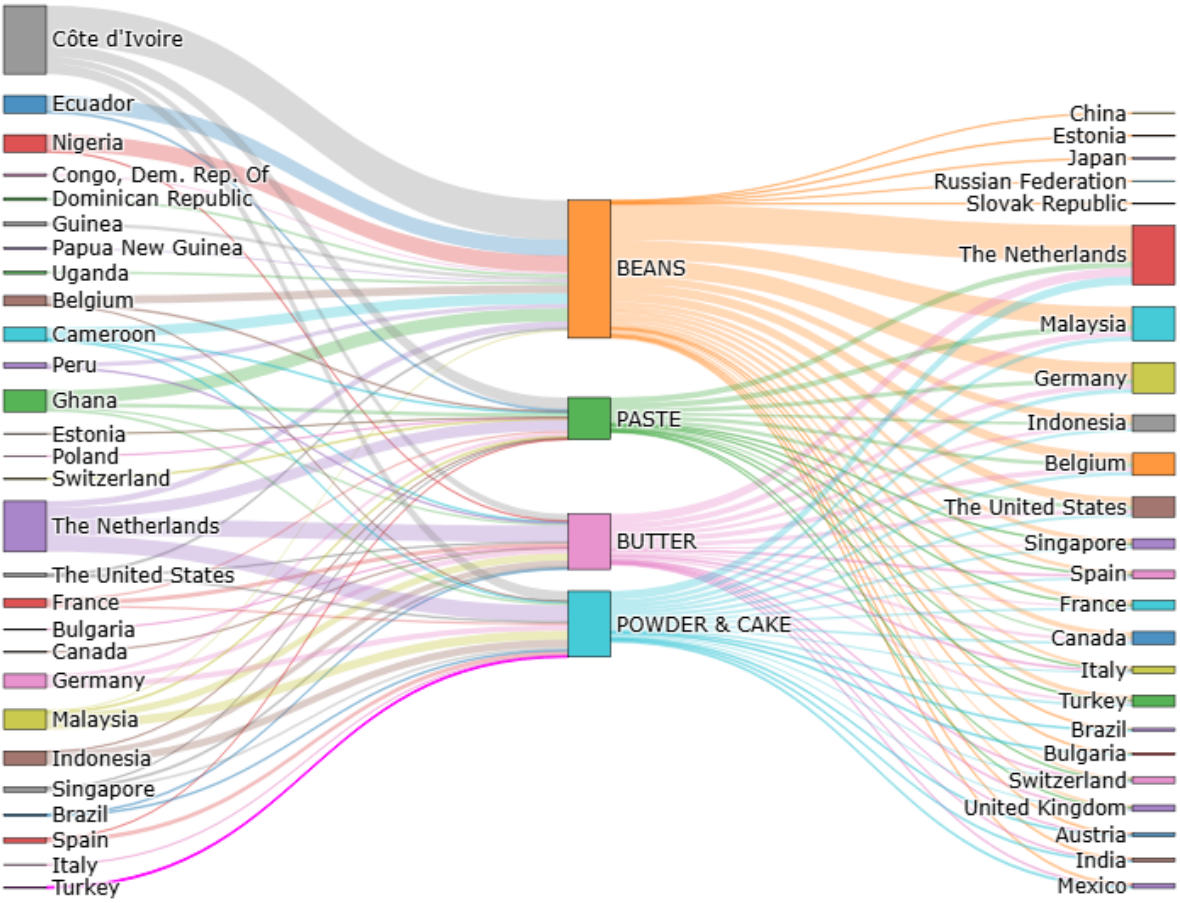
Cocoa beans are processed into paste, butter, or powder, either domestically or after export. In 2024, semi-processed cocoa exports totaled $25.5 billion in value. The Netherlands accounted for nearly a quarter of exports (see Appendix 3: Import and Export Statistics). The next four largest exporters (CDI, Germany, Indonesia, and Malaysia) represented 44% of export volume and 40% of value (Trade Data Monitor, 2025). Import markets were more dispersed: the Netherlands, Germany, Belgium, and the

[38] Appendix 7 provides a brief national summary and trade profiles of select producing countries (CDI, Ghana, Brazil, Indonesia, Ecuador, Nigeria, Cameroon, Guinea, and Sierra Leone), and Appendix 8 provides profiles of major cocoa-importing countries (the Netherlands, Belgium, Germany, Switzerland, and the United States).
[39] CDI is the leading global grinder and leading exporter of cocoa paste (33% by volume, 16% by value) and Ghana is third (8% by volume and value) (Trade Data Monitor, 2025).

United States collectively accounted for approximately 40% of imports in roughly equal shares, followed by France and Poland (see Section 5.2.2: Semi-processed cocoa and Appendix 3: Import and Export Statistics for more detail).

Figure 7 offers an estimation of trade patterns from importers to exporters, categorized by product.[40] Semi-processed cocoa products are traded in comparable volumes and ultimately contribute to the final chocolate products.

Figure 7. Trade flows for cocoa beans, paste, butter, powder, and cocoa cake, 2023/2024[41]



Source: ICCO February 2025 Quarterly Bulletin of Cocoa Statistics, Vol L1 No. 1, cocoa year 2024/25

5.2 COCOA PRODUCTS

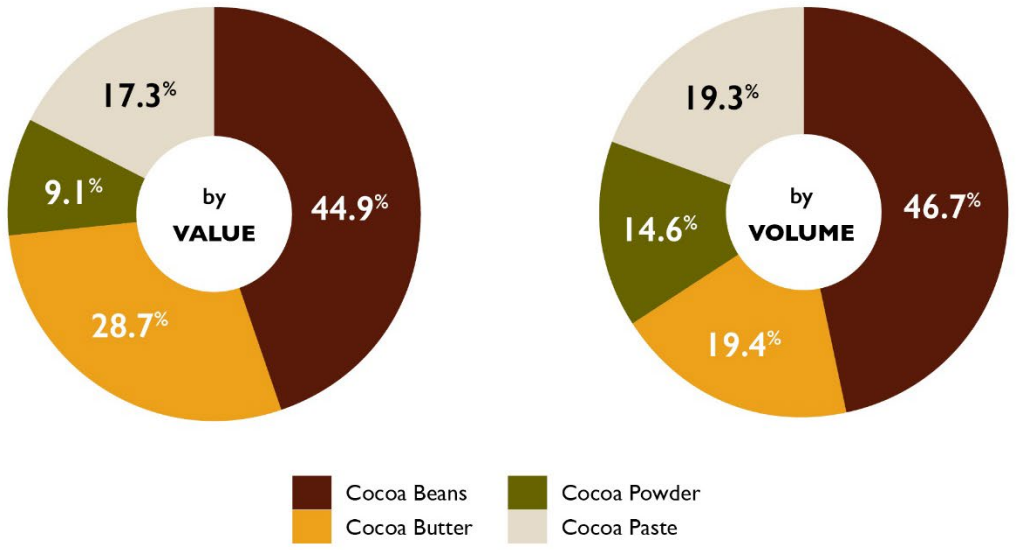
Cocoa beans are traded across various physical and financial markets, in which their pricing is affected by the downstream value of semi-processed cocoa. In the realm of international trade, semi-processed cocoa products are exchanged in proportions that are relatively equal to those of cocoa beans. Therefore, effective traceability of supply chains into chocolate products requires the traceability of not just cocoa beans, but of all semi-processed cocoa products. Although cocoa beans can only be initially exported from the countries that cultivate them, they are also re-exported by importing countries.

[40] This graphic is based on cocoa MY 2023/24.
[41] ICCO classifies cocoa cake with cocoa powder, whereas this study reports cocoa cake with cocoa paste. ICCO-adjusted quantitative trade data was calculated using the average global cocoa bean conversion rate (see Appendix 6: Cocoa Bean Equivalents).

Conversely, semi-processed cocoa can be produced and exported by any country that either grows or imports cocoa beans.

In 2024, cocoa beans accounted for 44.8% of the value and 46.7% of the quantity of the cocoa product trade, followed by cocoa butter (28.7% of value and 19.4% of quantity), cocoa paste (17.3% of value and 19.3% of quantity), and cocoa powder (9.1% of value and 14.6% of quantity) (Trade Data Monitor, 2025). While cocoa butter is traded at a relatively higher value-to-volume ratio compared to cocoa powder, the market share of cocoa products remained relatively stable in terms of volume and value across different semi-processed cocoa products. In 2024, cocoa butter was sold at a higher price than cocoa powder. The prices of cocoa butter and cocoa powder typically exhibit an inverse correlation, as both cocoa butter and cocoa paste are produced from pressing cocoa paste, yet they are purchased by distinct end users (Keylink Limited, 2025).[42] Cocoa butter is mainly used in chocolate manufacturing, whereas cocoa powder is predominantly used in other cocoa-based food products.

Figure 8. Cocoa products' share of total global imports, by value and volume,[43] 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importers. Value, quantity, as reported by importers and converted into cocoa bean equivalent (see Appendix 6).

5.2.1 Cocoa Beans

Cocoa beans are primarily exported from producing countries in the form of raw beans, rather than an intermediate cocoa product. In 2023, 3.6 million MT of cocoa beans were exported, representing 62% of the total annual global bean production of 5.6 million MT (Trade Data Monitor, 2025; FAOSTAT,

[42] For example, if a processor had an order for 100 MT of cocoa butter and 80 MT of cocoa powder, they would need to press 200 MT of cocoa paste to produce 100 MT of cocoa butter but would also have an excess of 20 MT of cocoa powder. Thus, the imbalance between the supply and demand of cocoa powder would result in a lower price for cocoa powder.

[43] Volume in this figure represents the ICCO cocoa bean equivalent for cocoa paste, cocoa butter, and cocoa powder. See Appendix 6 for details on conversion ratios. In this report, the bean conversion ratios are used in this figure only to allow for international comparison. However, the international bean conversion ratio is not used for individual county analysis, as the conversion rate varies. As one industry expert explained, "Ghana bulk bean is the highest priced. Indonesia as a bulk bean is the lowest price. The reason is because of the yield and the quality you get from the cocoa bean. So, a baked cocoa bean is index 100. In a Ghana bean, you probably get 84% liquor. In Indonesian bean, you probably get less than 80%, so it's proportionally lower priced and that's how the value is dictated."

2025).[44] As shown in Table 1, even as cocoa bean prices increased in 2023 and skyrocketed in 2024, volume remained relatively constant.

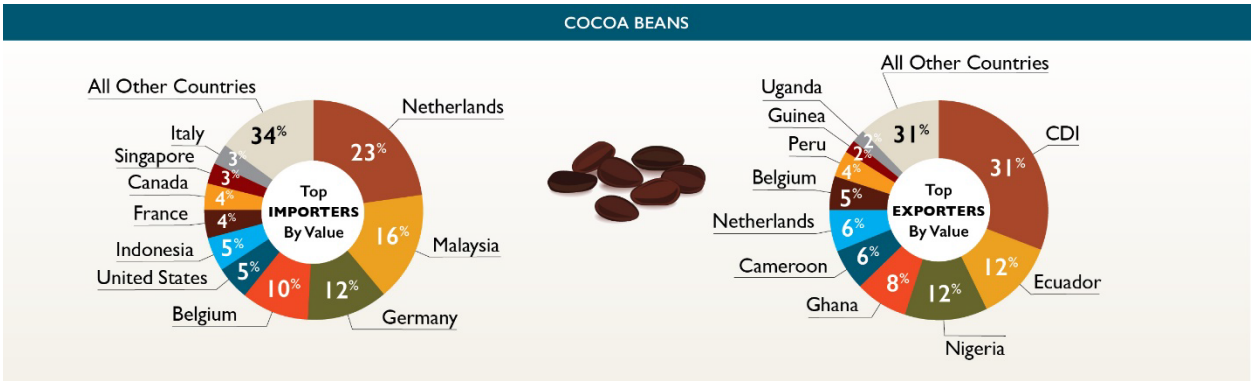
Table 1. Global imports of cocoa beans, 2022–2024

	YEAR		
	2022	2023	2024
Value (USD)	$ 9,008,608,828	$ 10,963,379,875	$ 20,785,276,107
Volume (MT)	3,647,877	3,647,877	3,567,044

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importers.

In 2024, the Netherlands was the largest importer of cocoa beans by value (23%), followed by Malaysia (16%), Germany (12%), and Belgium (10%) (Trade Data Monitor, 2025). CDI was the largest global exporter, accounting for nearly a third (31%) of all exports, followed by Ecuador (12%), Nigeria (12%), and Ghana (8%) (Trade Data Monitor, 2025) (see Appendix 3).

Figure 9. Top global importers and exporters of cocoa beans, by value,[45] 2024



Source: ICF. Trade Data Monitor, 2025. Value (c.i.f.), volume MT, as reported by importers. See Appendix 3: Import and Export Statistics.

Among top global exporters, two non-producing countries account for nearly 11% of cocoa bean exports by value: the Netherlands (6%) and Belgium (5%).[46] The beans exported from the Netherlands and Belgium represent beans that were imported into Europe and possibly minimally processed or cleaned and packed for export.

Among the leading cocoa-producing countries, the export market share of CDI and Brazil is relatively smaller, compared to their global production levels (FAOSTAT, 2025; Trade Data Monitor, 2025). In the

[44] Due to transportation and commercial lags, imported cocoa beans may not have been produced in the same year they were imported. While cocoa beans are perishable, if stored properly, they can be warehoused for up to two years (FlavoringFood, 2025). Proper storage during the shipping phase is particularly critical, as improper storage conditions can lead to mold growth or unwanted continued fermentation, potentially ruining entire shipments (AsstrA, 2020; Cargo Handbook, 2022; International Cocoa Organization, 2025e; Malouf, 2021; World Cocoa Foundation, 2023). In MY 2023/24, ICCO reported that 4,818 thousand MT of cocoa beans were ground internationally (see Figure 3).

[45] The percentage of market share for exporters and importers is relatively consistent, whether measured in value of volume (see Appendix 3: Import and Export Statistics for exact figures).

[46] Trade statistics typically indicate the country of export and not the country of origin.

case of CDI, the lower market share of bean exports can be attributed to its position as the leading global grinder and exporter of semi-processed cocoa products, and for Brazil, this is due to high levels of domestic manufacturing consumption.

5.2.2 Semi-processed Cocoa

Semi-processed cocoa is exported by both producing and importing countries and creates another tier of trade that compounds the complexity of supply chain tracing. Cocoa beans are processed into value-added intermediate goods (cocoa paste, cocoa butter, and cocoa powder) before being used by downstream manufacturers. In 2024, semi-processed cocoa exports totaled $25.6 billion (3.3 million MT). The market share is roughly equally divided by volume between cocoa paste (36.6%), cocoa butter (33.4%), and cocoa powder (29.6%). However, due to the higher price of cocoa butter relative to cocoa powder in 2024, cocoa butter accounted for 51.8% of market share by value, and cocoa powder accounted for 17% (Trade Data Monitor, 2025; see Appendix 3: Import and Export Statistics).

Table 2. Top exporters of semi-processed cocoa (quantity, value), 2024

Country	Quantity (MT)	Market share	Country	Value (USD)	Market share
World	3,491,055	100%	World	$ 25,510,318,194.00	100%
Netherlands	851,123	24.4%	Netherlands	$ 7,207,624,244.00	28.3%
Malaysia	475,838	13.6%	Germany	$ 3,201,895,853.00	12.6%
CDI	373,412	10.7%	Indonesia	$ 2,458,837,146.00	9.6%
Germany	333,275	9.6%	CDI	$ 2,205,634,784.00	8.7%
Indonesia	304,717	8.7%	Malaysia	$ 2,155,290,818.00	8.5%

Source: Trade Data Monitor, 2025. Value (c.i.f.) as reported by importer. See Appendix 3: Import and Export Statistics.

Table 3. Top importers of semi-processed cocoa (quantity, value), 2024

Country	Quantity (MT)	Market share	Country	Value (USD)	Market share
World	3,273,830	100%	World	$ 25,604,231,081	100%
Netherlands	372,555	11.4%	Germany	$ 3,231,926,505	12.6%
Germany	353,951	10.8%	Belgium	$ 2,415,473,730	9.4%
United States	311,274	9.5%	Netherlands	$ 2,336,469,570	9.1%
Belgium	224,230	6.9%	United States	$ 2,143,591,627	8.4%
France	200,617	6.1%	France	$ 1,899,166,768	7.4
Poland	137,557	4.2%	Poland	$ 1,396,746,788	5.5%

Source: Trade Data Monitor, 2025. Value (free on board [f.o.b.]) as reported by exporter. See Appendix 3: Import and Export Statistics.

5.2.2.1 Cocoa Paste

The first step in producing semi-processed cocoa products is to grind roasted cocoa beans into cocoa paste.[47] The cocoa paste may be consumed by domestic industries, exported, or further processed into cocoa butter and cocoa powder. Cocoa paste can be used directly as a flavoring and coloring ingredient in baked goods, food, beverages, and cosmetics. However, it is more commonly pressed to extract cocoa butter and cocoa cake solids. Cocoa cake solids are primarily used as a raw ingredient in cocoa powder. Some chocolate product manufacturers prefer to import defatted cocoa paste (cocoa cake solids), rather than cocoa powder, as producing the cocoa powder in-house allows the manufacturer greater control over the final chocolate product.[48]

[47] Cocoa paste (HS 1803) includes cocoa paste not defatted (1803.10) and cocoa cake solids (1803.20) (see Appendix 2).
[48] In 2024, cocoa cake solids (HS 1803.20) accounted for $1.3 billion of global imports, or 16% of all cocoa paste exports (HS 1803). Spain was the largest importer of cocoa paste solids. See Appendix 3.

The value and volume of annual cocoa paste annual exports are provided in Table 4. Note that although the value of cocoa paste increased from 2022 to 2024, the volume remained relatively constant.

Table 4. Global imports of cocoa paste, 2022–2024

	YEAR		
	2022	2023	2024
Value (USD)	$ 3,708,803,593	$ 4,301,936,359	$ 8,010,027,265
Volume (MT)	1,127,473	1,136,716	1,202,479

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importers. See Appendix 2 for HS codes. See Appendix 6 for bean equivalent calculations.

In 2024, Germany was the largest exporter of cocoa paste, (13%), followed by the Netherlands (12%), Belgium (10%), and the United States (8%) (Trade Data Monitor, 2025).[49] Germany was also the largest importer of cocoa paste (16%), followed by Belgium (13%), Italy (8%), Poland (8%), and Canada (7%).

Figure 10. Top global importers and exporters of cocoa paste, by value, 2024

Source: ICF, Trade Data Monitor, 2025. Value (c.i.f.), volume MT, as reported by importers. See Appendix 3.

5.2.2.2 Cocoa Butter

Cocoa paste is pressed to extract, in roughly equal measure, cocoa cake solids and cocoa butter. Estimates of downstream applications vary, but approximately 75% of cocoa butter is used by the confectionery industry. The remaining 25% is used by manufacturers of baked goods (cookies, cakes, desserts), ice cream, and liquor (Gaia Cacao B.V., 2021; Global Market Insights, 2025b).[50]

According to key informants, a modest fraction of cocoa butter is used by the cosmetics and pharmaceutical sectors. Typically, the cocoa butter acquired by these sectors is manufactured in the markets where it is used, ensuring compliance with national quality and safety regulations that are more rigorous than those applicable to the food industry (Gaia Cacao B.V., 2021).[51] Information accessible to the public regarding the use of cocoa butter in these sectors is scarce, owing to the relatively small

[49] See Appendix 8: Select Importing Countries for a more detailed discussion on trade trends and re-exports in non-producing countries.
[50] According to one report, the chocolate confectionery industry consumed 840 thousand MT of cocoa butter in 2019. The estimated downstream use totaled 144 thousand MT in sweet cookies, 139 thousand MT in ice cream, 47 thousand MT in cakes, and 21 thousand MT in desserts (Gaia Cacao B.V., 2021).
[51] The cosmetics and pharmaceutical industry demand for cocoa butter is relatively small, so they tend to purchase from specialized importers rather than import directly.

proportion of cocoa used by these industries and the low ratio of cocoa butter compared to other ingredients.

> *"In cosmetics, [the percentage use of cocoa] is pathetically small, like not a little bit small, but really, really small."*
>
> *—KII, NGO representative*

In nearly all business-to-business sales of cocoa butter, the manufacturer, typically a chocolate manufacturer, purchases cocoa butter from a grinder. At this point in the supply chain, there is no requirement or ability to provide traceability information, although some chocolate manufacturers are working on improving traceability (Fountain & Huetz-Adams, 2022).

> *"[Cocoa] butter is notoriously untraceable […] getting traceable butter was literally impossible until about eight or nine years ago, and there really is only one traceable butter provider. […] Tony's Chocolonely, the small Dutch brand, […worked for years for their supplier, Barry] Callebaut finally folded and basically set up a traceable […] butter supply line in a factory in Belgium so that they could supply Tony's because Tony's wanted to have [traceable cocoa butter]."*
>
> *—KII, NGO representative*

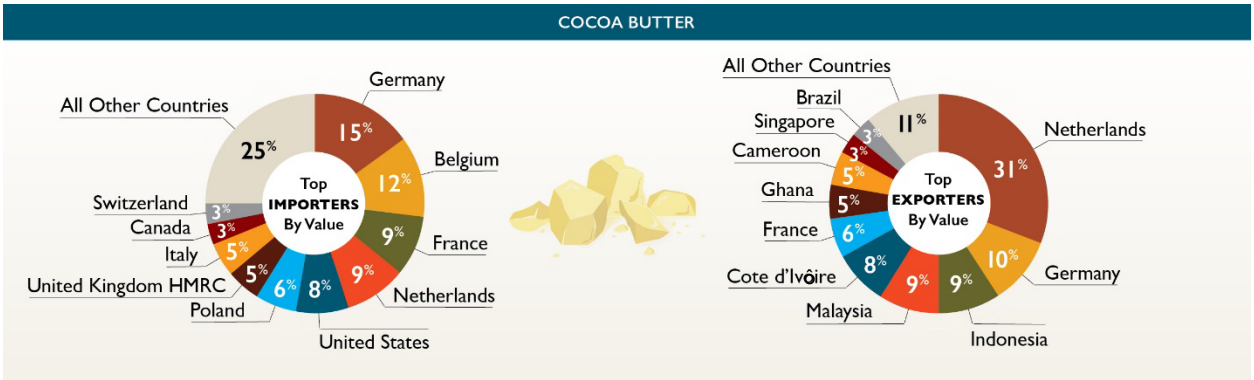
Table 5. Global imports of cocoa butter, 2022–2024

	YEAR		
	2022	2023	2024
Value (USD)	$ 4,998,413,286	$ 5,714,486,890	$ 13,282,312,089
Volume (MT)	1,096,812	1,087,343	1,115,263

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importers. See Appendix 2 for HS codes. See Appendix 6 for bean equivalent calculations.

Germany is the largest global importer of cocoa butter (15%), followed by Belgium (12%), France (9%), the Netherlands (9%), and the United States (8%) (Trade Data Monitor, 2025). The Netherlands accounts for approximately one-third of global exports of cocoa butter, followed by Germany (10%), Indonesia (9%), Malaysia (9%), and CDI (8%).

Figure 11. Top global importers and exporters of cocoa butter, by value, 2024



Source: ICF. Trade Data Monitor, 2025. Value (c.i.f.), volume MT, as reported by importers. See Appendix 3.

5.2.2.3 Cocoa Powder

Cocoa powder is produced by pulverizing dried cocoa cake solids into powder.[52] The resulting cocoa powder is primarily used in the production of cookies, cakes, ice cream, and beverages (Global Market Insights, 2025c; Keylink Limited, 2025).

Table 6. Global imports of cocoa powder, 2022–2024

	YEAR		
	2022	2023	2024
Value (USD)	$ 2,986,420,283	$ 3,217,957,998	$ 4,192,556,967
Volume (MT)	956,819	944,548	944,153

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importers. See Appendix 2 for HS codes. See Appendix 6 for bean equivalent calculations.

The United States is the largest importer of cocoa powder (10%), followed by China (6%), India (6%), the Netherlands (5%), and Türkiye (4%). No importer exceeded 10% of total global exports market share by value, and the top 10 importers only accounted for 49% of total imports. The Netherlands is the largest global exporter of cocoa powder, accounting for approximately one-third of global exports by value, followed by Malaysia (15%), Indonesia (9%), Germany (9%), and Spain (7%). There is a much less concentrated field of importers of cocoa powder, relative to other cocoa products.

Figure 12. Top global importers and exporters of cocoa powder, by value, 2024

Source: ICF. Trade Data Monitor, 2025. Value (c.i.f.), volume MT, as reported by importers. See Appendix 3

5.2.2.4 Cocoa Shells and Waste

Long treated as low-value or waste by-products of cocoa production, cocoa shells, cocoa pod husks, and cocoa pulp are now attracting growing interest for commercial use and upcycling. Despite the growth potential in this sector, research indicated that it remains an emerging segment of the market. In 2024, imports of cocoa shells and waste totaled $43 million, a mere 0.1% of the $46.3 billion in trade of cocoa beans, cocoa paste, cocoa butter, and cocoa powder. Germany and Cambodia were the largest importers by value, and the Netherlands and Belgium were the largest importers by volume (Trade Data Monitor, 2025; see Appendix 3: Import and Export Statistics).

[52] Dried cocoa cakes are classified under HS1803.20, under 4-digit HS 1803, for cocoa paste. See Appendix 2.

Cocoa bean shells: Once regarded largely as waste, cocoa shells are now used in a wide range of applications, including agricultural mulch and soil amendments, tea and dietary fiber products, and renewable energy generation through biomass conversion. Their high concentrations of theobromine and antioxidants have also increased interest in their use in cosmetics and pharmaceutical products (Afoakwa, 2014a; Rojo-Poveda et al., 2020).

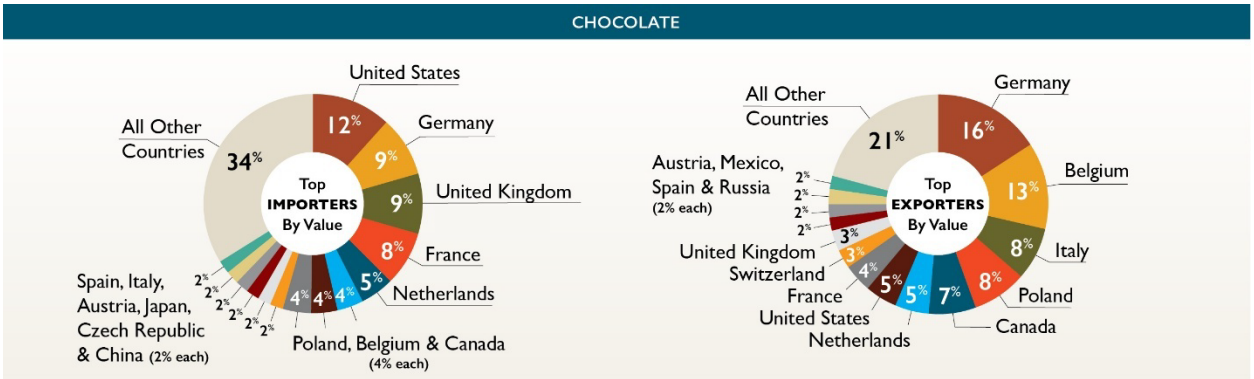
Cocoa pod husks: Cocoa pod husks can be used as an ingredient in animal feed or processed into fertilizers, and some businesses are developing biodegradable packaging materials from their fibrous structure (Cocoa Future Collaborative, 2025; Plastic Odyssey, 2024). The emerging biofuel sector has begun exploring cocoa pod husks as a renewable energy source, converting this agricultural waste into bioethanol and biodiesel (Mendoza-Meneses et al., 2021). Finally, the cocoa pod husk can be dried and burned to be used in cosmetic soaps (Cocoa Future Collaborative, 2025; Udongo, 2023)

Cocoa pulp: Cocoa pulp has gained commercial interest in recent years for use in products such as juices, jellies, and alcoholic beverages, and its naturally fermentable sugars also make it well-suited for the production of industrial alcohol and other fermented products (CocoTerra, 2024c).

5.2.3 Downstream: Chocolate Products

Chocolate confectionery is the most common form of cocoa consumption (Gaia Cacao B.V., 2021; Global Market Insights, 2025a; National Confectioners Association, 2025). Chocolate is produced by mixing cocoa paste with cocoa butter, cocoa powder, sugar, and other additives, which are heated and aerated to create couverture[53] (World Cocoa Foundation, 2023). The couverture mixture is tempered and poured into molds to create the final chocolate confectionery shape. Chocolate confectionery is sold through a variety of retail outlets, primarily grocery stores.

Figure 13. Top global importers and exporters of chocolate products, by value, 2024



In 2024, Germany led chocolate exports by volume and value (15% and 16%, respectively), followed by Belgium (10% and 13%). The Netherlands was the third largest exporter by volume (7%), but Italy was the third largest exporter by value (8%) (Trade Data Monitor, 2025; see Appendix 3: Import and Export Statistics).

[53] Additional ingredients like vanilla, emulsifiers (usually lecithin), milk powder, nuts, etc., may be added to the mixture. For white chocolate, the ratio of cocoa butter to cocoa paste is higher, whereas dark chocolate typically contains a higher percentage of cocoa paste and less sugar (Valrhona Chocolate, 2024).

Table 7. Global import of chocolate products, by value, 2022–2024

	YEAR		
	2022	2023	2024
Chocolate Products (1803)	$ 31,662,058,115	$ 35,443,324,187	$ 41,314,377,292
Sweetened cocoa powder	$ 391,059,144	$ 382,930,175	$ 362,585,695
Couverture, etc.	$ 5,895,663,034	$ 6,393,949,042	$ 8,887,220,920
Filled chocolates	$ 5,056,344,987	$ 5,878,796,682	$ 6,475,704,594
Chocolate, no filling	$ 5,278,215,852	$ 6,091,338,458	$ 7,317,513,460
Other chocolates	$ 15,031,720,306	$ 16,664,310,076	$ 18,240,051,355

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importers. (See Appendix 2 for HS codes. See Appendix 3 for market share by 6-digit HS code.)

5.3 KEY NATIONAL AND REGIONAL HUBS IN THE GLOBAL COCOA PROCESSING AND TRADE SYSTEM

Historically, the Netherlands served as the world's primary cocoa processing center; however, regional and global hubs for processing and manufacturing are emerging worldwide (CBI, 2025a; Fountain & Huetz-Adams, 2025). This trend is attributable to governmental initiatives that encourage foreign direct investment in domestic processing facilities, coupled with MNCs increasingly allocating resources toward developing infrastructure in proximity to established or emerging consumer markets (KII, Industry Expert; Baskett, 2021; Gaia Cacao B.V., 2021). The following are key national and regional hubs in the global cocoa processing and trade system:

The Netherlands. The Netherlands serves as a critical entry point for cocoa beans entering the European market, and it is the world's largest importer of cocoa beans (CBI, 2025a). The Netherlands' dual role as both processor and redistribution hub underscores its importance in facilitating the movement of cocoa across European and global markets (Port of Amsterdam, 2025; TraceX, 2025). The Netherlands re-exports approximately one-third of its cocoa bean imports, but its cocoa industry is focused on the processing and export of semi-processed cocoa, for which it is the leading global importer and exporter (Trade Data Monitor, 2025).

Belgium. Belgium also serves as a critical entry point for cocoa beans entering the European market, and it re-exports three-quarters of its cocoa bean imports (Trade Data Monitor, 2025). Thus, although it imports fewer cocoa beans than the Netherlands, Belgium is Europe's largest cocoa bean re-exporter. Belgium's cocoa industry is oriented toward chocolate manufacturing, and it is a net importer of semi-processed cocoa, which it primarily sources from other European countries, reflecting its reliance on upstream processing elsewhere while reinforcing its position as a major chocolate exporter (CBI, 2024a).

Germany. Home to the largest chocolate manufacturing industry in Europe, Germany is the largest global exporter of chocolate products (Trade Data Monitor, 2025). Germany's cocoa sector is distinguished by its strong processing and manufacturing capacity and its import of cocoa beans and robust import and export trade in semi-processed cocoa, which are sourced primarily within Europe, rather than from producing countries (CBI, 2025e).

Switzerland. While it is a smaller trader in volume compared to other European nations, Switzerland occupies a prominent position as a high-value chocolate manufacturer (CBI, 2022; Gourmet Economist,

2025). In contrast to Germany, Swiss producers primarily source cocoa beans and semi-processed cocoa products directly from producing countries (Swiss Platform for Sustainable Cocoa, 2025). The vast majority of Swiss cocoa exports are in the form of chocolate, rather than semi-processed cocoa (Trade Data Monitor, 2025).

The United States. The United States is a leading global cocoa bean importer and processing hub and a major downstream chocolate consumer market (Global Market Insights, 2025b). The U.S. cocoa industry is also deeply integrated with multinational cocoa and chocolate supply chains in North America more broadly. Trade patterns for the U.S. cocoa industry shifted notably in 2024 as market disruptions and policy changes altered trade flows. In 2024, the United States imported roughly half of previous years' volumes of beans and dramatically increased cocoa bean re-exports to Canada for processing (U.S. Department of Agriculture Economic Research Service, 2025). The United States primarily imports cocoa beans from producing countries. Most imported chocolate products originated from Canada and Mexico, while semi-processed cocoa imports were diversified across CDI, Malaysia, Indonesia, and the Netherlands.

Outside of the specific national areas of focus for this study, research identified emerging global and regional cocoa trade activity of note, including the following:

Malaysia. Malaysia, in addition to Indonesia, is one of the primary import entry points and processing hubs in Asia. Malaysia is not a material cocoa producer but holds an important role in cocoa processing. In 2024, Malaysia was the second largest global importer of cocoa beans, the sixth largest exporter of cocoa paste, the second largest exporter of cocoa powder, and fourth largest exporter of cocoa butter (see Appendices 4 and 5) (Trade Data Monitor, 2025). Media reports indicate that the Malaysian government is intentionally working to foster a robust processing industry and is not interested in cocoa cultivation (Baskett, 2021). One expert interviewed for this project suggested that this government effort, and growing corporate interest in Malaysia as a growing cocoa processing hub, is in part due to the fact that although Malaysian cocoa production has fallen in recent years, it possesses significant cocoa processing capacity in the form of cocoa processing facilities that were built during periods of higher domestic cocoa production:

> *"Malaysia, [cocoa farms] went away to palm oil, rubber, etc. They struggled heavily with labor, cost, etc. So, from being probably number three or four in the world [in cocoa], they literally collapsed to nothing. So, they probably drove 10,000 MT if you're lucky. So those [remaining cocoa] factories are legacy factories and that's why they keep running there. It's not they want to concentrate on processing; it's they just happen to be there."*
>
> *—Industry expert*

Türkiye. Türkiye is a notable regional hub for processing and chocolate production. It primarily imports cocoa beans from West Africa (Trade Data Monitor, 2025). Its domestic processing is dominated by Altinmarka (Cocoa Nusa, 2024). Nearly 90% of its cocoa exports are in the form of chocolate products to the Middle East (Trade Data Monitor, 2025). The largest destination markets in 2024 included Iraq (21%), Saudi Arabia (7%), and the United Arab Emirates (5%) (Trade Data Monitor, 2025).

DRC. One industry expert predicted that the DRC will play a growing role as a supplier of cocoa, although labor and environmental issues in production make it less attractive to European markets. The DRC's fertile soil produces high-quality organic cocoa, but the growth of the industry is plagued by violent conflict and smuggling (Furlan, 2025a). It is estimated that 80% of cocoa from the DRC is exported to Uganda, with some of that having been stolen from farmers. This movement is facilitated by porous borders and weak law enforcement and incentivized by higher prices in Uganda and avoidance of DRC taxes (Furlan, 2025a). Industry experts anticipate that DRC cocoa production will increase as farmers recognize value opportunities, but most international trading and brand companies will avoid it

due to deforestation and social risks, which impede access to European markets due to regulatory requirements.

France. France, with a successful domestic processing industry, is the fourth largest importer of cocoa beans in Europe. France re-exports a limited amount, as most imported cocoa is used to meet the demands of domestic processors for chocolate production (CBI, 2025c) (see Appendix 3).

Spain. Spain imports cocoa paste in the form of dried cocoa cake to manufacture into cocoa powder for export (see Appendix 3).

Poland. In 2024, Poland was the fourth largest exporter of chocolate products by volume (470,141 MT),[54] accounting for 7% of global exports, behind Germany, Belgium, and Canada (Trade Data Monitor, 2025) (see Appendix 3).[55] In addition to domestic brands, such as Wedel, Wawel, and Lubella, MNCs have invested in Poland, including Barry Callebaut Ferrero, Nestlé, Mondelēz International, and Cargill.

6 TRACEABILITY AND CORPORATE RESPONSIBILITY TRACING IN GLOBAL COCOA

6.1 INTRODUCTION

Cocoa companies are under increasing pressure to fully trace their cocoa supply chains to farm-level production. This area of work is rapidly evolving, as companies respond to expanding import regulations in the United States, Europe, and increasingly Asia, which require companies to trace cocoa throughout the supply chain and map the chain of custody from the cocoa farm to the point of importation. Yet, gaps remain because of incomplete tracing by cocoa-sourcing companies, the persistence of sourcing through intermediaries, and the reliance of many certified cocoa supply chains on mass balance traceability models, which are incompatible with emerging regulations such as the EUDR that require full physical traceability.

6.1.1 Regulatory Requirements Driving Traceability Improvements

Importers are increasingly expected to know about risks in their supply chain, including the presence of forced labor and child labor.

Currently, the United States, Canada, and Mexico have enacted forced labor import bans, and various countries in Asia and Latin America have either committed to enacting a forced labor import ban or are considering how to do so. The EU will enforce a forced labor ban, prohibiting the import, export, and sale of goods made with forced labor, starting in December 2027 (European Commission, 2025b).

Under Section 307 of the Tariff Act of 1930, U.S. importers must ensure that forced labor is not used wholly or in part in the production of imported goods (U.S. Congress, 2024). In Canada, importers are expected to address the risk of both forced labor and child labor in their supply chains (Health Canada, 2024). To meet these requirements, cocoa importers must understand the entire chain of custody at the product level. Importers must know where the cocoa pods are harvested, along with all nodes in the supply chain for each imported good, to either identify risk or demonstrate compliance to regulators. Mass balance programs, which cocoa companies and certifiers often rely on, are not sufficient to meet these requirements, because they are not tracing goods at the product level.

[54] Barry Callebaut has held long-term liquid chocolate contracts with Cadbury (Poland) for 30,000 tons per year, Hershey for 80,000 tons per year, and Nestlé for 43,000 tons per year (Sweet, 2024).
[55] By value, Poland was the eighth largest exporter at $1.2 billion, 5% of global chocolate product exports by value.

The EUDR requires cocoa companies seeking European market access to submit a due diligence statement that includes the geolocation coordinates of all plots where cocoa was grown, the quantity, and risk assessment and risk mitigation procedures taken on all farms associated with the imported or exported goods (European Commission, 2025a). The EUDR, which entered into force in June 2023, will be implemented on December 30, 2026, for large operators and on June 30, 2027, for smallholders (European Union, 2023).

Since Europe purchases approximately 60% of global cocoa exports, this requirement is driving significant investment in geolocation mapping, more so than forced labor import ban requirements. This market concentration means that EUDR non-compliance threatens the commercial viability of cocoa production across entire regions, creating powerful incentives for rapid system deployment. The passage of the EUDR triggered what experts characterize as a "compliance scramble" across producing countries (Spencer-Jolliffe, 2024).

However, even with ideal geolocation data, experts are concerned that compliance gaps remain, as companies are still reliant on paper-based mass balance systems to track cocoa from the point of harvest through the downstream supply chain.

The EU Corporate Sustainability Due Diligence Directive complements the EU forced labor ban and the EUDR with broader human rights and environmental due diligence requirements, though its scope and timeline have been significantly curtailed by subsequent amendment.[56] These mandatory frameworks contrast with earlier voluntary approaches, reflecting government recognition that market incentives alone prove insufficient to drive comprehensive supply chain transparency (Indonesia Coordinating Ministry, 2024; Ecuador MAG, 2024).

6.2 OVERVIEW OF TRACING AND SOCIAL RESPONSIBILITY PROGRAMS IN THE GLOBAL COCOA SECTOR

6.2.1 Traceability and Social Responsibility Programs Implemented by Major Cocoa Companies

Among major cocoa companies, the following six have established particularly prominent traceability and sustainability programs that have received significant attention in the industry literature; this list is illustrative rather than exhaustive, as other major manufacturers, including Hershey, Ferrero, and Lindt, have also developed sustainability programs:

Barry Callebaut: Launched the Forever Chocolate program in 2016. Program includes a digital farmer registration platform and Global Positioning System (GPS) polygon mapping (Barry Callebaut, 2025a, 2025b). The company claims 80% cooperative-level traceability and 60% farm-level traceability in direct supply chains (Barry Callebaut, 2022; IDH, GISCO, & C-lever.org, 2021a).

Nestlé: Established the Cocoa Plan in 2009. Program uses GPS polygon mapping and the Starling satellite monitoring system. Company reports that it has registered 108,810 farming households across

[56] The Corporate Sustainability Due Diligence Directive was adopted in 2024 (Directive (EU) 2024/1760) with requirements covering companies with more than 1,000 employees and €450 million in global turnover. In February 2026, the European Commission adopted an omnibus package of amendments that substantially narrowed the directive's application: final Corporate Sustainability Due Diligence Directive obligations will be limited to companies with more than 5,000 employees and €1.5 billion in revenue, implementation has been delayed to 2029, and a requirement that companies prepare climate transition plans was removed. The companion Corporate Sustainability Reporting Directive was similarly narrowed, with mandatory reporting now applying only to companies with more than 1,000 employees and €450 million in revenue. Advocates and civil society organizations have criticized the omnibus amendments as a significant weakening of the EU's mandatory due diligence framework, arguing that the revised thresholds exclude the majority of companies operating in agricultural commodity supply chains from any binding obligation (Amnesty International, 2025; Frank Bold Advisory, 2025).

11 countries (Nestlé, 2025). The Cocoa Plan includes the Income Accelerator Program, which provides cash incentives to farmers who meet specific criteria, including school enrollment and environmental practices (Nestlé, 2022).

Mars: Launched its Responsibly Sourced Cocoa program in 2018, as part of its broader Cocoa for Generations initiative. This program includes requirements for participating suppliers to provide GPS mapping of farm boundaries, third-party verification through Rainforest Alliance or Fairtrade certification, and—for producers in high-risk regions—CLMRS (Mars Global, 2025). By 2020, the company reported that 89% of farm plots in the Responsibly Sourced Cocoa program were polygon-mapped, covering more than 166,000 farm boundaries (Mars Global, 2020).

Mondelēz International: Launched its Cocoa Life program in 2012. The program operates across eight cocoa-producing countries (CDI, Ghana, Indonesia, Dominican Republic, India, Brazil, Nigeria, and Cameroon) and works with approximately 208,000 cocoa farmers through cooperatives and farmer organizations (Mondelēz International, 2025). As of 2024, Mondelēz reports that 91% of cocoa volume for its chocolate brands is sourced through Cocoa Life (Mondelēz International, 2025).

Cargill: Launched its Cocoa Promise program in 2012. The program uses a digital platform (CocoaWise) that integrates multiple tools, including a barcode system (BeanTracker) that tracks cocoa bags from farm to cooperative, a centralized data platform (Cargill 360), and a software suite (ProFarm) for farmers that includes farm management and GPS mapping tools (Cargill, 2025b). As of 2021, the company reported that this program had enrolled 244,364 farmers globally (Cargill, 2025c)

ofi (formerly Olam): Launched the AtSource sustainability platform in 2018. The program includes a mobile application (Olam Farmer Information System) that enables field staff to collect GPS coordinates, map farm boundaries, manage training activities, and track first-mile transactions, including financing, input distribution, and cocoa purchases (ofi, 2025a). As of 2020, ofi claims to have registered 325,000 farmers and achieved full traceability of its direct purchasing cocoa supplies (Olam, 2020).

6.2.2 Third-Party Certification Organizations

Four primary certification frameworks operate in cocoa supply chains, each claiming to integrate traceability with broader sustainability and labor standards:

Rainforest Alliance (including former UTZ): Following the 2018 merger with UTZ Certified, Rainforest Alliance introduced the MultiTrace platform during the 2023 standards transition. The system mandates GPS polygon mapping for all certified farms with technical requirements, including coordinates in decimal degrees format, maximum 20% overlap tolerance, and unique Farm Unit IDs. The platform requires 80% origin matching over 12-month periods for certified cocoa exports from CDI, Ghana, and Ecuador—meaning that documented physical origins must match 80% of certified volumes sold. However, the minimum polygon mapping requirement is only 10% of farm units, and the system explicitly permits mass balance (allowing physical mixing of certified and conventional cocoa). Before the 2018 merger, UTZ covered more than 200,000 cocoa producers in 21 countries (Rainforest Alliance, 2018). The legacy UTZ system's traceability approach has been largely absorbed into Rainforest Alliance's current MultiTrace platform (Gaworecki, 2017; Rainforest Alliance, 2025a).

Fairtrade International: Operates a cooperative-focused certification model emphasizing organizational structure and direct trade relationships between certified producer organizations and buyers. Traceability requirements focus on documenting relationships between farmer cooperatives and buyers rather than farm-level geographic mapping. Includes three supply chain models: Physical Traceability (full segregation), Mass Balance (allowing mixing), and "Fairtrade Sourced Ingredient" (percentage-based claims). The certification provides premiums of approximately $80–240 USD per MT (Ingram et al., 2025).

Fair Trade USA: Fair Trade USA's cocoa certification model prioritizes compliance with social and environmental standards alongside buyers' payment of Fair Trade premiums into Community Development Funds democratically controlled by producers (Fair Trade Certified, 2025; Fair Trade USA, 2022). These funds are typically invested in infrastructure, education, healthcare, or community livelihoods. According to Fair Trade USA, certified cocoa is sourced primarily from CDI, Peru, the Dominican Republic, and Ecuador, with approximately 35 million pounds imported annually under Fair Trade terms. Cocoa is one of four commodities (alongside sugar, tea, and fruit juice) for which Fair Trade USA allows mass balance traceability (Fair Trade USA, 2019). A notable programmatic difference between Fair Trade USA and Fairtrade International is that Fair Trade USA certifies plantation operations—large-scale farms employing hired workers—in addition to smallholder cooperatives, whereas Fairtrade International limits certification to smallholder and cooperative structures. This distinction is relevant to labor risk assessment: plantation operations involve hired adult labor under formal employment relationships, introducing a different risk profile for forced labor than the smallholder family farming model in which child labor is the dominant documented concern.

Organic certifications: Various regional and international frameworks (U.S. Department of Agriculture Organic, EU Organic, Japanese Agriculture Standards Organic, and others) incorporate traceability provisions requiring documented chain of custody from certified farms through processing (EUR-Lex, 2022; Hogan Lovells, 2023; U.S. Department of Agriculture, 2023; U.S. Department of Agriculture, Agricultural Marketing Service, 2025). Unlike other certification schemes, organic standards mandate physical segregation rather than permitting mass balance—certified and conventional products cannot physically mix. However, organic cocoa represents only approximately 2% of global cocoa production. The 2023 U.S. Department of Agriculture Strengthening Organic Enforcement rule tightened requirements by mandating certification for previously uncertified importers, brokers, and traders, requiring fraud prevention plans, and imposing minimum 5% unannounced inspections (now mandatory), annual mass balance audits, and minimum residue testing (Federal Register, 2023; U.S. Department of Agriculture, 2023).

6.3 CHALLENGES AND SHORTCOMINGS OF EXISTING TRACEABILITY PROGRAMS

The following sections examine some of the more pressing challenges and shortcomings that undermine traceability and responsible sourcing programs in the global cocoa sector.

6.3.1 Sourcing Structure: Direct Versus Indirect Supply Chain Creates Structural Blind Spots

Persistent gaps in traceability, especially in indirect sourcing channels, pose a fundamental challenge to responsible cocoa production. For the purposes of this report, "indirect sourcing" involves cocoa acquired through intermediaries such as local traders or informal buying networks. By contrast, "direct sourcing" refers to cocoa purchased by companies or traders directly from organized farmer groups or cooperatives. Major companies and government programs have invested heavily in mapping direct sourcing channels, but indirect sourcing channels remain opaque and under-regulated. As one expert noted, these indirect channels have historically represented a "black box" through which companies have simply accepted "whatever product comes" without systematic oversight.

This opacity is particularly concerning, given the scale of indirect sourcing. Available data suggest that 40–60% of global cocoa moves through indirect channels (CBI, 2024b; Renier et al., 2023), although one expert interviewed for this study estimated the figure may be as high as "78–90%" based on their research across major cocoa-producing countries. Corporate reporting suggests that Barry Callebaut and Cargill sourced approximately 40% of their cocoa indirectly as of 2020 (IDH, GISCO, & C-lever.org, 2021a, 2021b), and ofi (Olam) sourced about a third through indirect channels that year (Olam, 2020). Comparable data for Nestlé, Mars, and Mondelēz are not publicly available; those companies publish

information about sourcing practices but do not disclose figures disaggregated by direct and indirect channels (IDH, GISCO, & C-lever.org, 2021a, 2021b).

This definitional ambiguity itself creates accountability gaps. Some companies and researchers use the terms "direct versus indirect sourcing" to distinguish cocoa purchased from organized farmer groups versus cocoa acquired through intermediaries. Others use "formal versus informal supply chains" to describe similar distinctions, but as one expert noted:

> *"Is that a direct synonym for direct versus indirect? I don't know. Probably. Actually, it is, but depending on who you talk to, they might have a different interpretation."*
>
> *—KII, cocoa sector expert*

This lack of standardized definitions enables misleading traceability claims. When a company reports "80% traceability to farm level," this figure typically applies only to their direct supply chain—but without disclosing what proportion of total volumes flow through direct versus indirect channels. If that company sources 40% directly and 60% indirectly, their "80% traceability" claim actually means that only 32% of total cocoa volumes are traceable (80% of the 40% direct supply). The remaining 68%, including the entire indirect supply chain, remains untraceable, yet the company's public communications emphasize the "80%" figure without this critical context.

Independent assessments confirm the persistent gap between traceability in direct and indirect sourcing. In 2023, the Retailer Cocoa Collaboration found that the average proportion of indirect sourcing across surveyed traders was 53%, with some as high as 97% (Retailer Cocoa Collaboration, 2024). Only 22% of surveyed traders' indirect supply was traceable to farm level—a modest improvement from 9% in 2022 but still representing a structural blind spot affecting the majority of globally traded cocoa.

Third-party certification schemes reinforce this divide by typically auditing only organized farmer groups. National traceability systems in CDI and Ghana generally track cocoa to cooperative buying stations but lose visibility once beans enter informal trade circuits. As one researcher working on supply chain mapping noted, "Our data stops at the cooperative level […] we're not able to connect to the farms or the village" level, which highlights how even sophisticated traceability initiatives face structural limitations.

Experts consulted for this study suggested that the traceability shortfall in indirect sourcing channels might be remedied by enlisting the very intermediaries that currently obscure supply chain visibility. Intermediaries such as local traders and informal buying networks occupy what one expert described as "a gray space" in which "there's many cases where they're absolutely essential, and then there's also many cases where they're absolutely exploitative." Multiple experts interviewed for this study advocated for greater formalization and integration of intermediaries—"having this first mile intermediaries being more formalized [and] recognized […] as an economic actor" to create "a bit more oversight and a bit more transparency," and creating "a registry database of cocoa traders" to bring them "into the fold in a way that you know effectively gets" better supply chain visibility. The challenge lies in achieving this formalization without creating "captive value chains" in which exclusive relationships between intermediaries and large traders eliminate competitive alternatives for farmers.

The widespread acceptance of separate standards for direct versus indirect sourcing creates an accountability gap. Companies can simultaneously claim high traceability rates by referencing only their direct supply chains while sourcing the majority of their volumes through channels that lack systematic monitoring. This two-tier system effectively normalizes supply chain opacity for the bulk of global cocoa production, undermining efforts to eliminate forced labor and child labor across the sector as a whole.

6.3.2 Tracing Method: Mass Balance Accounting Undermines Physical Traceability Across All Programs

Mass balance is a supply chain accounting method that allows certified and non-certified cocoa to be physically mixed together at various stages (cooperatives, transport, processing) while maintaining certification claims based solely on matching volumes on paper. Under this system, companies and certifiers track volumes administratively. For example, if a facility receives 100 tons of certified cocoa and 400 tons of non-certified cocoa, it can sell 100 tons as "certified," regardless of which physical beans end up in that batch (Rainforest Alliance, 2025b). This method was designed to enable scale and inclusion of more farmers, but it comes at a critical cost: true physical traceability is lost once beans are co-mingled.

Mass balance accounting compounds the structural gaps created by indirect sourcing, undermining physical traceability even within direct supply chains that companies claim to monitor. The previous section examined how indirect channels create blind spots affecting 40–60% of global cocoa volumes. Mass balance represents a parallel challenge: even cocoa that companies report as "traced" to the farm level may not be physically segregated from untraceable beans.

The combination of indirect sourcing opacity and mass balance accounting creates compounding traceability failures. Companies may source 40% of volumes through direct channels they claim to trace, but if those "traced" beans are handled through mass balance, the actual physical origin remains unknowable. Meanwhile, the 60% sourced indirectly enters the same co-mingled stream with no farm-level documentation at all. Chocolate products marketed as "sustainably sourced" or "traceable" may contain beans from completely unmonitored origins, or from mapped farms that did not actually supply that particular product. As one key informant who researches this topic noted regarding U.S. import controls, "there's a substantial risk that because of intermixing or because of the shape of the supply chains" that products made with forced labor enter the final commodity stream. Even when farms are mapped and certified, the cocoa in a given chocolate bar may not originate from those farms. For regulators and consumers demanding product-level traceability, such as the EUDR that requires farm-level origin data (Spencer-Jolliffe, 2024), mass balance falls short. As one sustainability expert interviewed for this study emphasized, "Fundamentally, I don't think you can be compliant [with EUDR] if you have a mass balance system."

All six major cocoa-buying companies use mass balance as standard practice, with fully segregated cocoa offered only in limited quantities or at added cost. Barry Callebaut explicitly acknowledges that mass balance is "the default approach for most volumes," offering true physical segregation only as a premium service (Retailer Cocoa Collaboration (RCC), 2024). Cargill offers three tiers—Mass Balance, Factory Mass Balance, and "Promise Traceable" (fully segregated)—but mass balance remains the norm unless buyers pay for the segregated service (Cargill, 2025). Nestlé only keeps cocoa physically separate for the Income Accelerator Program (~45,000 MT, about 13% of volumes), while the rest of its "traceable" Cocoa Plan beans are handled through mass balance (Bambridge-Sutton, 2024). Mars has announced a goal to convert to fully segregated supply chains by 2030, an implicit admission that current mass balance provides limited transparency (ESG Today, 2025; Mars Global, 2025). Mondelēz's Cocoa Life director Cathy Pieters acknowledged that the company has thus far "not invested in physical traceability" past "the first buying point," saying, "[after] it's processed—we don't follow it anymore" (Nieburg, 2018). One cocoa sector expert interviewed for this study observed the fundamental contradiction in these traceability claims, pointing to Mondelēz as an example:

> *"Mondelēz, they claim a whole bunch of traceability levels, but then you ask them […] how much of your cocoa do you source through mass balance systems? They're like 100%. […] And the question then that has to be asked is how in tarnation can you claim like a 60% traceability if all of your cocoa is [on] mass balance? And the answer is you can't."*
>
> *—KII, cocoa sector expert*

As discussed previously, third-party certification programs also rely heavily on mass balance accounting. Rainforest Alliance standards explicitly permit mass balance: when certified cocoa blends with non-certified cocoa, "the final product may not physically contain certified material," even though the equivalent certified volume was purchased (Rainforest Alliance, 2025b). Fairtrade International operates three supply chain models but acknowledges that "most commercial cocoa partners opt for mass balance and very few choose to be audited for physical traceability" (Fairtrade International, 2025b). Under mass balance, Fairtrade-certified cocoa can mix with conventional cocoa at cooperatives, during transport, and in processing, as long as paperwork tracks volumes.

This widespread use of mass balance raises a fundamental question: what is the value of mapping farms and certifying practices if beans are later mixed and indistinguishable? Rainforest Alliance's MultiTrace system requires precise GPS polygon mapping and has an "origin matching" requirement (80% of certified export lots should come from documented farms) (Rainforest Alliance, 2022, 2023). Yet the same program explicitly permits mass balancing, which allows manufacturers to claim products as certified based on purchasing certified credits, even when the physical beans in those products come from entirely different, unmapped farms. Companies invest in collecting GPS coordinates for thousands of individual farms, then immediately undermine that investment by mixing the mapped beans with anonymous cocoa.

Mass balance accounting has been the backbone of virtually all cocoa sustainability and traceability programs to date, enabling scale and inclusion of many farmers, but at the cost of true physical traceability. As one expert reflected, voluntary standards and mass balance "might have been the best you could get" decades ago, but mounting evidence shows that these systems are inadequate. Mass balance accounting inherently undermines the goal of traceability—knowing for each product exactly where and under what conditions it was produced. Physical infrastructure for segregation exists but remains the exception. Segregated handling requires dedicated storage space, separate processing lines, and rigorous documentation at every stage, making it more expensive than co-mingled mass balance systems.

6.3.3 Technological Implementation: Investments in Data Collection Cannot Overcome Structural Barriers

Technological limitations pose additional obstacles to supply chain transparency. Major cocoa companies, certification organizations, and government initiatives have invested heavily in GPS polygon mapping, farmer registration databases, digital platforms with mobile data collection applications, satellite monitoring systems, and other technological tools. Efforts to implement these technologies have seen varying levels of success but continue to confront a number of fundamental challenges.

6.3.3.1 Interoperability Failures: Incompatible "Walled Gardens" Prevent Data Sharing

Most traceability systems cannot communicate with each other, preventing data sharing across companies, certifiers, and governments. This fragmentation has created a series of proprietary "walled gardens" in which "the data in one system are siloed and cannot be made available to or accessed by other systems" (IDH et al., 2021). This fragmentation creates three fundamental problems. First, since farmers supply multiple companies, a single farmer may have multiple identification codes across different traceability systems with no mechanism for reconciliation, making it impossible to track total production or verify that certified volumes do not exceed actual farm output. Second, incompatible systems prevent independent verification of corporate traceability claims, allowing companies to assert coverage percentages that cannot be externally validated. Third, the lack of interoperability serves corporate interests by maintaining proprietary control over supply chain data, preventing regulators, researchers, and civil society from accessing information needed to assess labor conditions or environmental compliance.

Corporate systems exemplify how competitive dynamics work against standardization. Each major cocoa company operates its own proprietary traceability platform with incompatible data structures. Industry experts have criticized existing traceability systems for not incorporating or conforming to existing best practices and international standards—such as X12 or EDIFACT electronic data interchange standards or fully implementing the ISO 34101 standards established in 2019 and specifically tailored to sustainability and traceability in the cocoa sector (Gordon, 2024).[57] The focus on technological solutions has become a competitive race rather than a collaborative standardization effort. One sustainability researcher observed that implementation "focuses so much on the […] technological components, which is super easy to just hire out and […] that becomes the focus and then it's like a race of all the consulting firms who […] can provide the best solution, who can provide the best technological solution at the lowest price." This dynamic actively works against the interoperability that would enable cross-verification of traceability claims. Companies justify this fragmentation by citing concerns about sharing "confidential, proprietary business information […] either with governments or competitors," but this resistance toward adopting common platforms prevents reliable, comprehensive data collection and makes independent verification of corporate traceability assertions impossible (Gordon, 2024). Notably, the governments of Ghana and CDI have begun working with industry stakeholders on interoperability between national child labor monitoring systems and industry CLMRS, representing an early example of externally coordinated standardization, although limited in scope to child labor monitoring rather than broader supply chain traceability.[58]

Certification body systems face comparable interoperability failures. Rainforest Alliance's MultiTrace platform experienced major failures following the 2018 UTZ merger. Farmer lists from producer groups were not automatically migrated. Certificate holders had to re-upload data manually, and full mutual recognition between legacy systems was not achieved until January 31, 2022, four years post-merger (Rainforest Alliance, 2022). The platform's 2023 Tea Certification Data Report acknowledged that "due to incomplete reporting in the Rainforest Alliance traceability platform (MultiTrace), sales data for certified tea was not available at the time of publishing" (Rainforest Alliance, 2023), an admission that even internal certification data cannot be reliably tracked within a single organization's system.

Government systems have also had issues with interoperability, although notable efforts have been made toward standardization. Ghana's Cocoa Management System, CDI's census database, and Indonesia's National Dashboard, for example, each use different farmer identification protocols with no cross-border data sharing agreements. The African Regional Standard (ARS-1000) represents an attempt at cross-border interoperability between CDI and Ghana, but implementation remains limited (CIGCI, 2024). Without coordination between national systems, regulators cannot track cocoa flows across borders or verify that exports match domestic production records.

6.3.3.2 Data Accuracy and Reliability: Systematic Errors Undermine Mapping Efforts

Traceability systems across the cocoa sector suffer from widespread data accuracy and reliability problems that undermine their fundamental purpose: establishing credible connections between specific farms and final products. These issues span multiple technologies and data collection methods, from GPS

[57] X12 and EDIFACT are complementary electronic data interchange standards that provide the technical syntax for business documents; X12 is the primary framework for North American supply chains, and EDIFACT is the international equivalent managed by the United Nations and widely used for global and cross-border trade (ANSI, 2025; TrueCommerce, 2024). In contrast, the ISO 34101 series is a specialized set of international standards that define the management, performance, and administrative requirements specifically for sustainable and traceable cocoa production and certification (International Organization for Standardization, 2019).

[58] The 2024–2029 Framework of Action of the Child Labor in Cocoa Coordinating Group, whose signatories include the Governments of Ghana and CDI, the World Cocoa Foundation on behalf of industry, and USDOL, explicitly commits to improving the alignment and interoperability of private CLMRS with the national child labor monitoring systems of both countries (Child Labor in Cocoa Coordinating Group, 2024).

polygon mapping and satellite monitoring to paper-based record systems. Issues with accuracy and reliability undermine efforts to verify corporate sustainability claims, allow high-risk cocoa to enter certified supply chains undetected, and create compliance failures with regulations like the EUDR that depend on precise farm-level documentation.

Although satellite monitoring and GPS mapping technologies have been improving, efforts to implement these technologies to map cocoa farms have faced issues with duplicate, overlapping, and inaccurate farm boundaries that misclassify farms and fail to detect deforestation. Cargill, for example, has acknowledged that 6–22% of mapped farmers in its system have "duplicate polygons or polygons that overlap" (Cargill, 2023; IDH, GISCO, & C-lever.org, 2021b). A Meridia/Rabobank study found that approximately 30% of farm plot data collected in CDI's Cavally region were insufficiently reliable to meet EUDR standards, with issues including inaccurate farmer recall, inconsistent measurement practices, and difficulties defining exact boundaries (Meridia, 2024). Ghana's government-verified GPS coordinates revealed discrepancies with corporate polygon mapping claims, particularly regarding farm proximity to forest areas (CBI, 2024). These accuracy problems explain catastrophic verification failures like the UTZ certification crisis of October 2019, when more than 4,900 UTZ-certified farms were discovered illegally located within national forests (Whoriskey & Siegel, 2019).

Recent initiatives have attempted to address these systematic mapping failures. The World Resources Institute, in partnership with the World Cocoa Foundation and 19 companies, developed the West Africa Cocoa dataset, compiling more than 1.2 million GPS-mapped cocoa plots from company supply chains in Ghana and CDI to create a more comprehensive view of cocoa farm locations (Schneider et al., 2023). The Sample Earth Initiative (November 2025) launched an open-access reference dataset with approximately 100,000 time-stamped geolocation points in Ghana and Vietnam to improve map accuracy and prevent misclassification of smallholder farms as forest (The Alliance of Bioversity International, 2025).

Paper-based record systems suffer from comparable reliability problems. Ghana's Cocoa Management System, for example, relies on paper documents (Farmer's Passbook, Daily Stock Book, Bulking Sheets) that are manually maintained at initial collection points and then digitized at district depots (Ahoa et al., 2021; European Forest Institute, 2025b; Nitidae & EU REDD Facility, 2021). Manual record-keeping creates opportunities for transcription errors, data loss, and manipulation that digital systems were meant to eliminate, but the transition from paper to digital often fails to improve data quality if underlying collection practices remain flawed.

The cumulative effect of these accuracy and reliability problems is that traceability systems generate impressive-looking data dashboards and corporate reports while failing to establish credible farm-to-product connections.

6.3.3.3 Local Capacity Constraints: Infrastructure Deficits and Digital Literacy Gaps

Many rural cocoa-growing regions lack the basic connectivity, electricity, and technical skills necessary for digital traceability systems to function. As of 2022, only 54% of Ghana's rural population had access to the internet, and rates were even lower in CDI, with internet access rates of just 22% (Internet Society Pulse, 2025; World Bank, 2023b). And as of 2023, only 53% of the West African population as a whole had electricity access, with rural coverage rates as low as 23% in some areas (International Energy Agency, 2022; World Bank, 2025). A CGAP/World Cocoa Foundation study of 522 farmers in Ghana and CDI found that 63% cited network coverage as their greatest difficulty with mobile-based systems (CGAP, 2016).

Farmer access to and familiarity with technology compound infrastructure constraints. Only 76% of cocoa farmers own mobile phones, creating baseline exclusion from mobile-based systems (Farmforce, 2024). The COCOBLOCK blockchain pilot project in CDI found that "small producers will need a greater level of digital maturity to adopt the practices related to this technology," with farmers

struggling with basic smartphone operation (Myers, 2020). Recent studies have found that only 23% of rural farmers in West Africa are comfortable using smartphones or computers for agricultural purposes (CSM, 2024). A Fairtrade feasibility study in Ghana found that four of nine unions self-scored their staff data literacy as inadequate, with "inconsistencies in data validation practices" common across the sector (Fairtrade International, 2024). Further, basic literacy rates among remote farming communities present a significant challenge to traceability data collection (Crescini, 2022).

6.3.4 Public Sector Traceability and Sustainability Programs

Seven cocoa-producing countries have launched traceability and sustainability programs, each claiming varying levels of farm-level visibility, digital infrastructure, and supply chain transparency:

Ghana—Ghana Cocoa Board (COCOBOD) Ghana Cocoa Traceability System: In 2019, COCOBOD launched the Cocoa Management System, a nationwide database to register farmers and GPS farm boundaries. Aligned with the African Regional Standard (ARS-1000) to facilitate cross-border traceability, the Cocoa Management System has thus far registered 761,753 cocoa farmers covering 1,380,566 hectares with GPS-verified farm boundaries (Ghana Cocoa Board, 2023).

CDI—National Traceability System: Formally adopted in September 2023 and managed by Le Conseil du Café-Cacao, CDI's system uses a census-based database and traceability software called SYDORE (*Système d'Information sur les Données Régionale*s) to track cocoa from the farm to export. It includes a nationwide census of nearly 1 million farmers, georeferenced mapping of more than 3.2 million hectares, digital producer IDs, unique bar-coded bag tagging, and electronic payment terminals to link cocoa volumes directly to verified production plots (Ecofin Agency, 2023).

Cameroon—Interprofessional Cocoa and Coffee Council Traceability Platform: Launched in August 2024, Cameroon's National Cocoa Traceability System has geo-mapped 24,800 farmers across more than 28,000 cocoa plots, achieving a reported 99% traceability from farm to export (CameroonOnline.org, 2025). Developed by the Interprofessional Cocoa and Coffee Council, the system provides each cocoa lot with GPS coordinates through a data-sharing platform and the GEOSHARE tool (CameroonOnline.org, 2025).

Indonesia—National Dashboard for Sustainable Commodity Data: Launched in September 2024, Indonesia's National Dashboard for Sustainable Commodity Data is a traceability platform designed to track Indonesian producers of cocoa, palm oil, coffee, rubber, beef, and timber (Afra, 2024; Reuters, 2024a).The integrated national database includes farmer registration, mobile data collection, GPS mapping, and satellite monitoring.

Malaysia—Malaysia Cocoa Board Licensing System: The Malaysia Cocoa Board operates a national registration and quality control system for cocoa, established in 1989. The system includes comprehensive licensing, inspection, and national standards for bean grading and quality and is designed to provide full oversight of the cocoa supply chain from farm to export. As of 2025, the Malaysia Cocoa Board announced that 40% of the country's cocoa producers had registered with its new National Cocoa Traceability System, with plans to expand coverage further (Asia Pacific Food Industry, 2025; Nabalu News, 2025).

Brazil—Brazil Cocoa Traceability System/SisCacao: Launched in May 2025, the Brazil Cocoa Traceability System is a public-private platform that links to the Agriculture Ministry's AgroBrasil+Sustentável portal to verify environmental compliance, uses RFID tags on cocoa bean bags to enable farm-level tracing using the Rural Environmental Registry, and allows auditors to cross-reference production with satellite data from the Brazilian Institute of Environment and Renewable Natural Resources to ensure deforestation-free origins (Fantin, 2025; Secretaria de Comunicação Social, 2024).

Peru—Register of Agricultural Producers and AGRODIGITAL: Managed by the Ministry of Agrarian Development and Irrigation, Peru's public-sector system relies on the Register of Agricultural

Producers and the AGRODIGITAL application (Ministerio de Desarrollo Agrario y Riego, 2025a). By late 2025, it had successfully georeferenced more than 150,000 farm polygons, enabling the Ministry of Agrarian Development and Irrigation to issue official electronic Deforestation-Free Certificates required for the export of cocoa, coffee, and palm oil to international markets (Ministerio de Desarrollo Agrario y Riego, 2025b).

6.3.5 Legal and Bureaucratic Obstacles

Even where traceability technology exists, regulatory frameworks, land tenure complexities, and institutional fragmentation can prevent effective implementation. These obstacles are distinct from the technological limitations described in the previous section. They represent governance failures in which bureaucratic requirements designed for formal property systems exclude the majority of smallholders operating under customary or informal arrangements.

Complex, informal, and location-specific land ownership arrangements represent fundamental obstacles to farmer registration across cocoa-producing countries. In Indonesia, Agriculture Ministry data from July 2024 revealed that 0.00% of cocoa farmers have e-STDB certification—the electronic certificate of plantation registration required for EUDR compliance—compared to 1.07% for palm oil (Afra, 2024). One key informant explained the registration obstacle: "In order to register as a producer, you have to have a land title. And land titles in Indonesia, especially in smallholding farming, are so informal that they have something like a less than 1% uptake rate at this point among smallholder farmers, because like how many of those farmers are actually own the land?" With 99.88% of national cocoa production from smallholders lacking formal land titles, comprehensive registration faces enormous barriers (European Forest Institute, 2025a; Indonesia Investments, 2025).

Informal land arrangements are pervasive across cocoa-producing regions. In Ghana, approximately 80% of land is under customary ownership and largely undocumented. Customary law continues to govern land rights in Ghana, with many cocoa farmers entering into oral sharecropping agreements known as customary tenancies (Rice & Godts, 2025). In CDI, only about 4% of rural land is covered by a certificate or title (European Forest Institute, 2024). In Peru, only a quarter of farmers have land titles (Fountain & Huetz-Adams, 2025). Digital dashboards may be technically sophisticated, but if registration requires documentation that 99% of producers cannot provide, the technology becomes irrelevant for achieving comprehensive coverage.

These informal land arrangements compound the technical challenges of conducting the GPS mapping discussed previously. When farmers lack formal documentation of land boundaries, GPS mapping teams must rely on farmer recall and verbal descriptions to determine plot edges, a process that produces systematically unreliable data regardless of technological sophistication. Farmers working land under sharecropping or customary agreements often cannot specify exact boundaries because those boundaries were never formally demarcated or shift based on verbal agreements. Multiple parties may claim cultivation rights to overlapping portions of the same plot, or farmers may cultivate scattered parcels under different arrangements, making coherent polygonal mapping impossible without first resolving underlying tenure ambiguities. Even when mapping teams successfully collect GPS coordinates, the resulting polygons frequently overlap with neighboring farms, contain internal inconsistencies, or fail to match farmers' actual cultivation patterns—not due to technical mapping failures, but because the informal tenure systems being mapped inherently lack the defined boundaries that polygon mapping requires.

7 CONCLUSION

This study provides a comprehensive picture of the global cocoa supply chain as a complex, highly intermediated trading system shaped by concentrated processing capacity, repeated cross-border transformations, and volatile market dynamics. Study findings indicate that cocoa moves through a multi-

layered global market in which cocoa beans and semi-processed derivatives—cocoa paste, cocoa butter, and cocoa powder—are exchanged in comparable volumes and repeatedly co-mingled, converted, and re-exported before reaching downstream manufacturing and consumer markets.

The global cocoa market is characterized by strong geographic specialization and consolidation. A small number of producing countries supply the majority of raw cocoa beans, while processing and grinding are increasingly concentrated in a limited set of national and regional hubs. Europe remains the dominant center for both cocoa processing and downstream redistribution, and a narrow group of multinational trader-grinders processes roughly half of global cocoa, reinforcing an "hourglass" market structure in which millions of small-scale producers funnel supply into a highly concentrated midstream before dispersing again into diverse end markets.

Cocoa pricing is determined through a combination of futures markets and spot transactions that enable traders, processors, and manufacturers to hedge risk, while price volatility is largely borne at the farm level, where risk management options are limited. Price volatility, exacerbated by climate events, disease pressures, and speculative activity, has tangible downstream effects, including shifts in sourcing strategies, increased reliance on alternative origins, greater recourse to inventories, and changes in product formulation. The unprecedented price movements of recent years illustrate how closely interconnected production shocks, financial markets, and international trade flows have become within the cocoa sector.

Child labor and forced labor, or the structural conditions predictive of them, are present in cocoa production across every major producing country examined in this study. In CDI, Ghana, Nigeria, and Cameroon—all TVPRA-listed—child labor has been documented through national surveys and field research at rates affecting substantial majorities of children in cocoa-growing households, and forced labor has been documented or indicated through structured investigations. In Brazil, forced labor characterized by debt bondage and degrading conditions has been documented through government inspections and NGO investigations, and hazardous child labor is present on cocoa plantations (Sevilla et al., 2024; Reporter Brasil, 2020). In Ecuador, cocoa is identified as a sector in which child labor occurs, and forced labor risks are documented in the broader agricultural sector, particularly among Venezuelan and Colombian migrant workers with irregular status (Sevilla et al., 2024; U.S. Department of Labor, 2024a). In Guinea and Sierra Leone, cocoa-specific prevalence data are limited, but national child labor rates are high, reaching 31.2% in Guinea, with prefecture-level rates as high as 66–70%, and both countries are embedded in regional child trafficking networks that move children into agricultural labor (Centre on Human Trafficking Research and Outreach, 2023; U.S. Department of Labor, 2025b). Indonesia presents the lowest documented risk among the countries examined, but the smallholder structure—95% of farmers on plots under 2 hectares, relying on family labor—represents established structural conditions for child labor, and regulatory gaps leave the boundary between permissible family work and child labor undefined (Sevilla et al., 2024; U.S. Department of Labor, 2025b). These conditions are driven by structural factors (rural poverty, smallholder dependence, weak labor inspection capacity, and the normalization of child participation in family agricultural work) that have proven resistant to voluntary industry interventions. The 2025 Cocoa Barometer found that child labor increased 14% between 2015 and 2020, despite widespread implementation of programs intended to mitigate it, and independent investigations have consistently documented child labor on certified farms and cocoa from illegal operations entering the supply chains of major companies (Fountain & Huetz-Adams, 2025; Ryerson, 2021; Voller, 2020).

The structural features of cocoa supply chains that enable labor exploitation also make that exploitation difficult to detect and exclude from downstream products. Co-mingling of beans from multiple origins begins at or near the first point of aggregation and continues at every subsequent stage of processing and trade. Mass balance accounting systems, widely used across the sector, enable volume-based certification claims while permitting physical mixing of cocoa from multiple origins. Indirect supply

chains, through which an estimated 70% of global cocoa moves, remain largely untraceable to the farm level. The cumulative result is that cocoa produced under exploitative conditions can enter the processing stream at an early stage and become indistinguishable from compliant cocoa before it reaches exporters, processors, or manufacturers.

Applying the "reason to believe" evidentiary standard—the threshold used by USDOL under the TVPRA to designate goods on the List of Goods Produced by Child Labor or Forced Labor, and that informs the authority of U.S. Customs and Border Protection to issue Withhold Release Orders—this study finds reason to believe that cocoa beans, semi-processed cocoa products, and cocoa-containing finished goods exported from five major downstream hubs are at risk of containing cocoa produced with forced or child labor. In the Netherlands, 83.6% of bean imports originate from TVPRA-listed countries; approximately 76% of those beans are processed domestically, co-mingling inputs from high-risk origins at the point of grinding. In Belgium, 79.8% of bean imports originate from TVPRA-listed countries, and semi-processed cocoa imports, sourced entirely from European processing hubs, carry the same upstream risk through a well-supported inferential chain. In Germany, EU Customs origin data show that 60.3% of bean imports originate from TVPRA-listed countries, and Germany's position as the world's third largest grinder means that co-mingling of those inputs occurs within German processing facilities. Switzerland and the United States present more varied sourcing profiles, but each carries documented child labor/forced labor exposure: Switzerland primarily through Ghana (36.4% of bean imports, TVPRA-listed for child labor) and through semi-processed sourcing from Netherlands and Germany; the United States through CDI (41.3% of bean imports by volume, TVPRA-listed for child labor and forced labor) and Ghana (15.8% by volume). For all five hubs, the "reason to believe" finding applies to cocoa beans, semi-processed cocoa products, and cocoa-containing finished goods, including chocolate; the risk designation for finished goods rests specifically on the cocoa input risk and does not reflect an assessment of other ingredients.

These findings reflect a structural rather than incidental problem. The branding and reporting practices of companies operating in this sector do not consistently align with underlying trade realities. Companies frequently report traceability achievements based on direct sourcing relationships, but the majority of cocoa continues to move through indirect channels that are structurally embedded in global trade and remain largely opaque. The co-mingling that makes source-specific verification impossible is not a gap to be closed through incremental improvement—it is a routine feature of how global cocoa markets are organized, at the farm, the cooperative, the warehouse, the port, and the processing facility.

Looking ahead, the global cocoa trade is entering a period of heightened scrutiny as importing jurisdictions strengthen deforestation, forced labor, and due diligence regulations. These developments place new demands on traders, processors, and manufacturers to demonstrate product-level knowledge across increasingly complex value chains. However, this study shows that compliance challenges are not merely technical; they are rooted in the fundamental organization of cocoa markets, including concentrated processing, routine re-exporting, and normalized co-mingling of raw and semi-processed products. The persistence of labor exploitation, despite decades of voluntary industry initiatives, demonstrates that corporate programs alone are insufficient. Effective oversight, risk management, and market transparency will require approaches that account for the full range of cocoa trade flows—across products, intermediaries, and borders—while aligning traceability expectations with the operational realities of global cocoa markets.

7.1 RECOMMENDATIONS

This study offers the following recommendations:

To Foreign Governments:

- Support transparent market-based solutions to manage price volatility for cocoa farmers.

- Increase transparency in national traceability systems, allowing external evaluation of systems to build industry trust and facilitate acceptance of national traceability platforms.
- Implement improved risk management mechanisms for smallholder farmers that protect against price downturns while allowing farmers to capture benefits from price increases.
- Design holistic anti-child labor interventions that address both farm plot size and productivity yields, recognizing that small plots combined with low yields generate insufficient income to lift families out of poverty. Interventions may include support for yield improvement, input access, and cooperative aggregation that allows small farms to achieve viable income without requiring land consolidation. Where plot expansion is considered, interventions should include explicit protections for smallholder land tenure and should be evaluated for their risk of displacing the most vulnerable farming households from formal supply chains. Interventions designed to improve farm viability should be sequenced and coordinated with the technological assistance and traceability transition support described previously, to ensure that productivity improvements do not come at the cost of smallholder inclusion.
- Strengthen labor inspection systems by increasing the number of labor inspectors in cocoa-producing regions, ensuring periodic farm visits focusing on indirect supply chain suppliers, and coordinating inspection data with traceability platforms.
- Increase monitoring of cocoa pod health and encourage cocoa seed research to increase domestic capacity to anticipate and mitigate agricultural risk.
- Establish formal registration and licensing requirements for cocoa intermediaries, including first-mile traders, buying agents, and informal aggregators, operating in domestic cocoa supply chains. A publicly accessible registry of licensed cocoa traders, linked to national traceability platforms, would bring the intermediary layer through which the majority of cocoa moves into formal oversight frameworks, improving supply chain visibility without requiring farm-level technological infrastructure. Registration requirements should be designed to reduce barriers to entry for small-scale intermediaries rather than consolidate the intermediary market among large traders, and they should include protections against exclusive purchasing arrangements that eliminate competitive price alternatives for farmers.
- Initiate dialogue with major grocery retailers and chocolate buyers to strengthen supply chain accountability and encourage procurement policies that prioritize labor standards and traceability. Such policies should be designed to ensure that compliance costs are not passed up the supply chain to smallholder farmers, whose poverty is a primary structural driver of child labor and forced labor risk. Dialogue should address whether procurement price structures adequately reflect the cost of verified labor compliance, whether long-term purchasing commitments can reduce the income volatility that pushes farmers toward informal markets and labor cost-cutting, and whether retailer and manufacturer margin expectations are compatible with farmgate prices that support living incomes. Procurement policies that impose traceability and labor requirements without corresponding price support risk deepening farmer poverty while creating the appearance of supply chain accountability.
- Adopt comprehensive due diligence regulations, including mandatory corporate disclosures on supply chain transparency and due diligence requirements for sustainability and human rights protection.
- Mandate disaggregated reporting, requiring companies to separately disclose traceability percentages for direct and indirect supply chains, by cocoa product category (beans, paste, butter, and powder), and by geographic region of origin, to prevent aggregated claims from obscuring performance gaps across supply chain types, product forms, and sourcing regions.
- Require independent third-party verification of traceability claims by entities without financial relationships to assessed companies, with public disclosure of verification methodologies and findings.

- Provide technology assistance programs for smallholder farmers, including subsidized GPS devices, connectivity support, digital literacy training, and adequate transition timelines, to prevent exclusion from formal supply chains. Smallholder farmers who cannot meet technical compliance requirements risk losing access to licensed buying systems and cooperative networks, pushing them toward informal intermediaries where labor monitoring is absent and exploitation risk is highest. Assistance programs should be designed and sequenced in parallel with traceability mandate rollouts, not treated as an afterthought to them.

To Private Sector Actors:

- Increase transparency regarding indirect supply chains by publicly disclosing locations of Tier 1 suppliers and requesting geographic information for Tier 2 suppliers, avoiding unsubstantiated claims that data protection regulations prohibit such transparency.
- Processors and manufacturers operating in major downstream hubs that source cocoa beans or semi-processed cocoa from TVPRA-listed origins should conduct and publicly disclose input-level child labor and forced labor risk assessments that separately address beans and semi-processed cocoa by country of origin—not country of dispatch—to accurately characterize their exposure. Aggregate traceability figures and hub-country sourcing data that obscure the producing country origin of inputs should not be represented as evidence of reduced labor risk.
- Ensure through active verification that CLMRS achieve comprehensive coverage in all sourcing regions, including indirect supply chains, with adequate funding earmarked for remediation services.
- Integrate living income benchmarks into traceability and sourcing systems by tracking and publicly disclosing farmgate prices paid to directly and indirectly sourced farmers relative to established living income benchmarks for each producing country and region. Traceability systems that document supply chain origin without capturing whether farmers in traced supply chains earn a living income provide incomplete information about labor risk; income data should be treated as a core traceability metric rather than a separate sustainability objective. Where farmgate prices in traced supply chains fall below living income benchmarks, companies should disclose the gap and report concrete steps, including pricing commitments, long-term contracts, or productivity support, being taken to close it.
- Invest in appropriate technology solutions matching local infrastructure and farmer capabilities, prioritizing SMS-based systems over smartphone applications in which device access is limited and offline-capable applications that function without continuous connectivity.
- Collaborate with industry peers to establish standardized traceability definitions, methodologies, and verification requirements, enabling interoperability between systems and reducing administrative burden on farmers managing multiple certification programs.
- Collaborate with industry peers to establish shared technical standards and software interoperability protocols to ensure technical interoperability with other national cocoa traceability registries, industry-created traceability and labor monitoring platforms, and importing country due diligence systems.
- Provide transparent public reporting on traceability performance disaggregated by supply chain type (direct vs. indirect), cocoa product category (beans, paste, butter, and powder), and geographic region of origin, with independent third-party verification of claims. Traceability figures that apply only to direct supply chains should be clearly labeled as such and should not be presented as representative of overall sourcing performance.
- Eliminate mass balance systems allowing physical mixing of certified and conventional cocoa, and transition to segregated or identity-preserved systems that enable reliable origin verification and accountability for specific supplier performance.

- Evaluate whether certification schemes are adequately mitigating regulatory risk under forced labor import prohibitions and other regulatory requirements.

To Civil Society and Other Stakeholders:

- Conduct systematic, independent farm-level research verifying corporate traceability claims through multi-country field investigations. Research should be designed to distinguish between two outcomes that may appear similar in corporate reporting but have substantially different policy implications: genuine reductions in child labor and forced labor prevalence on monitored farms, and improvements in the documentation or disclosure of existing conditions without corresponding reductions in prevalence. Where monitoring and remediation programs show improved reporting metrics but no measurable change in labor conditions on the ground, findings should be reported as such and used to evaluate whether program design, funding levels, coverage rates, or enforcement mechanisms require revision.
- Develop community-controlled engagement systems complementing corporate and government traceability platforms, integrating local knowledge, and ensuring meaningful community participation in system design, data collection, grievance mechanisms, and CLMRS programs.
- Establish farmer education programs explaining traceability systems' purposes, farmer rights regarding data provision, and mechanisms for reporting labor violations or system failures.
- Monitor smallholder inclusion and exclusion patterns as digital traceability mandates expand, documenting which farmer populations are at risk of losing access to supply chains and advocating for capacity-building support, preventing marginalization of vulnerable populations.
- Advocate for living income pricing integration with traceability systems by documenting farmer income levels in traced supply chains. Research and advocacy should focus specifically on whether traceability programs, including certification schemes and corporate CLMRS programs, are associated with measurable progress toward living income benchmarks, or whether they operate independently of farmgate pricing in ways that leave the primary structural driver of child labor and forced labor unaddressed.
- Coordinate across organizations to share traceability data, labor violation documentation, and monitoring findings, creating comprehensive assessments of supply chain conditions, and enabling targeted advocacy for systemic reform.
- Pressure certification bodies to strengthen audit protocols by requiring unannounced farm visits, increasing sampling percentages beyond current levels, and implementing consequence mechanisms for certified entities where violations persist.

Implementation of these recommendations requires coordinated efforts from all stakeholders. Improving labor conditions in the global cocoa sector will require addressing both immediate labor violations and underlying socioeconomic factors—including informal employment, economic desperation among smallholder farmers, complex intermediary arrangements, and infrastructure gaps—while simultaneously strengthening oversight, traceability, and accountability throughout the supply chain. The sector's continued growth and strategic importance present both risks and opportunities. Without proactive intervention, expansion of cocoa production could exacerbate child labor and forced labor as demand increases in regions with limited oversight. The persistence of labor exploitation despite decades of voluntary industry initiatives demonstrates that corporate programs alone are insufficient to eliminate forced labor and child labor from cocoa supply chains.

APPENDIX 1: REFERENCES

Achirga, A., & Sanni, S. (2024, March 11). Hard times in Nigeria as reforms deepen cost of living crisis. *Reuters*. https://www.reuters.com/world/africa/hard-times-nigeria-reforms-deepen-cost-living-crisis-2024-03-11/

Adabe, K. E., & Ngo-Samnick, L. (2014). *Cocoa production and processing*. CTA. https://www.researchgate.net/publication/329281374_Cocoa_production_and_processing

Adebayo, T. (2023, December 20). *Cocoa grown illegally in a Nigerian rainforest heads to companies that supply major chocolate makers*. AP News. https://apnews.com/article/chocolate-deforestation-cocoa-farming-nigeria-8813c4656635a4ae8b49c6fd7ced6d28

Adeleye, Y. (2024). *Nigeria: EU support to strengthening private sector adaptation to EU deforestation regulation and Corporate Sustainability Due Diligence Directive (CS3D)* (Volume 1: Mapping of actors in cattle, Cocoa, Rubber, and Timber value chains). The TPSDE Facility (European Commission for Trade, Private Sector Development and Engagement, and Employability). https://www.eeas.europa.eu/sites/default/files/documents/2024/Volume%201%20Nigeria.%20Mapping%20of%20value%20chains%20%20v02%20rev16.09.24%20%281%29_0.pdf

Adet, L., Rozendaal, D. M. A., Zuidema, P. A., Vaast, P., & Anten, N. P. R. (2024). Cocoa tree performance and yield are affected by seasonal rainfall reduction. *Agricultural Water Management*, *302*, 108995. https://doi.org/10.1016/j.agwat.2024.108995

Afoakwa, E. O. (2014a). Changes during fermentation of cocoa beans. In *Cocoa production and processing technology*. CRC Press. https://books.google.com/books/about/Cocoa_Production_and_Processing_Technolo.html?id=CJnNBQAAQBAJ

Afoakwa, E. O. (2014b). *Cocoa production and processing technology*. CRC Press. https://books.google.com/books/about/Cocoa_Production_and_Processing_Technolo.html?id=CJnNBQAAQBAJ

Afoakwa, E. O. (2016). *Chocolate science and technology*. John Wiley & Sons. https://onlinelibrary.wiley.com/doi/book/10.1002/9781118913758

Afra, S. (2024, September 3). Addressing gaps in Indonesia's national commodity dashboard and EUDR - Academia. *The Jakarta Post*. https://www.thejakartapost.com/opinion/2024/09/03/addressing-gaps-in-indonesias-national-commodity-dashboard-and-eudr.html

African Business. (2021, November 2). *Sierra Leone gets first cocoa factory*. African Business. https://african.business//2021/11/energy-resources/sierra-leone-gets-first-cocoa-factory

African Farming. (2025, December 8). *Africa processing expands cocoa value by Cameroon's new grinding plant*. African Farming. https://africanfarming.net/crops/agriculture/africa-processing-expands-cocoa-value-by-cameroons-new-grinding-plant

Ahoa, E., Kassahun, A., Tekinerdogan, B., & Verdouw, C. (2021). Analyzing and designing business processes in the Ghana cocoa supply chain for supporting inclusiveness. *Sustainability*, *13*(22), 12440. https://doi.org/10.3390/su132212440

Akinfenwa, G. (2024, August 6). Cocoa farmers, exporters bemoan NAFDAC's 'anti-business' regulations. *The Guardian Nigeria News - Nigeria and World News*. https://guardian.ng/business-services/agro-care/cocoa-farmers-exporters-bemoan-nafdacs-anti-business-regulations/

Akinpelu, A. O., Oladokun, Y., Olasimbo, M., Ogunwolu, Q. A., Agboola, L. O., & Chinweike, A. U. (2024). Effects of climate variation on cocoa production in Nigeria. *Journal of Tree Crops Research*, (1), 7–13.

Akinrotimi, A. F. (2025, February 12). *Postharvest practices and economic outcomes in the cocoa industry: Insights from licensed buying agents in southwest Nigeria*. https://agriculture.researchfloor.org/postharvest-practices-and-economic-outcomes-in-the-cocoa-industry-insights-from-licensed-buying-agents-in-southwest-nigeria/

Alexander, L. (2021, July 7). *Child poverty in Guinea persists*. The Borgen Project. https://borgenproject.org/child-poverty-in-guinea/

Amnesty International. (2025, March 10). *Joint Statement: Disastrous Omnibus proposal erodes EU's corporate accountability commitments and slashes human rights and environmental protections*. https://www.amnesty.org/en/documents/ior60/9111/2025/en/

Angel, M., & Angel, M. (2025, September 22). Ecuador set to become world's No. 2 cocoa grower, industry head says. *Reuters*. https://www.reuters.com/world/americas/ecuador-set-become-worlds-no-2-cocoa-grower-industry-head-says-2025-09-22/

ANSI. (2025). *X12*. https://x12.org/

Antara News. (2023, November 30). *Indonesia eyes global cacao processing hub status*. https://en.antaranews.com/news/299904/indonesia-eyes-global-cacao-processing-hub-status

Asia Pacific Food Industry. (2025, June 6). *Malaysia's cocoa industry eyes growth*. https://www.apfoodonline.com/industry/malaysias-cocoa-industry-eyes-growth-amid-eudr-compliance-and-revitalisation-efforts/

Asoko Insight. (2025). *Africa corporate data | Investment in Africa | Africa companies*. https://www.asokoinsight.com/

AsstrA. (2020). *Cocoa beans transport and logistics—Chocolate transport*. https://asstra.com/special-cargo/transportation-of-cocoa/

Atabong, A. B. (2023, July 19). Crackdown on cocoa smuggling hits farmers in Cameroon conflict zone. *Reuters*. https://www.reuters.com/article/business/crackdown-on-cocoa-smuggling-hits-farmers-in-cameroon-conflict-zone-idUSL8N3940JM/

Bantu Chocolate. (2023, January 16). *Cacao pulp juice, the future of cocoa*. https://bantuchocolate.chttps://bantuchocolate.com/our-journey/cacao-juice-the-future-of-cocoa/

Barry Callebaut. (2019, March 29). *Barry Callebaut expands processing in Côte d'Ivoire*. https://www.barry-callebaut.com/en/about-us/media/news-stories/barry-callebaut-expands-its-cocoa-processing-capacities-cote-divoire

Barry Callebaut. (2022, September 12). *A big picture approach to cocoa traceability*. https://www.barry-callebaut.com/en-US/about-us/media/news-stories/big-picture-approach-cocoa-traceability

Barry Callebaut. (2023). *Barry Callebaut annual report 2022/23*.

Barry Callebaut. (2025a). *Forever chocolate progress report 2024/25*. https://www.barry-callebaut.com/en/sustainability/reporting/forever-chocolate-progress-report-202425

Barry Callebaut. (2025b). *That's what forever chocolate is all about*. https://www.barry-callebaut.com/en-US/sustainability/strategy

Baskett, N. (2021, October 13). *Malaysia's cocoa production and distribution ambition*. https://bartalks.net/malaysias-cocoa-production-and-distribution-ambition/

BBC News. (2016, June 1). The chocolate shops championing Ivory Coast's cocoa. *BBC News*. https://www.bbc.com/news/business-36417934

Bediako, J. (2024, February 5). Ghana has been importing cocoa since 2000 –COCOBOD. *The Ghanaian Chronicle*. https://thechronicle.com.gh/ghana-has-been-importing-cocoa-since-2000-cocobod/

Better Than Cash Alliance. (2024, May). *Scaling responsible digital payments in the Indonesian cocoa sector*. Better Than Cash Alliance. https://www.betterthancash.org/explore-resources/scaling-responsible-digital-payments-in-the-indonesian-cocoa-sector

Blackmore, E., & Berger, T. (2021, August 23). *Civil society perspectives on the living income differential for cocoa producers*. International Institute for the Environment and Development. https://www.iied.org/civil-society-perspectives-living-income-differential-for-cocoa-producers

Bloomberg. (2024a, April 7). *Brazil cocoa farms go high-tech in bid to upgrade ailing market*. https://www.bloomberg.com/news/articles/2024-04-07/brazil-cocoa-farms-go-high-tech-in-bid-to-upgrade-ailing-market

Bloomberg. (2024b, May 12). *Brazil's Bahian farmers plant cocoa trees as Ivory Coast, Ghana production falls*. https://www.bloomberg.com/news/articles/2024-05-12/brazil-s-bahian-farmers-plant-cocoa-trees-as-ivory-coast-ghana-production-falls

Bloomberg (Director). (2026, January 25). *Watch Ecuador's cocoa boom shows how climate change Is redrawing agriculture* [Broadcast]. https://www.bloomberg.com/news/videos/2026-01-25/how-climate-change-affects-the-world-s-chocolates-video

Boyanton, M. U.-L. (2025, March 6). In Hawai'i, American farmers believe they do cacao better. *Modern Farmer*. https://modernfarmer.com/2025/03/in-hawaii-american-farmers-believe-they-do-cacao-better/

Boysen, O., Ferrari, E., Nechifor, V., & Tillie, P. (2023). Earn a living? What the Côte d'Ivoire–Ghana cocoa living income differential might deliver on its promise. *Food Policy*, *114*, 102389. https://doi.org/10.1016/j.foodpol.2022.102389

BPS Statistics Indonesia. (2024). *Indonesia cocoa statistics 2023* (Volume 8, Katalog/Catalogue: 5504005). https://www.bps.go.id/en/publication/2024/11/29/ed255af0c9059f288fb7e1de/indonesian-cocoa-statistics-2023.html

Buhr, E. de, & Gordon, E. (2018). *Bitter sweets: Prevalence of forced labour & child labour in the cocoa sectors of Cote d'Ivoire and Ghana*. Walk Free Foundation, Tulane University. https://cdn.walkfree.org/content/uploads/2020/10/06164346/Cocoa-Report_181016_V15-FNL_digital.pdf

Business in Cameroon. (2025a, September). *Global cocoa surplus weighs on Cameroon's 2025-26 price outlook*. https://www.businessincameroon.com/agriculture/2609-15091-global-cocoa-surplus-weighs-on-cameroon-s-2025-26-price-outlook

Business in Cameroon. (2025b, October 18). *Three traders dominated Cameroon's cocoa export market in 2023-24*. https://www.businessincameroon.com/agriculture/2808-14097-three-traders-dominated-cameroon-s-cocoa-export-market-in-2023-24

CameroonOnline.org. (2025, July 21). *Cameroon nears full cocoa traceability as EU deadline looms, but risks remain*. https://www.cameroononline.org/cameroon-nears-full-cocoa-traceability-as-eu-deadline-looms-but-risks-remain/

Cargill. (2021, November 5). *Cargill completes $100M new dutch cocoa processing expansion*. Food Manufacturing. https://www.foodmanufacturing.com/capital-investment/news/21809331/cargill-completes-100m-new-dutch-cocoa-processing-expansion

Cargill. (2023). *Cargill ESG report 2023*. https://www.cargill.com/sustainability/doc/1432249640856/2023-esg-report-cocoa-and-chocolate.pdf

Cargill. (2025a). *Cargill in Côte d'Ivoire*. https://www.cargill.com/worldwide/cote-d-ivoire

Cargill. (2025b). *CocoaWise portal keeps sustainability data at the fingertips of Cargill's cocoa and chocolate customers*. https://www.cargill.com/2020/cocoawise-portal-keeps-sustainability-data-at-the-fingertips

Cargill. (2025c). *Farmer livelihoods*. https://www.cargill.com/sustainability/cocoa/farmer-livelihoods

Cargo Handbook. (2022). *Cocoa beans*. https://www.cargohandbook.com/Cocoa_Beans

CBI. (2022, November 2). *The Swiss market potential for cocoa*. https://www.cbi.eu/market-information/cocoa-cocoa-products/switzerland/market-potential

CBI. (2024a, April 30). *The Belgian market potential for cocoa*. https://www.cbi.eu/market-information/cocoa-cocoa-products/belgium/market-potential

CBI. (2024b, October 28). *Entering the European market for bulk cocoa*. https://www.cbi.eu/market-information/cocoa-cocoa-products/bulk-cocoa/market-entry

CBI. (2025a). *The Dutch market potential for cocoa*. https://www.cbi.eu/market-information/cocoa-cocoa-products/netherlands/market-potential

CBI. (2025b). *Transforming trade together*. https://www.cbi.eu/

CBI. (2025c, March 24). *French market potential for cocoa*. https://www.cbi.eu/market-information/cocoa-cocoa-products/france/market-potential

CBI. (2025d, March 26). *What is the demand for cocoa on the European market?* https://www.cbi.eu/market-information/cocoa/what-demand

CBI. (2025e, December 22). *The German market potential for cocoa*. https://www.cbi.eu/market-information/cocoa-cocoa-products/germany/market-potential

Center for Economic and Policy Research. (2023, September 19). *Ecuador: A decade of progress, undone*. https://cepr.net/publications/ecuador-a-decade-of-progress-undone/

Center for Effective Global Action. (2025). *Contract structure and cocoa export quality in Sierra Leone*. https://cega.berkeley.edu/collection/contract-structure-and-cocoa-export-quality-in-sierra-leone/

Centre on Human Trafficking Research and Outreach. (2023, January 24). *Report: High numbers of children in Guinea experience trafficking*. https://cenhtro.domain-account.com/news/child_trafficking_labor_guinea_cenhtro_apries/

CGAP. (2016, November 7). *Future of mobile money for cocoa farmers in Côte d'Ivoire, Ghana*. https://www.cgap.org/blog/future-of-mobile-money-for-cocoa-farmers-in-cote-divoire-ghana

Chambers and Partners. (2026, January 13). *Ghana's cocoa trade: Navigating regulations for local and international participation*. https://chambers.com/articles/ghana-s-cocoa-trade-navigating-regulations-for-local-and-international-participation

Child Labor in Cocoa Coordinating Group. (2024). *2024–2029 framework of action*. https://www.cocoainitiative.org/sites/default/files/media-files/2024-11/clccg_2024-framework-of-action_eng_s.pdf

Chinwike, O. (2023). *The scourge of forced labour and child labour in cocoa supply chain in Nigeria: The research and investigation report on forced labour and child labour in the cocoa industry of Nigeria*. African Law Foundation.

Chocosuisse. (2025). *Facts & figures*. https://www.chocosuisse.ch/en/services/facts-figures

Choprabisco. (2025). *Choprabisco*. https://www.choprabisco.be/en/

Clarmondial. (2025). *The impact of record-high cocoa prices on smallholder farmers and the implications for supply chain finance supporting regenerative agriculture in Côte d'Ivoire*. https://www.clarmondial.com/cocoa_update_apr24/

Cocoa Future Collaborative. (2025). *How can the whole cacao pod be upcycled? Cacao pod husks*. https://cocoafuture.org/blogs/blog/upcycling-whole-cacao-pod-husks

Cocoa Nusa. (2024, May 23). *Cocoa powder producer story: Story of Altinmarka*. https://cocoanusa.com/articles/cocoa-powder-producer-story-altinmarka/

CocoTerra. (2024a, April 23). *How is cacao harvested? Cacao harvesting guide*. https://www.cocoterra.com/how-is-cacao-harvested/

CocoTerra. (2024b, April 23). *What equipment Is used to harvest cacao pods?* https://www.cocoterra.com/what-equipmentis-used-to-harvest-cacao-pods/

CocoTerra. (2024c, September 17). *What is cacao pulp?* https://www.cocoterra.com/what-is-cacao-pulp/

CocoTerra. (2024d, November 21). *Cacao trees 101: From cacao plants to cocoa beans*. https://www.cocoterra.com/cacao-trees-101-from-cacao-plants-to-cocoa-beans/

Coetzee, L. (2024, September 9). The versatility, variety and diversity of cocoa and its applications. *Carst & Walker*. https://carst.com/from-bean-to-brilliance-exploring-the-versatility-of-cocoa-with-carst-walker/

Confectionery Production. (2020, May 29). *Malaysia's JB Cocoa enhances its Indonesian processing operations*. https://www.confectioneryproduction.com/feature/29752/malaysias-jb-cocoa-enhances-its-indonesian-processing-operations/

Corporate Accountability Lab. (2023, September). *"There will be no more cocoa here" How companies are extracting the West African cocoa sector to death*. https://corpaccountabilitylab.org/west-africa-cocoa-report-2023

Crescini, G. (2022). *The Power of data: Beyond traceability—Key findings of a SWISSCO member event on traceability held on May 24, 2022 in Zurich*. Swiss Platform for Sustainable Cocoa.

Crowley, A.-J., Gonzalez, A., & Hirt, O. (2025, December 16). Exclusive: Swiss firm Barry Callebaut eyes separating cocoa division amid price volatility, sources say. *Reuters*. https://www.reuters.com/business/swiss-firm-barry-callebaut-eyes-separating-cocoa-division-amid-price-volatility-2025-12-16/

CSM. (2024, August 26). *The digital divide in West African agriculture: Challenges and opportunities in farmer registration*. https://www.csm.tech/blog-details/the-digital-divide-in-west-african-agriculture-challenges-and-opportunities-in-farmer-registration

CZ app. (2025, September 9). *Cocoa tariffs deepen crisis for US chocolate industry*. https://www.czapp.com/analyst-insights/cocoa-tariffs-deepen-crisis-for-us-chocolate-industry/

Dand, R. (2010). *The international cocoa trade*. Elsevier. https://shop.elsevier.com/books/the-international-cocoa-trade/dand/978-0-85709-125-3

Darhei Noam Ltd. (2023). *Feasibility study on Africa Cocoa Exchange (AfCX)—Appendix IV*. International Cocoa Organization. https://www.icco.org/wp-content/uploads/5-FEASIBILITY-STUDY-ON-AFRICA-COCOA-EXCHANGE__Annex_CAMEROON.pdf

Darko, N. K., Oduro, C., Yeboah, E., & Kwarteng, E. V. S. (2025). *Agricultural land use change in Ghana: First evidence of cocoa-to-rubber conversion using remote sensing and farmer surveys*. In Review. https://doi.org/10.21203/rs.3.rs-6798890/v1

Deam, A. W. (2020). Children, chocolate, and profits: A policy-oriented analysis of child labor and the chocolate industry giants. *Intercultural Human Rights Law Review*, *15*, 257.

Decker, K. (2019, October 14). *Environmental, social issues threaten chocolate and cocoa*. Dairy Foods. https://www.dairyfoods.com/articles/93888-environmental-social-issues-threaten-chocolate-and-cocoa

DEKS Cacao. (2025). *Premium cocoa products supplier from Sierra Leone*. https://dekscacao.com/

Dey, D. (2025, November). *United States cocoa processing market to reach US$ 5.55 billion by 2033, growing at a CAGR of 2.92%*. Journal. https://vocal.media/journal/united-states-cocoa-processing-market-to-reach-us-5-55-billion-by-2033-growing-at-a-cagr-of-2-92

Diallo, A., Yin, Z., & Beckline, M. (2017). Assessing the socioeconomic impacts of the informal sector in Guinea, West Africa. *OALib*, *04*(01), 1–9. https://doi.org/10.4236/oalib.1103290

Dias, M. O. de S., Maciel Filho, R., Mantelatto, P. E., Cavalett, O., Rossell, C. E. V., Bonomi, A., & Leal, M. R. L. V. (2015). Sugarcane processing for ethanol and sugar in Brazil. *Environmental Development*, *15*, 35–51. https://doi.org/10.1016/j.envdev.2015.03.004

Djuideu, C. T. L., Bisseleua, H. D. B., Kekeunou, S., & Ambele, F. C. (2021). Rehabilitation practices in cocoa agroforestry systems mitigate outbreaks of termites and support cocoa tree development and yield. *Agriculture, Ecosystems & Environment*, *311*, 107324. https://doi.org/10.1016/j.agee.2021.107324

Donkor, I. (2024, February 3). *Ghana now importing cocoa beans?* Modern Ghana. https://www.modernghana.com/news/1290222/ghana-now-importing-cocoa-beans.html

Dowuona-Hammond, C., Atuguba, R. A., & Tuokuu, F. X. D. (2021). The child labour quagmire in Ghana: Root causes and ephemeral solutions. *Business and Human Rights Journal*, *6*(1), 163–169. https://doi.org/10.1017/bhj.2020.29

Dröge, S., Bemelmans, J., Depoorter, C., Jusrin, M. J. M., Marx, A., Verbist, B., Prasetyo, L. B., Maertens, M., & Muys, B. (2025). From chocolate to palm oil: The future of Indonesia's cocoa plantations. *Ambio*, *54*(1), 151–161. https://doi.org/10.1007/s13280-024-02061-0

Due Diligence Design. (2025, August 28). *New report on deforestation linked to Cameroon's expanding cocoa sector*. https://duediligence.design/new-report-on-deforestation-linked-to-cameroons-expanding-cocoa-sector/

Dunmola, A. O., Oluwadamilola, M. K., Abisola, A. F., & Ayoola, M. R. (2025). Cocoa advancement and its efficiency in Osun State, Nigeria. *South Florida Journal of Development*, *6*(7), e5533–e5533. https://doi.org/10.46932/sfjdv6n7-006

EasyBuy Ingredients. (2025). *Innovative applications of cocoa butter in non-food industries*. https://easybuyingredients.com/blog/innovative-applications-cocoa-butter/?srsltid=AfmBOooU9SF1S5a1FQckga2QmLFkc_H40N7-46VKNpM-X1E382Pv5vNT

Eboh, C. (2025, August 11). Nigeria's non-oil exports jump nearly 20% in first half on cocoa, urea demand. *Reuters*. https://www.reuters.com/world/africa/nigerias-non-oil-exports-jump-nearly-20-first-half-cocoa-urea-demand-2025-08-11/

Ecofin Agency. (2023, September 14). *Côte d'Ivoire introduces national coffee and cocoa traceability system*. https://www.ecofinagency.com/public-management/1409-44854-cote-d-ivoire-introduces-national-coffee-and-cocoa-traceability-system

Ecofin Agency. (2025a, July 17). *Ivory Coast shifts strategy to stop raw material smuggling*. https://www.ecofinagency.com/news-agriculture/1707-47738-ivory-coast-shifts-strategy-to-stop-raw-material-smuggling

Ecofin Agency. (2025b, October 14). *Ghana pushes to expand cocoa processing despite financial and supply constraints*. https://www.ecofinagency.com/news-agriculture/1410-49521-ghana-pushes-to-expand-cocoa-processing-despite-financial-and-supply-constraints

ECOM. (2025). *ECOM cocoa: Sustainable sourcing and supply chain solutions for cocoa*. https://www.ecomtrading.com/products-services/cocoa/

Esan, V. I., Oke, G. O., Olaide, A., Ayoola, M. O., Obisesan, I. A., & Oluranti, O. O. (2025). Knowledge on potential, production, and achievements of cocoa (Theobroma cacao) in Nigeria: Past, current status, and perspective. *CABI Agriculture and Bioscience*, *6*(1), 0028. https://doi.org/10.1079/ab.2025.0028

EUR-Lex. (2022, January 1). *EU rules on producing and labelling organic products from 2022*. https://eur-lex.europa.eu/EN/legal-content/summary/eu-rules-on-producing-and-labelling-organic-products-from-2022.html

European Central Bank Data Portal. (2025). *Eurostat external trade statistics—TRD*. https://data.ecb.europa.eu/data/datasets/TRD/data-information

European Cocoa Association. (2025). *Grind stats*. https://www.eurococoa.com/all-about-grind-stats/

European Commission. (2025a). *Cocoa under the Deforestation Regulation—Green Forum*. https://green-forum.ec.europa.eu/nature-and-biodiversity/deforestation-regulation-implementation/cocoa-under-deforestation-regulation_en

European Commission. (2025b). *Forced Labour Regulation—Internal market, industry, entrepreneurship and SMEs*. https://single-market-economy.ec.europa.eu/single-market/goods/forced-labour-regulation_en

European Forest Institute. (2024). *Demonstrating legal compliance of cocoa production and trade*. European Forest Institute. https://efi.int/sites/default/files/files/flegtredd/Sustainable-cocoa-programme/Cocoa%20insights/EFI%20Cocoa%20Insight%202%20-%20Ensuring%20cocoa%20legality%20EN.pdf

European Forest Institute. (2025a). *Inclusion of Indonesian smallholders in European Union supply chains under the EU Deforestation Regulation: Challenges and potential mitigation measures*. European Forest Institute. https://efi.int/sites/default/files/files/flegtredd/KAMI/Resources/Smallholder_challenges.pdf

European Forest Institute. (2025b, March). *Preparedness check of Ghana for the EU Deforestation Regulation – March 2025*. European Forest Institute. https://efi.int/sites/default/files/files/flegtredd/Sustainable-cocoa-programme/Cocoa%20insights/20250312%20EUDR%20Preparedness%20check%20of%20Ghana.pdf

Ezeamalu, B. (2025, May 6). "Cocoa boys" flock to Nigerian farmlands, drawn by high prices. *Reuters*. https://www.reuters.com/world/africa/cocoa-boys-flock-nigerian-farmlands-drawn-by-high-prices-2025-05-06/

Fabre, T., Bassanaga, S., Ricau, P., Fomou, G., & Sanial, E. (2022). *Traceability, transparency and sustainability in the cocoa sector in Cameroon* (pp. 6–67). European Forest Institute and Nitidae. https://efi.int/sites/default/files/files/flegtredd/Sustainable-cocoa-programme/Traceability%2C%20transparency%20and%20sustainability%20in%20the%20cocoa%20sector%20in%20Cameroon%20(report).pdf

Fair Labor Association. (2022). *Mapping working conditions and child labor risks in Olam cocoa supply chain in Cameroon*. https://www.fairlabor.org/wp-content/uploads/2022/02/OlamCam_CocoaReport_FINAL-copy.pdf

Fair Trade Certified. (2025, October 7). *Fair trade chocolate: How our brand partners are leading the way*. https://www.fairtradecertified.org/blog/fair-trade-chocolate-how-industry-leaders-are-making-rippling-impact/

Fair Trade USA. (2019). *Allowance for the use of mass balance*. https://assets.fairtradecertified.org/image/upload/v1655215405/Standards/Trade%20Standard/STD_POL_MassBalance_EN_1.0.0.pdf

Fair Trade USA. (2022, January 1). *Agricultural Production Standard, Version 2.1.0*. https://assets.fairtradecertified.org/image/upload/v1654625272/Standards/Agricultural%20Production%20Standard%20USA/FTUSA_STD_APS_EN_1.2.0.pdf

Fairtrade Africa. (2025). *Kasiyatama-Digital*. https://fairtradeafrica.net/wp-content/uploads/2022/05/Kasiyatama-Digital.pdf?utm_source=chatgpt.com

Fairtrade International. (2024). *Summary paper: Empowering cocoa cooperatives through data ownership*. https://www.fairtrade.net/content/dam/fairtrade/fairtrade-uk/resource-library/reports/Data%20Ownership%20Feasibility%20Study%20Summary%20Paper.pdf

Fairtrade International. (2025a). *Fairtrade risk map: Cocoa*. https://riskmap.fairtrade.net/commodities/cocoa

Fairtrade International. (2025b). *Traceability in Fairtrade supply chains*. https://www.fairtrade.net/us-en/why-fairtrade/how-we-do-it/traceability-in-fairtrade-supply-chains.html

Fantin, M. (2025, May 23). *Rondônia cocoa adopts first-ever production traceability platform*. Valor International. https://valorinternational.globo.com/agribusiness/news/2025/05/23/rondonia-cocoa-adopts-first-ever-production-traceability-platform.ghtml

Federal Register. (2023, January 19). *National Organic Program (NOP); strengthening organic enforcement*. https://www.federalregister.gov/documents/2023/01/19/2023-00702/national-organic-program-nop-strengthening-organic-enforcement

FlavoringFood. (2025, April 17). *Does cacao expire? Understanding the shelf life of cacao products*. https://flavoringfood.com/does-cacao-expire/

Food and Agriculture Organization of the United Nations. (2001). *Guinea—Agricultural census 2000/01—Main results*. https://www.fao.org/fileadmin/templates/ess/ess_test_folder/World_Census_Agriculture/Country_info_2000/Keydata/Guinea_Keydata.pdf

Food and Agriculture Organization of the United Nations. (2020). *FAO framework on ending child labour in agriculture*. FAO. https://doi.org/10.4060/ca9502en

Food and Agriculture Organization of the United Nations. (2025a, July 22). *FAO supports the government of Cameroon in using AI and satellite imagery to produce cocoa map under the sustainable cocoa programme*. https://www.fao.org/cameroun/news/detail/fao-supports-the-government-of-

cameroon-in-using-ai-and-satellite-imagery-to-produce-cocoa-map-under-the-sustainable-cocoa-programme/en

Food and Agriculture Organization of the United Nations. (2025b, October 22). *Cameroon validates support plan for cooperatives to facilitate cocoa sales in the European Union*. https://www.fao.org/cameroun/news/detail/cameroon-validates-support-plan-for-cooperatives-to-facilitate-cocoa-sales-in-the-european-union/en

Food Empowerment Project. (2022, January). *Child labor and slavery in the chocolate industry*. https://foodispower.org/human-labor-slavery/slavery-in-the-chocolate-industry/

Food Industry Executive. (2024, June 27). *Crunch time for cocoa: The recent surge in cocoa prices and what it means for businesses*. https://foodindustryexecutive.com/2024/06/crunch-time-for-cocoa-the-recent-surge-in-cocoa-prices-and-what-it-means-for-businesses/

Fornah, M. K. (2025). *Rebuilding cocoa farmers' skills*. BBC Media Action. https://www.bbc.co.uk/mediaaction/where-we-work/africa/sierra-leone/rebuilding-cocoa-farmers-skills

Fountain, A. C., & Huetz-Adams, F. (2022). *Cocoa barometer 2022*. Voice Cocoa Network. https://voicenetwork.cc/wp-content/uploads/2022/12/Cocoa-Barometer-2022.pdf

Fountain, A. C., & Huetz-Adams, F. (2025). *Cocoa barometer 2025*. Voice Cocoa Network. https://voicenetwork.cc/resources/2025-cocoa-barometer/

France 24. (2024, September 13). *Reporters - The cocoa connection: How "brown gold" is smuggled between Ivory Coast, Liberia and Guinea*. France 24. https://www.france24.com/en/tv-shows/reporters/20240913-the-cocoa-connection-how-brown-gold-is-smuggled-between-ivory-coast-liberia-and-guinea

France 24. (2025, June 24). *Better than gold: How Ecuador cashed in on surging cocoa prices*. France 24. https://www.france24.com/en/live-news/20250624-better-than-gold-how-ecuador-cashed-in-on-surging-cocoa-prices

Frank Bold Advisory. (2025, October 12). *The EU is changing its sustainability requirements for businesses. What will the approved Omnibus I package bring?* Frank Bold Advisory. https://www.frankboldadvisory.com/post/the-eu-is-changing-its-sustainability-requirements-for-businesses-what-will-the-approved-omnibus-i-package-bring

Furlan, M. (2024a). *Forced labor and child labor in Cameroon's cocoa sector*. Free the Slaves. https://freetheslaves.net/wp-content/uploads/2024/03/FL-and-CL_Cameroon_Cocoa-1.pdf

Furlan, M. (2024b). *Forced labor and child labor in Nigeria's cocoa sector*. Free the Slaves. https://freetheslaves.net/wp-content/uploads/2024/08/Nigeria_FLCL_cocoa.pdf

Furlan, M. (2024c, September 5). *Harsh realities of forced labor and child labor in West Africa's cocoa industry*. Free the Slaves. https://freetheslaves.net/harsh-realities-of-forced-labor-and-child-labor-in-west-africas-cocoa-industry/

Furlan, M. (2025a). *Armed actors, modern slavery, and cocoa smuggling 2025: An investigation into the cocoa sector in the Democratic Republic of the Congo*. Free the Slaves. https://freetheslaves.net/wp-content/uploads/2025/09/DRC-Cocoa-Research-2025.pdf

Furlan, M. (2025b). *Forced labor and forced labor risks in Brazil's cocoa sector*. Free the Slaves. https://freetheslaves.net/wp-content/uploads/2025/01/Brazil_cocoa.pdf

Furlan, M. (2025c). *Forced labor and forced labor risks in Ecuador's cocoa sector*. Free the Slaves. https://freetheslaves.net/wp-content/uploads/2025/01/Forced-Labor_Ecuador_Cocoa.pdf

Gaia Cacao B.V. (2021). *Global cocoa market study*. International Executive Service Corps, Fine Cacao and Chocolate Institute. https://thechocolatelife.com/content/files/2022/01/Global-Cocoa-Market-Study-Report.pdf

Galanakis, C. M. (2022). *Trends in sustainable chocolate production*. Springer Nature. https://link.springer.com/book/10.1007/978-3-030-90169-1

Gaworecki, M. (2017, June 7). Rainforest Alliance, UTZ announce merger to create single sustainability standard and certification program. *Conservation News*. https://news.mongabay.com/2017/06/rainforest-alliance-utz-announce-merger-to-create-single-sustainability-standard-and-certification-program/

GCB Bank. (2022). *Sector industry analysis 2022 cocoa sector report*. https://www.gcbbank.com.gh/research-reports/sector-industry-reports/120-cocoa-industry-in-ghana-2022/file

GCB Foods. (2025). *Guan Chong: Investor relations*. https://gcb.gcbfoods.com.my/business.html

Ghana Cocoa Board. (2023, June 30). *COCOBOD on course to achieve goals of Ghana Cocoa Traceability System (GCTS)*. https://cocobod.gh/news/cocobod-on-course-to-achieve-goals-of-ghana-cocoa-traceability-system-gcts

Global Market Insights. (2025a). *Chocolate market size, share, growth & trend [2028]*. https://www.businessresearchinsights.com/market-reports/chocolate-market-120391

Global Market Insights. (2025b). *Global cocoa market report 2025 -2034* (p. 52).

Global Market Insights. (2025c, March). *Cocoa powder market size & share, forecasts report 2025-2034*. https://www.gminsights.com/industry-analysis/cocoa-powder-market

Go Africa Online. (2025). *Import and export companies in Guinea*. https://www.goafricaonline.com/gn/annuaire/societes-import-export

Gordon, C. (2024, October 3). Cocoa traceability is hard. *International Confectionery Magazine*. https://in-confectionery.com/cocoa-traceability-is-hard/

Gourmet Economist. (2025, June 27). *The Swiss chocolate paradox: How premium positioning survives commodity crises*. https://www.gourmeteconomist.com/the-swiss-chocolate-paradox-how-premium-positioning-survives-commodity-crises/

Grabs, J., & Carodenuto, S. L. (2021). Traders as sustainability governance actors in global food supply chains: A research agenda. *Business Strategy and the Environment*, *30*(2), 1314–1332. https://doi.org/10.1002/bse.2686

Green Development Advocates. (2024). *Deforestation-free cocoa in Cameroon: Questions, concerns and priorities from smallholder farmers*. https://archive2020-24.pfbc-cbfp.org/files/docs/news/2-2024/Deforestation-free-cocoa-in-Cameroon.pdf

Group CÉMOI. (2025). *Cocoa chain of the French chocolatier*. https://group.cemoi.com/know-how/cocoa-network/

Guinea Trade Export Company. (2025). *Guinea Trade Export Company Sarlu*. https://gtec-gn.com/

Haar, S. van der, Steijn, C., Laven, A., & Antillon, C. (2025). *Addressing the income-child labour-gender nexus: Evidence from the cocoa, coffee and cashew sectors*. KIT Institute. https://www.kit.nl/wp-content/uploads/2025/09/KIT-2025-Addressing-the-income-child-labour-gender-nexus_Full-report.pdf

Health Canada. (2024, May 31). *Fighting against forced labour and child labour in Supply Chains Act: 2023 to 2024 report : Health Canada*. https://www.canada.ca/en/health-canada/corporate/transparency/corporate-management-reporting/supply-chains/fighting-forced-child-labour-act-2023-2024.html

Herve, Z. E., & Zhao, G. (2018). Cocoa exports of Cameroon: Structure and mechanism of operation. *Theoretical Economics Letters*, *8*(14), 3223–3251. https://doi.org/10.4236/tel.2018.814200

Hill Country Chocolate. (2024, September 2). *Chocolate beyond the plate: Innovative non-food products from cacao*. https://www.hillcountrychocolate.com/blogs/news/innovative-non-food-products-from-cacao?srsltid=AfmBOoqLgKexsoKEKn0xLP1imwWw9l_AxMBglVhIJL0dcgKTJsRCJ8P4

Hogan Lovells. (2023, January 23). *USDA issues final rule strengthening oversight and enforcement of its organic regulations*. Www.Hoganlovells.Com. https://www.hoganlovells.com/en/publications/usda-issues-final-rule-strengthening-oversight-and-enforcement-of-its-organic-regulations

Hotel Chocolat. (2020, June 3). *A complete guide to cocoa beans and the cocoa tree*. https://www.hotelchocolat.com/uk/blog/food%2Bdrink/a-complete-guide-to-cocoa-beans-and-the-cocoa-tree.html

IDH. (2020, September 9). *Ngoleagorbu becomes the first farmer-Led organization in Sierra Leone to directly export forest-friendly Fairtrade-certified cocoa*. https://idh.org/news/ngoleagorbu-becomes-the-first-farmer-led-organization-in-sierra-leone-to-directly-export-forest-friendly-fairtrade-certified-cocoa

IDH, GISCO, & C-lever.org. (2021a). *Cocoa traceability case study: Barry Callebaut*. https://www.idhsustainabletrade.com/uploaded/2021/06/Case-Study_Traceability_Barry-Callebaut_Final.pdf

IDH, GISCO, & C-lever.org. (2021b). *Cocoa traceability case study: Cargill*. https://www.idhsustainabletrade.com/uploaded/2021/06/Case-Study_Traceability_Barry-Callebaut_Final.pdf

IDH, GISCO, & C-Lever-Org. (2021). *Technical brief on cocoa traceability in West and Central Africa*.

Ikeh, G. (2025, June 4). Nigeria pledges to revive cocoa industry, agric. Value chain. *APAnews - African Press Agency*. https://apanews.net/nigeria-pledges-to-revive-cocoa-industry-agric-value-chain/

Indonesia Investments. (2025). *Cocoa in Indonesia analysis—Cacao production, export & plantations*. https://www.indonesia-investments.com/business/commodities/cocoa/item241

Ingram, V., Janssen, V., Neh, V. A., & Pratihast, A. K. (2025). Cocoa driven deforestation in Cameroon: Practices and policy. *Forest Policy and Economics*, *177*, 103533. https://doi.org/10.1016/j.forpol.2025.103533

Instituto Nacional de Estadística y Censos. (2022). *Encuesta Nacional de Empleo, Desempleo y Subemple [National Survey of Employment, Unemployment, and Underemployment]*. Instituto Nacional de Estadística y Censos. https://www.ecuadorencifras.gob.ec/empleo-desempleo-y-subempleo/

International Agro Industrie Commodities. (2025). *International Agro Industrie Commodities*. https://www.i-aic.com/

International Cocoa Organization. (2023). *Value chain and sectoral regulatory analysis country reports: Cameroon country report*.

International Cocoa Organization. (2024). *ICCO cocoa market review: December 2024*. https://www.icco.org/wp-content/uploads/Cocoa-Market-Report-December-2024.pdf

International Cocoa Organization. (2025a). *Cocoa statistics*. https://www.icco.org/statistics/

International Cocoa Organization. (2025b). *Fine flavor cocoa*. https://www.icco.org/fine-or-flavor-cocoa/

International Cocoa Organization. (2025c). *Quarterly bulletin of cocoa statistics* (Cocoa Year 2024/25 Volume LI No. 2).

International Cocoa Organization. (2025d). *Statistics*. https://www.icco.org/statistics/

International Cocoa Organization. (2025e). *Trading & shipping*. https://www.icco.org/trading-shipping/

International Energy Agency. (2022, June 20). *Africa energy outlook 2022*. https://www.iea.org/reports/africa-energy-outlook-2022

International Food Policy Research Institute. (2024, May 8). *Soaring cocoa prices: Diverse impacts and implications for key West African producers*. https://www.ifpri.org/blog/soaring-cocoa-prices-diverse-impacts-and-implications-key-west-african-producers/

International Institute for Sustainable Development. (2023). *Cocoa coverage*. State of Sustainability Initiatives. https://www.iisd.org/ssi/commodities/cocoa-coverage/

International Labour Organization. (2007, December 1). *Rooting out child labour from cocoa farms*. https://www.ilo.org/resource/training-material/rooting-out-child-labour-cocoa-farms

International Labour Organization & Nigeria National Bureau of Statistics. (2024, April 26). *Nigeria Child Labour Survey 2022*. https://www.ilo.org/publications/nigeria-child-labour-survey-2022

International Organization for Standardization. (2019). *ISO 34101-1:2019*. https://www.iso.org/standard/64765.html

International Trade Centre, World Trade Organization, & UNCTAD (Eds.). (2001). *Cocoa: A guide to trade practices*. International Trade Centre.

Internet Society Pulse. (2025). *Country report for Côte d'Ivoire*. https://pulse.internetsociety.org/en/reports/CI

Jalloh, A. B. (2025, July 6). *Côte d'Ivoire opens $233 million cocoa grinding complex*. https://theafricandreamsl.com/cote-divoire-opens-233-million-cocoa-grinding-complex/

Kalaf, E. H. de, & Vaughn, L. (2022). Chocolate, children, and the curriculum: Child exploitation and the Dominican cocoa industry. In *Equitable Education for Marginalized Youth in Latin America and the Caribbean*. Routledge.

Kehinde, A. D., & Ogundeji, A. A. (2022). The simultaneous impact of access to credit and cooperative services on cocoa productivity in South-western Nigeria. *Agriculture & Food Security*, *11*(1), 11. https://doi.org/10.1186/s40066-021-00351-4

Kehinde, A. D., Oyenpemi, L. O., & Oladimeji, O. O. (2025). Leveraging agricultural cooperative membership to improve the technical efficiency of smallholder cocoa farmers in Nigeria. *Social Sciences & Humanities Open*, *12*, 102068. https://doi.org/10.1016/j.ssaho.2025.102068

Keylink Limited. (2025). *Understanding chocolate pricing*. https://www.keylink.org/knowledgebank/technical-information/understanding-chocolate-pricing

Kindzeka, M. E. (2023, June 29). *Cameroon's farmers decry crop export ban to Nigeria*. Voice of America. https://www.voanews.com/a/cameroon-s-farmers-decry-crop-export-ban-to-nigeria-/7160140.html

Koffi, A. T. K. (2025, June 1). Filière Cacao en Guinée: Un Potentiel Discret en Quête de Développement sur un Marché Mondial en Ébullition. *Cacao.Ci*. https://cacao.ci/filiere-cacao-en-guinee-un-potentiel-discret-en-quete-de-developpement-sur-un-marche-mondial-en-ebullition/

Konar, N. (2013). Influence of conching temperature and some bulk sweeteners on physical and rheological properties of prebiotic milk chocolate containing inulin. *European Food Research and Technology*, *236*(1), 135–143. https://doi.org/10.1007/s00217-012-1873-x

Konar, N., Toker, O. S., Rasouli Pirouzian, H., Oba, S., Genc Polat, D., Palabiyik, İ., Poyrazoglu, E. S., & Sagdic, O. (2018). Enrichment of milk chocolate by Using EPA and DHA originated from various origins: Effects on product quality. *Sugar Tech*, *20*(6), 745–755. https://doi.org/10.1007/s12355-018-0611-5

Kongor, J. E., Owusu, M., & Oduro-Yeboah, C. (2024). Cocoa production in the 2020s: Challenges and solutions. *CABI Agriculture and Bioscience*, *5*(1), 102. https://doi.org/10.1186/s43170-024-00310-6

Langton, L. G. (2025, December 18). *After the spike: Cocoa's volatile new norm forces structural industry shift*. https://www.foodingredientsfirst.com/news/cocoa-crisis-industry-restructuring-alternatives.html

Lartey, W. (2026, February 9). Cocoa sector faces liquidity crisis as LICOBAG urges urgent government intervention. *Asaase Radio*. https://asaaseradio.com/cocoa-sector-faces-liquidity-crisis-as-licobag-urges-urgent-government-intervention/

LeBaron, G. (2018). *The global business of forced labour: Report of findings*. SPERI & University of Sheffield. https://respect.international/wp-content/uploads/2018/06/The-Global-Business-of-Forced-Labour-Report-of-Findings-University-of-Sheffield-2018.pdf

Lenou Nkouedjo, L., Mathe, S., Fon, D. E., Geitzenauer, M., & Awah Manga, A. (2020). Cocoa marketing chain in developing countries: How do formal-informal linkages ensure its sustainability in Cameroon? *Geoforum*, *117*, 61–70. https://doi.org/10.1016/j.geoforum.2020.09.005

Lindt & Sprüngli. (2025). *FAQs—Frequently Asked Questions*. https://www.lindt-spruengli.com/frequently-asked-questions

Mackenzie, N., Wilson, T., Angel, M., Wilson, T., & Angel, M. (2024, December 20). How a hedge fund exodus reshaped global cocoa markets. *Reuters*. https://www.reuters.com/markets/commodities/how-hedge-fund-exodus-reshaped-global-cocoa-markets-2024-12-20/

Makhloufi, A. E., Mota, M. M., Damme, D. van, & Langenberg, V. (2018). *Towards a sustainable agro-logistics in developing countries: The case of cocoa's supply chain in San Pedro region/Côte d'Ivoire*. https://documents1.worldbank.org/curated/en/735521553488355096/pdf/Towards-Sustainable-Agrologistics-in-Developing-Countries-Cocoa-Supply-Chain-in-Cote-D-ivoire.pdf

Malouf, S. (2021, June 10). How is cocoa transported: Shipping and packaging tips. *Eurolog Packing Group North America*. https://epgna.com/how-is-cocoa-transported-shipping-and-packaging-tips/

Mars Global. (2020, September 8). *Mars Builds on Cocoa Supply Chain Transparency*. https://www.mars.com/news-and-stories/articles/cocoa-supply-chain-transparency

Mars Global. (2025). *Cocoa for generations*. https://www.mars.com/sustainability-plan/cocoa-for-generations

Mbachu, D. (2025, May 20). *Nigeria seeks to boost cocoa exports as oil falters*. African Business. https://african.business/2025/05/resources/nigeria-seeks-to-boost-cocoa-exports-as-oil-falters

Mendoza-Meneses, C. J., Feregrino-Pérez, A. A., & Gutiérrez-Antonio, C. (2021). Potential use of industrial cocoa waste in biofuel production. *Journal of Chemistry*, *2021*(1), 3388067. https://doi.org/10.1155/2021/3388067

Meridia. (2024, February 5). *Report on 'Cooperatives and the state of field data quality for EUDR compliance'—Meridia*. https://www.meridia.land/downloads/report-cooperatives-data-quality

Mighty Earth. (2024). *Cocoa*. https://mightyearth.org/work/agriculture/cocoa/

Mighty Earth. (2025). *Cameroon on the brink: Cocoa boom risks country becoming next deforestation hotspot*. https://mightyearth.org/article/cameroon-on-the-brink-cocoa-boom-risks-country-becoming-next-deforestation-hotspot/

Ministerio de Desarrollo Agrario y Riego. (2025a, October 1). *Midagri benefits 400,000 coffee and cacao producers with new digital application*. Ministerio de Desarrollo Agrario y Riego. https://www.gob.pe/institucion/midagri/noticias/1255956-midagri-benefits-400-000-coffee-and-cacao-producers-with-new-digital-application

Ministerio de Desarrollo Agrario y Riego. (2025b, December 19). *MIDAGRI: Peru exceeds geolocation targets and strengthens compliance with the European EUDR Regulation*. Ministerio de Desarrollo Agrario y Riego. https://www.gob.pe/institucion/midagri/noticias/1316263-midagri-peru-exceeds-geolocation-targets-and-strengthens-compliance-with-the-european-eudr-regulation

Ministry of Agriculture and Forestry. (2019, June). *National cocoa value chain policy*. https://faolex.fao.org/docs/pdf/sie216571.pdf

Moinina, A., Lahlali, R., & Boulif, M. (2023). Management practices to improve the cocoa bean value chain in Sierra Leone: *Moroccan Journal of Agricultural Sciences*, *4*(2), 45–52. https://doi.org/10.5281/zenodo.7997628

Mondelēz International. (2025). *Why Cocoa Life?* Cocoa Life. https://www.cocoalife.org

Mordor Intelligence. (2025, November 20). *North America chocolate market share & size 2030 outlook*. https://www.mordorintelligence.com/industry-reports/north-america-chocolate-market

Mujica Mota, M., El Makhloufi, A., & Scala, P. (2019). On the logistics of cocoa supply chain in Côte d'Ivoire: Simulation-based analysis. *Computers & Industrial Engineering*, *137*, 106034. https://doi.org/10.1016/j.cie.2019.106034

Myers, A. (2020, June 17). *Blockchain technology tested in Côte d'Ivoire cocoa sector offers sustainable solution*. https://www.confectionerynews.com/Article/2020/06/17/Blockchain-technology-tested-in-Cote-d-Ivoire-cocoa-sector-offers-sustainable-solution/

Nabalu News. (2025, May 26). *Malaysia's cocoa sector poised for growth amid global challenges*. https://www.nabalunews.com/post/malaysia-s-cocoa-sector-poised-for-growth-amid-global-challenges

National Confectioners Association. (2025). *State of treating bit-sized*.

Naydenov, K., Delera, M., Boisseau, A., & Gaddari, D. (2022). *Cocoa processing study final report*. Netherlands Enterprise Agency.

Neilson, J., Dwiartama, A., Fold, N., & Permadi, D. (2020). Resource-based industrial policy in an era of global production networks: Strategic coupling in the Indonesian cocoa sector. *World Development*, *135*, 105045. https://doi.org/10.1016/j.worlddev.2020.105045

Nestlé. (2020). *Nestlé in the Netherlands*. https://www.nestle.nl/sites/g/files/pydnoa456/files/asset-library/documents/corporate%20factsheet_csv_en.pdf

Nestlé. (2022, January 27). *Nestlé announces innovative plan to tackle child labor risks*. https://www.nestle.com/media/pressreleases/allpressreleases/tackle-child-labor-risks-farmer-income-cocoa-traceability

Nestlé. (2025). *Nestlé chocolate: A sustainable future for cocoa farming*. https://www.nestlecocoaplan.com/

Ngoleagorbu Cacao Farmers. (2025). *Home*. https://golaforestcacao.wixsite.com/ngoleagorbu

Ngwang, N. N., & Meliko, M. O. (2021). Profitability analysis of smallholder cocoa production in South West Region of Cameroon. *African Journal of Agricultural Research*, *17*(7), 991–997. https://doi.org/10.5897/AJAR2021.15452

Nicholson, M., & Teixeira, M. (2018, April 12). Chocolate forests: Can cocoa help restore the Amazon? *Reuters*. https://www.reuters.com/article/business/environment/chocolate-forests-can-cocoa-help-restore-the-amazon-idUSKBN1HJ0H7/

Nigerian Export Promotion Council. (2025). Cocoa. *NEPC Importer*. https://nepc.gov.ng/importer/nigeria-product/cocoa/

Nitidae & EU REDD Facility. (2021). *Traceability and transparency of cocoa supply chains in Côte d'Ivoire and Ghana*. https://euredd.efi.int/wp-content/uploads/2023/08/Traceability-and-transparency-of-cocoa-supply-chains-in-Cote-dIvoire-and-Ghana.pdf

Observatory of Economic Complexity. (2025). *Cocoa beans in Guinea trade*. https://oec.world/en/profile/bilateral-product/cocoa-beans/reporter/gin

Office National du Cacao et du Café. (2022). *List of active cocoa exporters 2022*. https://www.oncc.cm/content/library/documents/2022-list-of-active-exporters.pdf

Office National du Cacao et du Café. (2024). *Cameroon's Minister of Trade celebrates strides in cocoa prices*. National Cocoa and Coffee Board. https://www.oncc.cm/updates/cameroon-s-minister-of-trade-celebrates-strides-in/

Office National du Cacao et du Café. (2025). *Quality cocoa producing country*. National Cocoa and Coffee Board. https://www.oncc.cm/cocoa-production-zones/

ofi. (2025a). *Ofi's farmer information system*. https://www.ofi.com/en-us/sustainability/ofi-farmer-information-system

ofi. (2025b). *Our offices and facilities around the world*. Ofi. https://www.ofi.com/en-us/locations

Okojie, J. (2024, July 24). Nigeria's five cocoa processing plants operate at 8% capacity over worsening challenges. *Businessday NG*. https://businessday.ng/business-economy/article/nigerias-five-cocoa-processing-plants-operate-at-8-capacity-over-worsening-challenges/

Olam. (2020, September 21). *Olam cocoa hits 100% traceability target across its direct global supply chain*. https://www.olamgroup.com/news/all-news/press-release/olam-cocoa-hits-100-percent-traceability-target-across-its-direct-global-supply-chain.html

Omas. (2025, August 19). *How to properly store cocoa beans before export*. https://omascommodities.com/how-to-properly-store-cocoa-beans-before-export/

Organic Development Finance. (2023, October 12). *Press Release – Cocoa Sierra Leone*. https://organicdevelopmentfinance.org/press-release-cocoa-sierra-leone/

Padilla, A., & Menza, G. (2024, November 21). *Paving the way for sustainable cocoa value chains*. Alliance Bioversity International & International Center for Tropical Agriculture. https://alliancebioversityciat.org/stories/paving-way-sustainable-cocoa-value-chains-west-africa

Perez, M., Lopez-Yerena, A., & Vallverdú-Queralt, A. (2022). Traceability, authenticity and sustainability of cocoa and chocolate products: A challenge for the chocolate industry. *Critical Reviews in Food Science and Nutrition*, *62*(2), 475–489. https://doi.org/10.1080/10408398.2020.1819769

Pharmlabs. (2024). *Preparation of suppositories*. The Pharmaceutics & Pharmaceutical Compounding Laboratory. https://pharmlabs.unc.edu/labexercises/compounding/suppositories/

Pirkle, L., Zimmerman, C., Sadhu, S., Kysia, K., & Ranganathan, M. (2024). Child labour in cocoa growing regions of Ghana and Côte d'Ivoire: An analysis of academic attainment in children engaged in hazardous labour. *Global Public Health*, *19*(1), 2320860. https://doi.org/10.1080/17441692.2024.2320860

Plastic Odyssey. (2024). *Cocoa bean husk packaging*. https://plasticodyssey.org/en/catalogue-alternatives-plastique/cocoa-seed-pellet-packaging/

Port of Amsterdam. (2025). *Port of Amsterdam: Services and information of the Amsterdam port.* https://www.portofamsterdam.com/en

Proforest. (2022). *EU Regulation on Deforestation-free products: Reference document for cocoa producers and importers*. https://www.proforest.net/fileadmin/uploads/proforest/EU_Regulation_on_Deforestation-Free_Products-_Reference_Document_for_Cocoa_Producers_and_Importers.pdf

PT Capricorn Indonesia Consulting. (2019). Chapter 4—A cold chain study of Indonesia. In *The cold chain for agri-food products in ASEAN*. https://www.eria.org/uploads/media/8_RPR_FY2018_11_Chapter_4.pdf

Puratos. (2025). *Our organisation*. https://www.puratos.com/about-puratos/our-organization

Putri, A. S., Sutopo, W., Prihawantara, S., & Matheos, R. C. D. (2015). Value chain improvement for cocoa industry in Indonesia by input-output analysis. *Proceedings of the International MultiConference of Engineers and Computer Scientists*, *2*.

Rainforest Alliance. (2022, October 18). *Understanding end-to-end cocoa traceability and the MultiTrace Platform*. https://www.rainforest-alliance.org/business/certification/understanding-end-to-end-cocoa-traceability-and-the-multitrace-platform/

Rainforest Alliance. (2023). *Rainforest Alliance guidance: Collection, verification, and validation of data points*. https://knowledge.rainforest-alliance.org/docs/indicator-guidance

Rainforest Alliance. (2025a). *UTZ certification (now part of the Rainforest Alliance)*. https://www.rainforest-alliance.org/utz/

Rainforest Alliance. (2025b). *What is mass balance sourcing?* https://www.rainforest-alliance.org/business/certification/what-is-mass-balance-sourcing/

Regalado, Mi. (2018, November 13). What's the difference between cacao & cocoa? *Perfect Daily Grind*. https://perfectdailygrind.com/2018/11/whats-the-difference-between-cacao-cocoa/

Renier, C., Vandromme, M., Meyfroidt, P., Ribeiro, V., Kalischek, N., & Zu Ermgassen, E. K. H. J. (2023). Transparency, traceability and deforestation in the Ivorian cocoa supply chain. *Environmental Research Letters*, *18*(2), 024030. https://doi.org/10.1088/1748-9326/acad8e

Reporter Brasil. (2020). *Slave labor in the Brazilian cocoa*. https://reporterbrasil.org.br/wp-content/uploads/2021/06/Monitor-6-Cacau-PT.pdf

Res Gehriger. (2024, January 25). *Children work in Swiss chocolate maker Lindt's supply chain in Ghana*. https://www.swissinfo.ch/eng/business/child-laber-in-africa-chocolate-maker-lindt-s-supply-chain-in-ghana-scandal/49147288

Retailer Cocoa Collaboration. (2024). *2023 annual trader assessment results*. https://retailercocoacollaboration.com/wp-content/uploads/2024/06/rcc_report_2023.pdf

Reuters. (2019, July 11). *Ivory Coast, Ghana add "living income" cocoa premium to fight poverty*. https://www.reuters.com/article/business/finance/ivory-coast-ghana-add-living-income-cocoa-premium-to-fight-poverty-idUSL8N24B55M/

Reuters. (2024a, June 5). *Indonesia designs agricultural commodities digital tracker in sustainability push*. https://www.reuters.com/markets/commodities/indonesia-designs-agricultural-commodities-digital-tracker-sustainability-push-2024-06-05/

Reuters. (2024b, June 12). *Exclusive: Ghana to delay more cocoa deliveries as supply crisis worsens*. https://www.reuters.com/markets/commodities/ghana-delay-more-cocoa-deliveries-supply-crisis-worsens-2024-06-12/

Reuters. (2024c, September 17). *Exclusive: Ghana lost 160,000 tons of cocoa to smuggling in 2023/24 season, Cocobod official says*. https://www.reuters.com/world/africa/ghana-lost-160000-tons-cocoa-smuggling-202324-season-cocobod-official-says-2024-09-16/

Reuters. (2024d, December 20). *What are cocoa futures, and how do they work?* https://www.reuters.com/markets/commodities/global-markets-cocoa-explainer-2024-12-20/

Reuters. (2025, August 18). *Ghana cocoa farmers revolt over prices, threaten mass smuggling*. https://www.reuters.com/world/africa/ghana-cocoa-farmers-revolt-over-prices-threaten-mass-smuggling-2025-08-18/

Reuters. (2026, January 20). *Ghana's cocoa farmers are unpaid and investment in next harvest at risk*. https://www.reuters.com/world/africa/ghana-cocoas-farmers-are-unpaid-investment-next-harvest-risk-2026-01-20/

Rice, M., & Godts, R. (2025). *Was it produced legally? Applying the legality requirement in the EU Deforestation Regulation to cocoa from Ghana*. ClientEarth. https://www.clientearth.org/media/wnki1jbh/was-it-produced-legally_cote-divoire_clientearth_april-2025.pdf

Ridgwell, H. (2023, May 13). *Ghana's cocoa farmers suffer falling incomes as chocolate makers reap profits, says Oxfam*. Voice of America. https://www.voanews.com/a/ghana-s-cocoa-farmers-suffer-falling-incomes-as-chocolate-makers-reap-profits-says-oxfam/7090760.html

Rojo-Poveda, O., Barbosa-Pereira, L., Zeppa, G., & Stévigny, C. (2020). Cocoa bean shell—A by-product with nutritional properties and biofunctional potential. *Nutrients*, *12*(4), 1123. https://doi.org/10.3390/nu12041123

Roy, U. (2024, August 5). *Global cocoa crisis: How has it affected homegrown brands and bakers?* Slurrp. https://www.slurrp.com/article/global-cocoa-crisis-how-has-it-affected-homegrown-brands-and-bakers-1722871713537

Royal Duyvis Wiener B.V. (2023, May 1). *Cocoa bean processing: How it works*. https://duyviswiener.com/cocoa-processing/how-does-cocoa-bean-processing-work/

Ruf, F., & Faure, G. (2021). Orchestrating a multi-stakeholder supply chain network: The case of exporters in cocoa certification in Cote d'Ivoire. *Journal of Innovation Economics & Management*, *34*(1), 33–56. https://doi.org/10.3917/jie.034.0033

Rusman, A., Tootrop, R. de A., Boer, J. de, & Ruiz, A. de G. (2018). *Cocoa farmer income: The household income of cocoa producers in Côte d'Ivoire and strategies for improvement*. True Price & Fair Trade International. https://www.fairtrade.net/content/dam/fairtrade/fairtrade-germany/studien/2018_study_true_cost_cocoa_farmer_income.pdf

Ryerson, C. (2021, October 25). *CAL finds evidence of child labor on Rainforest Alliance certified farms*. Corporate Accountability Lab. https://corpaccountabilitylab.org/calblog/2021/10/25/cal-finds-evidence-of-child-labor-on-rainforest-alliance-certified-farms

Ryerson, C. (2024a, January 17). *CAL and AfriLaw document widespread forced labor in the Nigerian cocoa sector*. Corporate Accountability Lab. https://corpaccountabilitylab.org/calblog/2024/1/5/cal-and-afrilaw-document-widespread-forced-labor-in-the-nigerian-cocoa-sector

Ryerson, C. (2024b, August 22). *Sweet deals, sour outcomes: How speculation and commoditization affect cocoa farmers*. Corporate Accountability Lab. https://corpaccountabilitylab.org/calblog/2024/8/22/sweet-deals-sour-outcomes-how-speculation-and-commoditization-affect-cocoa-farmers

Salmed Cocoa/Coffee Farmers Cooperative. (2020, November 2). *Salmed Cocoa/Coffee Farmers Cooperative*. https://salmedcocoacoffeefarmerscooperativemarket.wordpress.com/

Schneider, M., Winchester, C., Goldman, E., & Shao, Y. (2023). Mapping cocoa and assessing deforestation risk for the cocoa sector in Côte d'Ivoire and Ghana. *World Resources Institute*. https://doi.org/10.46830/writn.21.00011

ScienceDirect Topics. (2025). *Cocoa (beverage)—An overview*. https://www.sciencedirect.com/topics/food-science/cocoa-beverage

Secretaria de Comunicação Social. (2024, December 20). *Government launches Agro Brasil + Sustentável Platform*. https://www.gov.br/secom/en/latest-news/2024/12/government-launches-agro-brasil-sustentavel-platform

Sesso, H. D., Manson, J. E., Aragaki, A. K., Rist, P. M., Johnson, L. G., Friedenberg, G., Copeland, T., Clar, A., Mora, S., Moorthy, M. V., Sarkissian, A., Carrick, W. R., & Anderson, G. L. (2022). Effect of cocoa flavanol supplementation for the prevention of cardiovascular disease events: The COcoa Supplement and Multivitamin Outcomes Study (COSMOS) randomized clinical trial. *The American Journal of Clinical Nutrition*, *115*(6), 1490–1500. https://doi.org/10.1093/ajcn/nqac055

Sevilla, R. M., Chicaiza, B., Mosquera, C., Pranasari, M. E., Hoffman, V., Zahin, M., & Ortega, A. (2024). *Task 5.1.6: Assess efforts of governments, industry, and workers' organizations to address child labor and forced labor in the cocoa sector in Brazil, Ecuador, and Indonesia*. American Institute for Research (AIR). https://www.dol.gov/agencies/ilab/assessment-report-task-516-assess-efforts-governments-industry-and-workers

Sierra Leone's Investment and Export Promotion Agency. (2025a). *Moawoma rural women's cocoa dev. Cooperative*. https://www.sliepa.gov.sl/invest-in-sierra-leone/existing-investors/p/item/20947/moawoma-rural-womens-cocoa-dev-cooperative

Sierra Leone's Investment and Export Promotion Agency. (2025b). *Ngoyila cocoa/coffee farmers cooperative*. https://www.sliepa.gov.sl/invest-in-sierra-leone/existing-investors/p/item/20979/ngoyila-cocoacoffee-farmers-cooperative

Special Agro Industrial Processing Zones. (2022, July 11). *About us—Special Agro Industrial Processing Zones Program*. https://sapz.gov.ng/about-us/

Spencer-Jolliffe, N. (2024, September 9). *Can cocoa become fully traceable ahead of the EUDR?* ConfectioneryNews.Com. https://www.confectionerynews.com/Article/2024/09/09/Cocoa-traceability-and-the-EUDR/

SPPGlobal. (2025, January 7). *The paradox of rising cocoa prices—SPP*. https://spp.coop/the-paradox-of-rising-cocoa-prices/?lang=en

Squicciarini, M. P., & Swinnen, J. (2016). *The economics of chocolate*. Oxford University Press.

Staritz, C., Tröster, B., Grumiller, J., & Maile, F. (2022). Price-setting power in global value chains: The cases of price stabilisation in the cocoa sectors in Côte d'Ivoire and Ghana. *The European Journal of Development Research*, 1–29. https://doi.org/10.1057/s41287-022-00543-z

Steinberg, F. M., Bearden, M. M., & Keen, C. L. (2003). Cocoa and chocolate flavonoids: Implications for cardiovascular health. *Journal of the American Dietetic Association, 103*(2), 215–223. https://doi.org/10.1053/jada.2003.50028

Susie Lonie, Martinez, M., Oulai, R., & Tullis, C. (2017). *Opportunities for digital financial services in the cocoa value chain in Cote d'Ivoire: Insights from new data*. International Finance Corporation. https://www.ifc.org/en/insights-reports/2018/opportunities-for-digital-financial-services-in-the-cocoa-value-chain-in-cote-divoire-insights-from-new-data

Sweet, A. (2024, April 8). Barry Callebaut – A tasty opportunity. *Sweet Stocks*. https://sweetstocks.substack.com/p/barry-callebaut-a-tasty-opportunity

Swiss Platform for Sustainable Cocoa. (2025). *Cocoa facts and figures—Kakaoplattform*. https://www.kakaoplattform.ch/about-cocoa/cocoa-facts-and-figures

TAS Stores. (2025). *About us*. https://www.tasstores.com/about-us

The Alliance of Bioversity International. (2025, November 19). *Improved mapping system ends farm mislabeling, protecting coffee and cacao trade*. Phys.Org. https://phys.org/news/2025-11-farm-mislabeling-coffee-cacao.html

Theobroma Cosmetics. (2020). *Aloe vera and cocoa butter in cosmetics*. https://theobromabeauty.com/en/pages/aloe-vera-beurre-cacao-cosmetiques

TraceX. (2025). *Cocoa supply chain in Netherlands*. https://tracextech.com/eudr-dds/cocoa-supply-chain-netherlands/

TraceX Technologies. (2025, January 23). *Sustainable cocoa farming in Nigeria: Overcoming key challenges*. https://tracextech.com/cocoa-farming-in-nigeria/

Tradin Organic. (2025a). *Sierra Leone—Organic cocoa beans*. https://www.tradinorganic.com/sourcing/own-projects/sierra-leone-organic-cocoa-beans

Tradin Organic. (2025b). *The impact of Tradin Organic's technical assistance in Sierra Leone*. https://knwl.tradinorganic.com/technical-assistance-sierra-leone

Trase. (2021, March 10). *Mapping cocoa exports from Côte d'Ivoire and Ghana—Insights*. https://trase.earth/insights/mapping-cocoa-exports-cote-divoire-ghana

Trase. (2024). *Cocoa—Explore the data*. https://trase.earth/explore/commodity/cocoa

Trase. (2025a). *Ecuador cocoa—Supply chain—Explore the data*. https://trase.earth/explore/supply-chain/ecuador/cocoa

Trase. (2025b). *Facilities map CDI - Explore the data*. https://trase.earth/explore/facilities-data/map

TrueCommerce. (2024, November 12). *EDI Standards: ANSI X12, EDIFACT & HIPAA explained*. https://www.truecommerce.com/blog/edi-standards-explained/

Udongo. (2023, September 18). *7 products that can be derived from cocoa*. https://udongo.ng/contents/7-products-that-can-be-derived-from-cocoa-274747

United Nations Conference on Trade and Development. (2023). *Managing commodity price volatility in commodity-dependent developing countries*.

United States Agency for International Development. (2017, September). *Country risk and vulnerability assessment: Guinea*. https://www.creativeassociatesinternational.com/wp-content/uploads/2020/10/CRVA-Report-Guinea.pdf

U.S. Congress. (2024, December 10). *Section 307 and imports produced by forced labor*. https://www.congress.gov/crs-product/IF11360

U.S. Department of Agriculture. (2023, January 18). *USDA publishes strengthening organic enforcement final rule*. https://www.usda.gov/about-usda/news/press-releases/2023/01/18/usda-publishes-strengthening-organic-enforcement-final-rule

U.S. Department of Agriculture, Agricultural Marketing Service. (2025). *U.S. Japan organic equivalence arrangement*. https://www.ams.usda.gov/services/organic-certification/international-trade/Japan/faq

U.S. Department of Agriculture Economic Research Service. (2025, February 13). *High cocoa prices on smaller global crops lead to decreased U.S. imports in 2023 and 2024*. https://ers.usda.gov/data-products/charts-of-note/chart-detail?chartId=110921

U.S. Department of Agriculture Foreign Agricultural Service. (2011). *Nigeria cocoa production increases* (No. NI11018; Global Agricultural Information Network). https://apps.fas.usda.gov/newgainapi/api/report/downloadreportbyfilename?filename=Nigeria%20Cocoa%20Production%20Increases_Lagos_Nigeria_9-29-2011.pdf

U.S. Department of Agriculture Foreign Agricultural Service. (2025a). *Cote d'Ivoire—Cocoa sector overview—2025*.

U.S. Department of Agriculture Foreign Agricultural Service. (2025b). *Ghana—Cocoa sector overview—2025* (Nos. GH2025-0008). https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Ghana+-+Cocoa+Sector+Overview+-+2025_Accra_Ghana_GH2025-0008.pdf

U.S. Department of Agriculture Foreign Agricultural Service. (2025c, December 3). *Ghana cocoa beans and cocoa products semi-annual—The mid-crop MY 2024-2025 update*. https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Ghana%20Cocoa%20Beans%20and%20Cocoa%20Products%20Semi-Annual%20-%20The%20Mid-Crop%20MY%202024-2025%20Update%20_Accra_Ghana_GH2025-0048.pdf

U.S. Department of Labor. (2024a). *2023 findings on the worst forms of child labor*. https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2023/2023-Findings-on-the-Worst-Forms-of-Child-Labor.pdf

U.S. Department of Labor. (2024b). *2023 list of goods produced by child labor or forced labor (p. 116)*. https://www.dol.gov/sites/dolgov/files/ilab/child_labor_reports/tda2023/2024-tvpra-list-of-goods.pdf

U.S. Department of Labor. (2024c). *Child labor in the production of cocoa*. Bureau of International Labor Affairs. https://www.dol.gov/agencies/ilab/our-work/child-forced-labor-trafficking/child-labor-cocoa

U.S. Department of Labor. (2025a). *2024 list of goods produced by child labor or forced labor*. https://www.dol.gov/agencies/ilab/reports/child-labor/list-of-goods

U.S. Department of Labor. (2025b). *Findings on the worst forms of child labor 2024*. https://www.dol.gov/agencies/ilab/resources/reports/child-labor/findings

U.S. Department of Labor & NORC. (2020). *NORC final report: Assessing progress in reducing child labor in cocoa production in Côte d'Ivoire and Ghana. Final report 2018/2019 survey round.* https://www.dol.gov/agencies/ilab/norc-final-report-assessing-progress-reducing-child-labor-cocoa-production-cote-0

U.S. Department of State. (2025a). *2024 trafficking in persons report: Guinea*. https://www.state.gov/reports/2024-trafficking-in-persons-report/guinea/

U.S. Department of State. (2025b). *2025 trafficking in persons report: Cameroon*. https://www.state.gov/reports/2025-trafficking-in-persons-report/cameroon/

Valrhona Chocolate. (2024). *Types of chocolate*. Valrhona Chocolate. https://www.valrhona.com/en/l-ecole-valrhona/discover-l-ecole-valrhona/chocolate-terminology/types-of-chocolate

Venus Group SARL. (2025). *Seller, exporter & sales of bauxite, robusta coffee, cocoa, tropical timber, fruit & construction materials—Guinea*. https://www.groupevenus.com/

Verité. (2019). *Assessment of forced labor risk in the cocoa sector of Côte d'Ivoire*. Verité. https://verite.org/wp-content/uploads/2019/02/Verite-Report-Forced-Labor-in-Cocoa-in-CDI.pdf

Verité. (2025). *Cocoa*. https://traceabilitymatrix.org/good/goods-cocoa-99/

Voller, L. (2020, July 30). Child labour found in Fairtrade cocoa plantations. *Danwatch*. https://danwatch.dk/en/child-labour-found-in-fairtrade-cocoa-plantations/

Voora, V., Bermúdez, S., & Larrea, C. (2019). *Global market report: Cocoa*. International Institute for Sustainable Development (IISD). https://www.jstor.org/stable/resrep22025

Wahome, T. (2025, June 23). Free market cocoa drives illicit Ivory Coast-Guinea trade. *Selina Wamucii*. https://www.selinawamucii.com/news/2025/06/23/free-market-cocoa-drives-illicit-ivory-coast-guinea-trade/

Walk Free. (2024). *Modern slavery in Nigeria*. https://www.walkfree.org/global-slavery-index/country-studies/nigeria/

Weitnauer Group. (2025, July 10). *Global chocolate market trends 2025*. https://weitnauer.com/chocolate-market-trends-distribution

Whoriskey, P., & Siegel, R. (2019, June 5). *Hershey, Nestle and Mars won't promise their chocolate is free of child labor*. Washington Post. https://www.washingtonpost.com/graphics/2019/business/hershey-nestle-mars-chocolate-child-labor-west-africa/

World Bank. (2010, January 19). *Cocoa cooperatives put business in the hands of Sierra Leone's farmers*. https://doi.org/10/01/19/cocoa-cooperatives-put-business-in-the-hands-of-sierra-leones-farmers

World Bank. (2022). *Sierra Leone: Pathways to a transformation of the agri-food sector*. https://documents1.worldbank.org/curated/en/099444004282527285/pdf/IDU-ebe7dceb-856f-4378-a45a-29837c72a70e.pdf

World Bank. (2023a, June 23). *Guinea—Elusive quest for jobs and economic transformation: How Guinea can leverage trade and investment for more inclusive growth*. https://documents1.worldbank.org/curated/en/099062823151538931/pdf/P17700602a206f0a50bc250a511081bbd47.pdf

World Bank. (2023b, July 3). *Ten facts about digital technology adoption in Ghana*. https://blogs.worldbank.org/en/africacan/ten-facts-about-digital-technology-adoption-ghana

World Bank. (2025). *World Bank open data*. https://data.worldbank.org

World Cocoa Foundation. (2023). *From bean to bar*. https://worldcocoafoundation.org/from-bean-to-bar

World Trade Organization. (2018). *Trade policy review report: Guinea* (WT/TPR/G/370). https://www.wto.org/english/tratop_e/tpr_e/g370_e.pdf

Writer's Reference Center. (2025). *Cacao tree*. https://fofweb.infobase.com/wrc/Detail.aspx?iPin=EWPO01890

Zegers, M. (2024). *Task 5.1.5: Assessment report efforts of governments, industry, and workers' organizations to address child labor and forced labor in the cocoa sectors in Ghana and Côte d'Ivoire*. U.S. Department of Labor Bureau of International Labor Affairs.

APPENDIX 2: HS CODES

Product	HS code	HS definition
Cocoa beans*	1801	Cocoa beans, whole or broken raw or roasted
Cocoa shells and waste	1802	Cocoa shells, husks, skins, and other cocoa waste
Cocoa paste	1803	Cocoa paste, whether or not defatted
Cocoa paste not defatted	1803.10	Not defatted
Cocoa cake solid**	1803.20	Wholly or partially defatted
Cocoa butter	1804	Cocoa butter, fat, and oil
Cocoa powder	1805	Cocoa powder, not containing added sugar or other sweetening matter
Chocolate products	1806	Chocolate and other food preparations containing cocoa
Sweetened cocoa powder	1806.10	Cocoa powder, containing added sugar or other sweetening matter
Couverture, bulk chocolate chips, bars, etc.	1806.20	Other preparations in blocks, slabs or bars weighing more than 2kg or in liquid, paste, powder, granular or other bulk form in containers or immediate packaging, of a container exceeding 2 kg
Filled chocolates	1806.31	Other, in blocks, slabs, or bars: Filled
Chocolate, no filling	1806.32	Other, in blocks, slabs, or bars: Not filled
Other chocolate***	1806.90	Other [than "Other, in blocks, slabs, or bars"]

*Cocoa nibs do not have a specific HS code. The product falls under HS 1801: Cocoa beans, whole or broken, raw or roasted.
**If the cocoa cake solid contains particles of shells or husks and is not suitable for producing cocoa powder or chocolate, it may be classified as waste under HS 1802.
*** HS code 1806.90 is used to classify cocoa juice, beverages, frosting, dessert mixes, etc.

APPENDIX 3: IMPORT AND EXPORT STATISTICS

Table 8. Top 10 importers for cocoa beans, 2024

Importer	Volume (MT)	Market share (%)	Importer	Value (USD)	Market share (%)
Netherlands	908,274	25%	Netherlands	$ 4,733,381,234	23%
Malaysia	490,398	14%	Malaysia	$ 3,334,265,635	16%
Germany	405,111	11%	Germany	$ 2,584,309,111	12%
Belgium	327,127	9%	Belgium	$ 2,048,339,414	10%
United States	197,473	6%	United States	$ 1,109,762,077	5%
Indonesia	157,395	4%	Indonesia	$ 1,096,577,709	5%
Canada	128,864	4%	France	$ 751,989,126	4%
France	127,938	4%	Canada	$ 742,406,877	4%
Türkiye	114,471	3%	Singapore	$ 626,560,668	3%
Spain	104,822	3%	Italy	$ 557,666,637	3%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 9. Top 10 exporters of cocoa beans, 2024

Exporter	Volume (MT)	Market share (%)	Exporter	Value (USD)	Market share (%)
CDI	1,208,790	34%	CDI	$ 6,346,259,098	31%
Nigeria	392,088	11%	Ecuador	$ 2,498,879,284	12%
Ecuador	379,845	11%	Nigeria	$ 2,437,662,443	12%
Ghana	319,960	9%	Ghana	$ 1,576,857,925	8%
Cameroon	238,869	7%	Cameroon	$ 1,303,910,674	6%
Belgium	179,751	5%	Netherlands	$ 1,185,212,354	6%
Netherlands	167,816	5%	Belgium	$ 1,010,707,083	5%
Peru	107,503	3%	Peru	$ 727,780,957	4%
Guinea	71,178	2%	Guinea	$ 488,546,594	2%
Uganda	65,665	2%	Uganda	$ 440,466,523	2%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 10. Top 10 importers for semi-processed cocoa, 2024

Importer	Quantity (MT)	Market share (%)	Importer	Value (USD)	Market share (%)
World	3,273,830	100%	World	$ 25,604,231,081	100%
Netherlands	372,555	11.4%	Germany	$ 3,231,926,505	12.6%
Germany	353,951	10.8%	Belgium	$ 2,415,473,730	9.4%
United States	311,274	9.5%	Netherlands	$ 2,336,469,570	9.1%
Belgium	224,230	6.9%	United States	$ 2,143,591,627	8.4%
France	200,617	6.1%	France	$ 1,899,166,768	7.4%
Poland	137,557	4.2%	Poland	$ 1,396,746,788	5.5%
Italy	135,532	4.1%	Italy	$ 1,200,350,429	4.7%
Spain	133,749	4.1%	United Kingdom	$ 942,926,291	3.7%
China	97,930	3.0%	Spain	$ 729,228,219	2.9%
United Kingdom	94,503	2.9%	Türkiye	$ 686,283,573	2.7%
India	88,089	2.7%	Canada	$ 670,115,360	2.6%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 11. Top 10 exporters of semi-processed cocoa, 2024

Exporter	Quantity (MT)	Market share (%)	Exporter	Value (USD)	Market share (%)
World	3,491,055	100%	World	$ 25,510,318,194.00	100%
Netherlands	851,123	24.4%	Netherlands	$ 7,207,624,244.00	28.3%
Malaysia	475,838	13.6%	Germany	$ 3,201,895,853.00	12.6%
CDI	373,412	10.7%	Indonesia	$ 2,458,837,146.00	9.6%
Germany	333,275	9.6%	CDI	$ 2,205,634,784.00	8.7%
Indonesia	304,717	8.7%	Malaysia	$ 2,155,290,818.00	8.5%
Ghana	227,909	6.5%	France	$ 1,836,294,805.00	7.2%
France	174,902	5.0%	Ghana	$ 896,535,289.00	3.5%
Spain	110,200	3.2%	Singapore	$ 735,013,344.00	2.9%
Singapore	88,888	2.6%	Spain	$ 603,991,710.00	2.4%
United States	78,619	2.3%	Brazil	$ 458,638,117.00	1.8%

Source: Trade Data Monitor, 2025. Value (f.o.b.), as reported by exporter.

Table 12. Top 10 importers of cocoa butter, 2024

Importer	Volume (MT)	Market share (%)	Importer	Value (USD)	Market share (%)
Germany	181,460	16%	Germany	$ 2,018,920,035	15%
Netherlands	140,523	13%	Belgium	$ 1,543,776,481	12%
Belgium	108,301	10%	France	$ 1,206,384,064	9%
France	96,418	9%	Netherlands	$ 1,173,238,522	9%
United States	88,205	8%	United States	$ 1,075,050,663	8%
United Kingdom	59,557	5%	Poland	$ 830,484,104	6%
Poland	59,460	5%	United Kingdom	$ 711,474,382	5%
Italy	53,698	5%	Italy	$ 642,019,190	5%
Switzerland	31,041	3%	Canada	$ 415,812,044	3%
Canada	28,121	3%	Switzerland	$ 399,253,471	3%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 13. Top 10 exporters of cocoa butter, 2024

Exporter	Volume (MT)	Market share by volume	Exporter	Value (USD)	Market share by value
Netherlands	298,638	27%	Netherlands	$ 4,106,863,273	31%
CDI	136,911	12%	Germany	$ 1,367,945,512	10%
Indonesia	107,277	10%	Indonesia	$ 1,210,921,059	9%
Malaysia	104,248	9%	Malaysia	$ 1,161,794,065	9%
Germany	95,016	9%	CDI	$ 1,120,969,100	8%
France	92,305	8%	France	$ 1,078,049,214	6%
Ghana	42,758	4%	Ghana	$ 390,227,917	5%
Brazil	28,715	3%	Cameroon	$ 331,254,433	5%
Cameroon	28,082	3%	Singapore	$ 315,067,745	3%
Singapore	25,357	2%	Brazil	$ 289,366,229	3%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 14. Top 10 importers of cocoa paste, 2024

Importer	Volume (MT)	Market share (%)	Importer	Value (USD)	Market share (%)
Netherlands	190,026	16%	Germany	$ 1,048,810,065	13%
Germany	138,738	12%	Netherlands	$ 973,307,641	12%
United States	126,638	11%	Belgium	$ 769,713,794	10%
Spain	108,820	9%	United States	$ 634,396,307	8%
Belgium	89,336	7%	France	$ 519,419,241	6%
France	66,461	6%	Spain	$ 511,060,103	6%
Malaysia	58,725	5%	Poland	$ 460,441,518	6%
Poland	53,359	4%	Italy	$ 409,988,867	5%
Italy	46,238	4%	Malaysia	$ 246,061,913	3%
Australia	25,874	2%	Japan	$ 179,314,710	2%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 15. Top 10 exporters of cocoa paste, 2024

Exporter	Volume (MT)	Market share (%)	Exporter	Value (USD)	Market share (%)
CDI	394,575	33%	Germany	$ 6,791,945,155	16%
Netherlands	223,870	19%	Belgium	$ 5,213,776,304	13%
Ghana	99,934	8%	Italy	$ 3,226,537,819	8%
Germany	71,852	6%	Poland	$ 3,102,960,064	8%
Indonesia	58,343	5%	Canada	$ 2,787,408,212	7%
Cameroon	56,304	5%	Malaysia	$ 303,644,602	4%
Malaysia	43,079	4%	Cameroon	$ 295,113,081	4%
France	42,672	4%	Indonesia	$ 284,568,221	4%
Singapore	29,689	2%	Belgium	$ 197,209,657	2%
Belgium	21,475	2%	Singapore	$ 174,965,406	2%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 16. Top 10 importers for cocoa powder, 2024

Importer	Volume (MT)	Market share (%)	Importer	Value (USD)	Market share (%)
United States	96,430	10%	United States	$ 434,144,657	10%
China	59,730	6%	China	$ 261,670,854	6%
India	56,878	6%	India	$ 242,068,844	6%
Netherlands	47,461	5%	Netherlands	$ 199,519,335	5%
Türkiye	46,095	5%	Türkiye	$ 183,113,995	4%
Italy	37,734	4%	France	$ 172,256,297	4%
France	37,517	4%	Germany	$ 171,954,679	4%
Germany	36,472	4%	Italy	$ 162,604,246	4%
Indonesia	33,878	4%	Philippines	$ 145,909,603	3%
Philippines	32,105	3%	Indonesia	$ 140,619,716	3%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 17. Top 10 exporters of cocoa powder, 2024

Exporter	Volume (MT)	Market share (%)	Exporter	Value (USD)	Market share (%)
Netherlands	254,502	27%	Netherlands	$ 1,187,346,112	28%
Malaysia	146,139	15%	Malaysia	$ 627,616,308	15%
Indonesia	98,476	10%	Indonesia	$ 394,999,325	9%
Germany	87,040	9%	Germany	$ 359,947,763	9%
Spain	68,060	7%	Spain	$ 285,417,111	7%
Singapore	45,101	5%	Singapore	$ 235,502,820	6%
France	35,942	4%	France	$ 192,544,507	5%
Ghana	26,516	3%	Brazil	$ 119,695,013	3%
Brazil	24,819	3%	Ghana	$ 106,444,495	3%
CDI	20,844	2%	CDI	$ 95,560,745	2%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 18. Top 10 importers of cocoa shells and waste, 2024

Importer	Volume (MT)	Market share (%)	Importer	Value (USD)	Market share (%)
Netherlands	16,454	16%	Germany	$ 9,928,754	23%
Belgium	16,117	15%	Cambodia	$ 9,581,039	22%
Denmark	12,599	12%	Netherlands	$ 3,884,780	9%
Guinea	10,505	10%	Denmark	$ 3,509,036	8%
Brazil	9,240	9%	Brazil	$ 2,931,432	7%
Cambodia	7,638	7%	Belgium	$ 2,820,139	7%
China	6,033	6%	Lithuania	$ 2,077,672	5%
Germany	4,780	5%	Ukraine	$ 1,634,988	4%
France	4,078	4%	France	$ 1,512,422	4%
United Kingdom	2,183	2%	China	$ 745,116	2%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importers. See Appendix 2 for HS codes.

Table 19. Top 10 exporters of cocoa shells and waste, 2024

Exporter	Volume (MT)	Market share (%)	Exporter	Value (USD)	Market share (%)
Germany	16,950	18%	France	$ 9,655,548	24%
CDI	11,327	12%	Ghana	$ 3,633,710	9%
Netherlands	10,555	11%	Indonesia	$ 3,150,650	8%
Ghana	8,016	8%	Germany	$ 2,517,793	6%
Belgium	7,892	8%	Belgium	$ 2,327,957	6%
France	7,314	8%	Bulgaria	$ 2,218,217	5%
Poland	4,777	5%	Malaysia	$ 2,182,703	5%
Nigeria	4,658	5%	Netherlands	$ 2,143,999	5%
Malaysia	4,412	5%	Nigeria	$ 2,112,240	5%
Peru	4,405	5%	Peru	$ 1,782,775	4%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importers. See Appendix 2 for HS codes.

Table 20. Top 10 importers of chocolate products, 2024

Importer	Volume (MT)	Market share (%)	Importer	Value (USD)	Market share (%)
Germany	962,367	15%	United States	$ 3,951,740,058	28%
Belgium	755,863	12%	Germany	$ 3,065,530,726	15%
Canada	469,841	7%	United Kingdom	$ 3,105,626,400	9%
Poland	428,141	7%	France	$ 2,717,607,774	9%
Italy	409,116	6%	Netherlands	$ 1,828,838,096	7%
Netherlands	364,906	6%	Belgium	$ 1,365,174,771	6%
United States	299,112	5%	Canada	$ 1,293,938,077	5%
France	293,930	5%	Poland	$ 1,207,713,045	3%
Russia	196,694	3%	Spain	$ 841,180,771	3%
Mexico	155,644	2%	Italy	$ 778,641,403	2%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 21. Top 10 exporters of chocolate products, 2024

Exporter	Volume (MT)	Market share (%)	Exporter	Value (USD)	Market share (%)
Germany	993,057	15%	Germany	$ 6,791,945,155	16%
Belgium	684,438	10%	Belgium	$ 5,213,776,304	13%
Netherlands	486,439	7%	Italy	$ 3,226,537,819	8%
Canada	466,398	7%	Poland	$ 3,102,960,064	8%
Poland	446,823	7%	Canada	$ 2,787,408,212	7%
Italy	414,940	6%	Netherlands	$ 2,202,982,625	5%
United States	395,925	6%	United States	$ 1,950,883,718	5%
Mexico	310,754	5%	France	$ 1,815,282,564	4%
France	299,266	4%	Switzerland	$ 1,320,336,057	3%
Türkiye	240,624	4%	United Kingdom	$ 1,074,109,269	3%

Source: Trade Data Monitor, 2025. Volume, as reported by exporters. Value (c.i.f.), as reported by importer.

Table 22. Cocoa values, by HS code, 2022–2024

Product	HS code	2022	2023	2024	Top exporter for 2024 (market share)	Top importer for 2024 (market share)
Cocoa beans	1801	$ 9,008,608,828	$ 10,963,379,875	$ 20,785,276,107	CDI (30.1%)	Netherlands (23.0%)
Cocoa butter	1804	$ 4,998,413,286	$ 5,714,486,890	$ 13,282,312,089	Netherlands (30.1%)	Germany (15.2%)
Cocoa paste	1803	$ 3,708,803,593	$ 4,301,936,359	$ 8,010,027,265	CDI (27.0%)	Germany (13%)
	1803.10	$ 2,900,342,988	$ 3,436,670,122	$ 6,688,641,937	Netherlands (26.1%)	Germany (14.8%)
	1803.20	$ 758,763,582	$ 839,268,268	$ 1,296,914,316	CDI (45.7%)	Spain (21%)
Cocoa powder	1805	$ 2,986,420,283	$ 3,217,957,998	$ 4,192,556,967	Netherlands (28.3%)	United States (10.4%)

Product	HS code	2022	2023	2024	Top exporter for 2024 (market share)	Top importer for 2024 (market share)
Chocolate products	1806	$ 31,662,058,115	$ 35,443,324,187	$ 41,314,377,292	Germany (16.4%)	United States (11.7%)
	1806.10	$ 391,059,144	$ 382,930,175	$ 362,585,695	Germany (18.3%)	France (12.2%)
	1806.20	$ 5,895,663,034	$ 6,393,949,042	$ 8,887,220,920	Belgium (31.1%)	United States (16.1%)
	1806.31	$ 5,056,344,987	$ 5,878,796,682	$ 6,475,704,594	Germany (22.0%)	United Kingdom (10.0%)
	1806.32	$ 5,278,215,852	$ 6,091,338,458	$ 7,317,513,460	Germany (24.4%)	United States (13.0%)
	1806.90	$ 15,031,720,306	$ 16,664,310,076	$ 18,240,051,355	Germany (15.5%)	United States (10.0%)

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

APPENDIX 4: COCOA PRODUCTION VOLUMES, 2023

Area	Thousand MT	Percentage of global total
Global	5,600	100.0%
High (greater than 10%)		
CDI	2,377	42.5%
Ghana	654	11.7%
Indonesia	642	11.5%
Medium (1–10%)		
Ecuador	376	6.7%
Brazil	296	5.3%
Cameroon	296	5.3%
Nigeria	284	5.1%
Peru	167	3.0%
Dominican Republic	66	1.2%
Colombia	60	1.1%
Low (less [.01% to 1%] than 1%)		
Papua New Guinea	43	0.8%
DRC	35	0.6%
Uganda	35	0.6%
India	30	0.5%
Venezuela (Bolivarian Republic of)	29	0.5%
Mexico	29	0.5%
Guinea	23	0.4%
Liberia	20	0.4%
Madagascar	20	0.4%
Sierra Leone	18	0.3%
Togo	15	0.3%
United Republic of Tanzania	12	0.2%
Guatemala	12	0.2%
Philippines	11	0.2%
Congo	10	0.2%
Nicaragua	9	0.2%
Bolivia (Plurinational State of)	6	0.1%
Sao Tome and Principe	4	0.1%
Solomon Islands	4	0.1%
Very low (less than 0.1%)		
Haiti	3	0.045%
Honduras	2	0.036%
Vanuatu	2	0.027%
Cuba	1	0.025%
Sri Lanka	1	0.024%
Viet Nam	1	0.022%
Dominica	1.00	0.018%
Equatorial Guinea	1.00	0.018%
Costa Rica	0.80	0.014%
Panama	0.56	0.010%
Guyana	0.48	0.009%
Samoa	0.48	0.009%
Angola	0.46	0.008%
Grenada	0.36	0.006%
El Salvador	0.36	0.006%
Trinidad and Tobago	0.30	0.005%

Area	Thousand MT	Percentage of global total
Malaysia	0.27	0.005%
Belize	0.23	0.004%
Saint Vincent and the Grenadines	0.23	0.004%
Timor-Leste	0.18	0.003%
Jamaica	0.15	0.003%
Central African Republic	0.13	0.002%
Thailand	0.12	0.002%
Fiji	0.12	0.002%
Gabon	0.10	0.002%
Comoros	0.04	0.001%
Micronesia (Federated States of)	0.03	0.001%
Saint Lucia	0.02	0.000%
Suriname	0.0046	0.000%

Source: FAOSTAT, 2025

APPENDIX 5: COCOA GRINDING VOLUMES, 2023/24

Country	Thousand MT	Percentage of global total
Global	4,818	100.0%
High (greater than 10%)		
CDI	744	15.4%
Netherlands	600	12.5%
Medium: Medium high (4–10%)		
Germany	460	9.5%
Malaysia	383	7.9%
Indonesia	380	7.9%
United States	300	6.2%
Brazil	233	4.8%
Ghana	194	4.0%
Medium: Medium low (1–3.9%)		
France	130	2.7%
Türkiye	123	2.6%
Canada	117	2.4%
Belgium	100	2.1%
Singapore	96	2.0%
Spain	90	1.9%
Italy	84	1.7%
Cameroon	80	1.7%
Peru	69	1.4%
Mexico	65	1.3%
Switzerland	57	1.2%
United Kingdom	53	1.1%
India	50	1.0%
Nigeria	50	1.0%
Low (less [0.1% to 0.9%] than 1%)		
Colombia	45	0.9%
Russian Federation	40	0.8%
Ecuador	40	0.8%
Bulgaria	36	0.7%
Japan	30	0.6%
Austria	25	0.5%
Slovak Republic	18	0.4%
China	16	0.3%
Belarus	12	0.2%
Estonia	12	0.2%
South Korea	10	0.2%
Poland	10	0.2%
Venezuela	7	0.1%
Philippines	7	0.1%
Kazakhstan	6	0.1%
Guatemala	6	0.1%
Dominican Republic	5	0.1%
Serbia	5	0.1%
Greece	5	0.1%
Ukraine	5	0.1%
Tunisia	4	0.1%

Country	Thousand MT	Percentage of global total
Iran	4	0.1%
New Zealand	3	0.1%
Very low (less than 0.1%)		
Croatia	1.6	0.0%
Other Africa*	1.2	0.0%
Other Asia and Oceania*	1.0	0.0%
Bolivia	0.8	0.0%
Honduras	0.8	0.0%
Portugal	0.8	0.0%
Cuba	0.6	0.0%
Panama	0.6	0.0%
Madagascar	0.5	0.0%
Nicaragua	0.5	0.0%
Other Americas*	0.5	0.0%
Sri Lanka	0.5	0.0%
Argentina	0.5	0.0%
Costa Rica	0.4	0.0%
Algeria	0.3	0.0%
Jamaica	0.2	0.0%
Thailand	0.2	0.0%
Latvia	0.1	0.0%
Trinidad and Tobago	0.1	0.0%
Ireland	0.1	0.0%
Israel	0.0	0.0%
Slovenia	0.0	0.0%
Denmark	0.0	0.0%
Chile	0.0	0.0%
Republic of Moldova	0.0	0.0%

*Defined by ICCO
Source: International Cocoa Organization, 2025c

APPENDIX 6: COCOA BEAN EQUIVALENTS

To allow for common units of measurement across cocoa products, the quantity of cocoa products imported annually were converted to cocoa bean equivalent volumes, using ICCO conversion rates. In Table 23, cocoa product annual trade volumes are reported as the bean equivalent, per ICCO conversion factors: cocoa butter 1.33, cocoa paste/liquor 1.25, cocoa powder and cocoa cake solid 1.18. These conversion rates represent an international average, even as in practice, national conversion rates vary.

As ICCO separates cocoa cake solid (HS 1803.20) from cocoa paste not defatted (HS 1803.10), for this report, we applied the appropriate conversion rates for each HS code for cocoa paste (HS 1803). This differs from ICCO reporting, which reports totals for "cocoa powder and cocoa cake solid" (HS 1803.20 and HS 1805) (International Cocoa Organization, 2025c).

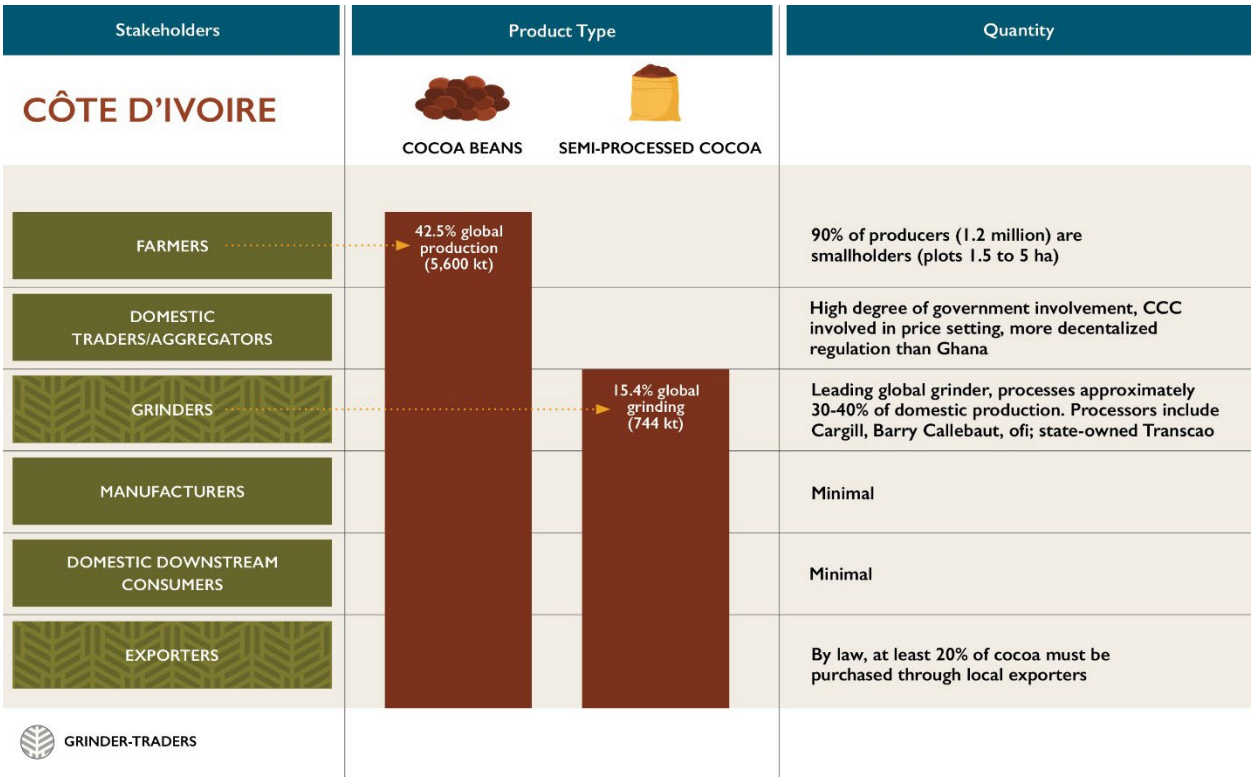
Table 23. Global cocoa bean exports and cocoa bean equivalent quantities (MT), 2022–2024

Product	Bean equivalent ratio	2022	2023	2024
Cocoa beans		3,647,877	3,647,877	3,567,044
	n/a			
Cocoa butter		1,096,812	1,087,343	1,115,263
Cocoa butter: Bean equivalent	1.33	1,458,760	1,446,166	1,483,300
Cocoa powder		956,819	944,548	944,153
Cocoa powder: Bean equivalent	1.18	1,129,046	1,114,567	1,114,101
Cocoa paste		1,127,473	1,136,716	1,202,479
Cocoa paste: Bean equivalent	1.25	1,386,296	1,398,246	1,478,266
Bean equivalent total				7,642,710

Source: ICF calculations, Trade Data Monitor, International Cocoa Organization, 2025b.

APPENDIX 7: SELECT PRODUCING COUNTRIES

7.1 CÔTE D'IVOIRE



CCC= Conseil du Café-Cacao
Source: ICF

The cocoa supply chain in CDI is regulated by the Conseil du Café-Cacao, a government agency that regulates the cocoa sector, sets prices, manages market access, and promotes Ivorian cocoa internationally. Approximately 1.2 million small-scale farmers, representing 90% of cocoa producers in CDI, cultivate plots ranging from 1.5 to 5 hectares (U.S. Department of Agriculture Foreign Agricultural Service, 2025a; Verité, 2025). CDI is the world's largest cocoa producer (42.5% of global production) and largest cocoa grinder (15.4% of global grinding). The Ivorian cocoa sector is predominantly export-oriented, with negligible domestic consumption.

Cocoa from CDI was added to the USDOL Bureau of International Labor Affairs (ILAB) TVPRA List in 2009 for child labor and forced labor (U.S. Department of Labor, 2025a). Based on the most recent available estimate, the prevalence rate of child labor in cocoa production among cocoa-growing households is 41%, representing approximately 790,000 children. According to that survey, 86% of children involved in child labor in CDI's cocoa sector perform hazardous tasks (land clearing, carrying heavy loads, working with agrochemicals, using sharp tools, working excessive hours, and night work), 29% work excessive hours, and 7% report that cocoa work interferes with their schooling (U.S. Department of Labor & NORC, 2020).

Recent studies on forced labor in CDI's cocoa sector have documented forced labor indicators, including abuse of isolation, abusive working and living conditions, and restrictions on freedom of movement (Nitidae & EU REDD Facility, 2021; Verité, 2019). Forced labor in CDI is concentrated among migrant workers from non-cocoa-producing areas of northern CDI, Mali, and Burkina Faso who have recruitment-related debt and are in their first two to three years of employment (Buhr & Gordon,

2018; Rusman et al., 2018). These workers are predominantly male but may later bring their families. Recruitment occurs through family networks and intermediary systems that facilitate transportation and employment arrangements (U.S. Department of Labor & NORC, 2020; Verité, 2019).

Due to multiple points of co-mingling and traceability limitations, cocoa beans, cocoa powder, cocoa paste, and cocoa butter exported from CDI are at risk of being produced with forced labor.

7.1.1 Supply Chain: Production, Processing, Regulation

7.1.1.1 Domestic Market

As outlined in Section 2.4: Global Cocoa Markets: Price and Risk Management, the CDI government has pursued pricing measures aimed at improving farmer wages through the LID. A report by the Corporate Accountability Lab found that many cocoa farmers were unaware of the existence of such premiums (Corporate Accountability Lab, 2023).

Smallholder farmers grow cocoa under challenging economic and social conditions and production risks, including changing weather patterns, aging cocoa trees, CSSVD, and lack of liquidity. Efforts to increase yields have been largely ineffective, and gains in production are largely attributed to illegal enlargement of planted areas in national reserves.[59]

Trader-to-cooperative relationships are relatively stable compared to farmer-to-cooperative relationships in which farmers frequently switch between buyers across seasons. Individual farmers frequently maintain relationships with multiple buyers simultaneously.

The supply chain from the cooperative to the exporter is officially recorded, but the upstream sale of cocoa beans from the farmer to the private buyer or cooperative is more informal and unstable. There are multiple pathways for cocoa movement between farms, private buyers, and cooperatives. As there are multiple points of sale in the domestic supply chain from the farm to private buyers and cooperatives, there are multiple possible end buyers of cocoa beans from the same plot and various points of co-mingling of beans from multiple plots, which threatens efforts for supply chain traceability of cocoa beans free from child labor.

Cocoa beans can be fermented on smallholder farms, then brought to the farmer's house to be cleaned and dried before being bagged for sale. In other instances, cocoa beans are fermented in sites closer to drying and storage areas off the farm or at a cooperative storage facility. During the cleaning and drying process, the cocoa beans from several plots are often mixed to meet quality or quantity requirements.

Cocoa harvested from a single plot may be sold by a farmer to multiple buyers (Makhloufi et al., 2018). The sale of cocoa beans at the farm level is generally governed by informal, non-exclusive agreements that vary over time. A key informant indicated that farmers often sell to various entities in a year and may belong to several cooperatives. Although this practice is reportedly common, the existing literature has not sufficiently explored the reasons and implications of this instability. One key informant noted:

> *"The prices shouldn't change very much because they are fixed by the government. […] anecdotally know that there are some variations though […] because some bargaining power farmers don't always get the minimum price regulated. […] But again, that's just anecdotal evidence"*
>
> *—KII, academic expert*

Another researcher interviewed for this study suggested that liquidity needs in more remote locations may prompt farmers to accept a discount, whereas supply shortages, such as those experienced in 2024, could result in a premium price.

[59] According to the CDI government, 10–15% of the harvest comes from illegally planted areas, and some NGOs suggest that it might be more than 30% (Fountain & Huetz-Adams, 2022).

Local traders and cooperatives are key intermediaries in the CDI domestic cocoa supply chain. Slightly more than half of the cocoa beans produced in CDI are sold to private buyers, and the remaining 45% are sold through one of the 3,000 registered cooperatives. These cooperatives aggregate farmers' production and resell cocoa beans on their behalf (Nitidae & EU REDD Facility, 2021; Ruf & Faure, 2021). Cooperatives and local traders register bags and phytosanitary treatments in an online system, the *Système d'Information et de Contrôle des Opérations de Distribution des Produits Phytosanitaires et de la Sacherie* (SICOPS).[60] This system enables tracking of cocoa beans from the registered trader or cooperative to subsequent sales among cooperatives and traders (Nitidae & EU REDD Facility, 2021). However, the system does not register the farms themselves, which leaves a significant gap in tracing the supply chain.

Local traders, known as *pisteurs* and *délégués*, collect cocoa beans from farmers and some cooperatives. *Délégués* have direct ties with cooperatives, while *pisteurs* are free agents who transport and sell cocoa to cooperatives and buying centers, or to a *traitant* (buying agent), who sells cocoa directly to exporters (IDH, GISCO, & C-Lever-Org, 2021; Ruf & Faure, 2021). Traders may also resell cocoa beans to cooperatives. These actors provide farmers with direct market access but create obstacles to traceability, as beans from multiple farms are co-mingled before they are registered in SICOPS.

Cooperatives aggregate cocoa beans from multiple farms and traders for sale (Nitidae & EU REDD Facility, 2021; Ruf & Faure, 2021).[61] Cooperatives have two types of governance for cooperatives, one with a board and one without. Many private traders were incentivized to form cooperatives to secure a better price for cocoa beans. Some cooperatives offer training and resources to farmers (Makhloufi et al., 2018). However, it is important to note that there has been a proliferation of cooperatives that are run by local private buyers/traders that are often referred to as "paper cooperatives," in large part due to incentives for private traders to form cooperatives to become certified (Makhloufi et al., 2018).

The Trase report distinguishes between cooperatives with a single buying center and cooperatives with multiple buying centers (Trase, 2024). One industry expert noted:

> *"There are lots of heterogeneity in what is a 'cooperative.' In Côte d'Ivoire, you might have like what they call paper cooperatives, which is just one guy that has a cooperative license but doesn't act at all as a cooperative for farmers, […] [and other cooperatives] provide lots of services and market access and price security to farmers."*
>
> *—KII, industry expert*

Furthermore, cooperative storage facilities are typically limited to one area, making it difficult to control for mixing of certified and uncertified products. In addition, some farmers declare more cocoa than the maximum capacity of their farm plots, indicating that they are adding cocoa from other farms to get the premium price (Makhloufi et al., 2018). Thus, cooperative certification is not a good proxy to assess the quality of services provided to farmers or ensure exhaustive traceability.

Cooperative/trader to processors/exporters. Cocoa purchases from cooperatives in CDI are relatively transparent and stable. A researcher interviewed for this study noted that although cooperatives are not "owned by the trading companies or the manufacturing companies […] they are part of the program with those companies or they are part of a long-term relation, trade relationship."

[60] National trading of cocoa and coffee is tracked through an online system called *Système de Gestion des Données Régionales* (SYDORE).
[61] See the Trase map of cooperatives in CDI: https://trase.earth/explore/facilities-data/map.

This has been supported by research by the Trase Initiative showing the relationship between traders or cooperatives and processors/exporters in CDI to be quite stable (Trase, 2021).[62]

That said, given the multiple points of co-mingling in the initial stages CDI's domestic cocoa supply chain, and fluctuating business sales, even these stable relationships are not enough to allow for reliable direct tracing of CDI cocoa further downstream. This is largely because, regardless of their stability, these kinds of direct sales channels still account for a relatively small portion of cocoa sourcing in CDI. A researcher noted, "If we believe what they disclose […] we see that their direct supply chains are actually less than half of the total. Rather around 30%." This estimate was reiterated by another industry expert, who noted that mass balancing and varying definitions of "direct tracing" result in corporate overestimates of traceable cocoa.

7.1.2 Processing

CDI processes approximately 44% of its cocoa production domestically and does not report imports of cocoa beans from neighboring countries, although cocoa beans are smuggled into CDI through informal channels (Trade Data Monitor, 2025; U.S. Department of Agriculture Foreign Agricultural Service, 2025a).

The CDI government, in an effort to capture economic gains from higher value intermediate cocoa goods, has been successful in attracting MNCs to invest in cocoa-processing facilities. These include, but are not limited to, the following:

- **Cargill.** Cargill is CDI's largest cocoa exporter by volume. It produces cocoa paste, cocoa cake, cocoa butter, and cocoa powder in CDI, and it recently expanded its cocoa processing facility in Yopugon, CDI, to become the largest processing facility in Africa (Cargill, 2021, 2025a). Cargill is an example of more vertically integrated processing, with direct trading from CDI to the Netherlands between Cargill entities. Cargill maintains operations in CDI, with 570 employees who conduct cocoa sourcing activities, implement sustainability programs, and produce cocoa liquor, butter, cake, and powder.
- **Barry Callebaut:** Barry Callebaut is active in CDI, with two factories producing cocoa paste, cocoa butter, and powder for both global and regional customers. In recent years, it has announced plans to increase processing capacity (Barry Callebaut, 2019).
- **ofi (Olam):** ofi is among CDI's largest cocoa exporters by volume. Its network includes 5 bean cleaning and bagging facilities and 16 warehouses. It also has two grinding facilities producing cocoa liquor, butter, and cake (ofi, 2025b).

Domestic processors and exporters account for a small portion of the market and include the state-owned company, **Transcao.** In June 2025, Transcao opened a new processing plant, doubling capacity to 100,000 MT. The industrial park was built by China Light Industry Nanning Design Engineering Co., Ltd. (Jalloh, 2025). CDI law mandates that 150,000–200,000 MT or 7–10% of the total seasonal production be purchased by local domestic companies (U.S. Department of Agriculture Foreign Agricultural Service, 2025a). Some reports indicate that there may be greater traceability issues through domestic companies, as they tend to source from local traders and are unable to provide traceability to local *pisteurs* and *traitants* (Fountain & Huetz-Adams, 2022).

Domestic downstream chocolate manufacturers are limited. Some of the chocolate companies active in the country include Cemoi, Ivoriana Chocolate, Instant Chocolat, Chocodi, Danael Chocolate, MonChoco, and Kaokao Chocolat (BBC News, 2016). Cemoi, a French chocolate maker, claims to be

[62] Researchers used cooperative disclosures, trade data, and customs data to approximate how much cocoa each company buys in a given year. This method is possible given public disclosures in CDI, but it is not necessarily replicable in other countries, such as Ghana.

the first international company to have opened a chocolate-producing factory in CDI for the purpose of selling to West African markets (Group CÉMOI, 2025).

CDI's demand for chocolate consumption is relatively low, but in 2024, CDI exported $347 million of chocolate products (48,623 MT) to France (64%), Poland (22%), and the United States (11%) (Trade Data Monitor, 2025).

7.1.3 International trade

The export sector demonstrates substantial consolidation, with five major companies controlling approximately 64% of CDI's cocoa exports (Trase, 2024). In 2024, CDI exported $6.4 billion in cocoa beans (1.2 million MT) and $3.4 billion in semi-processed cocoa (552,287 MT) (Trade Data Monitor, 2025).

Table 24. CDI cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 6,362,500,371	1,211,312
1803	Cocoa paste	$ 2,166,670,694	394,637
1804	Cocoa butter	$ 1,120,976,754	136,782
1805	Cocoa powder	$ 95,560,855	20,868
	Semi-processed total	$3,383,208,303	552,287
1806	Chocolate products	$ 347,385,687	48,623

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

International trade statistics reflect official customs data and therefore do not include smuggling. Media reports suggest that approximately one-third of smuggled Ivorian cocoa is transported across the Cavally River into Liberia, and the remaining two-thirds is moved by land into Guinea, where it is mixed with local supply chains before export (Ecofin Agency, 2025a). Because both Guinean cocoa exports and regional cocoa trading rely heavily on informal routes and unregistered intermediaries, beans of different origins are often co-mingled, making it difficult to verify the origin of cocoa exported from Guinea.

More than half of the cocoa beans exported from CDI are imported by the Netherlands (29%), Belgium (16%), and Germany (10%), followed by Malaysia (9%). Top importers of semi-processed cocoa included the Netherlands (31%), France (14%), the United States (11%), and Spain (9%).

The main buyers of cocoa bean exports from CDI include the following companies, along with the reported market share: Cargill (11.9%), Barry Callebaut (11.8%), Olam (10.3%), Societe Agricole de Café et de Cacao (7.6%), Touton (6.3%), Sucre & Denrees (5.8%), S3C (5.4%), and Cemoi (3.4%) (Nitidae & EU REDD Facility, 2021). This suggests a high degree of vertical integration in corporate trading relationships.

Table 25. Top destination markets for CDI cocoa bean exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 6,362,500,371	100.0%	World	1,211,312	100.0%
Netherlands	$ 1,813,885,502	28.5%	Netherlands	351,328	29.0%
Belgium	$ 1,015,219,092	16.0%	Belgium	170,921	14.1%
Germany	$ 636,045,017	10.0%	Malaysia	102,912	8.5%
Malaysia	$ 597,368,115	9.4%	Germany	99,591	8.2%
Canada	$ 385,655,450	6.1%	United States	81,499	6.7%
Türkiye	$ 295,522,193	5.2%	Canada	68,269	5.6%
France	$ 199,997,495	4.7%	Türkiye	67,674	5.6%
United Kingdom	$ 195,226,725	3.1%	United Kingdom	52,071	4.3%

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
Italy	$ 187,308,926	3.1%	Spain	37,476	3.1%
Spain	$ 163,303,096	2.9%	France	36,285	3.0%

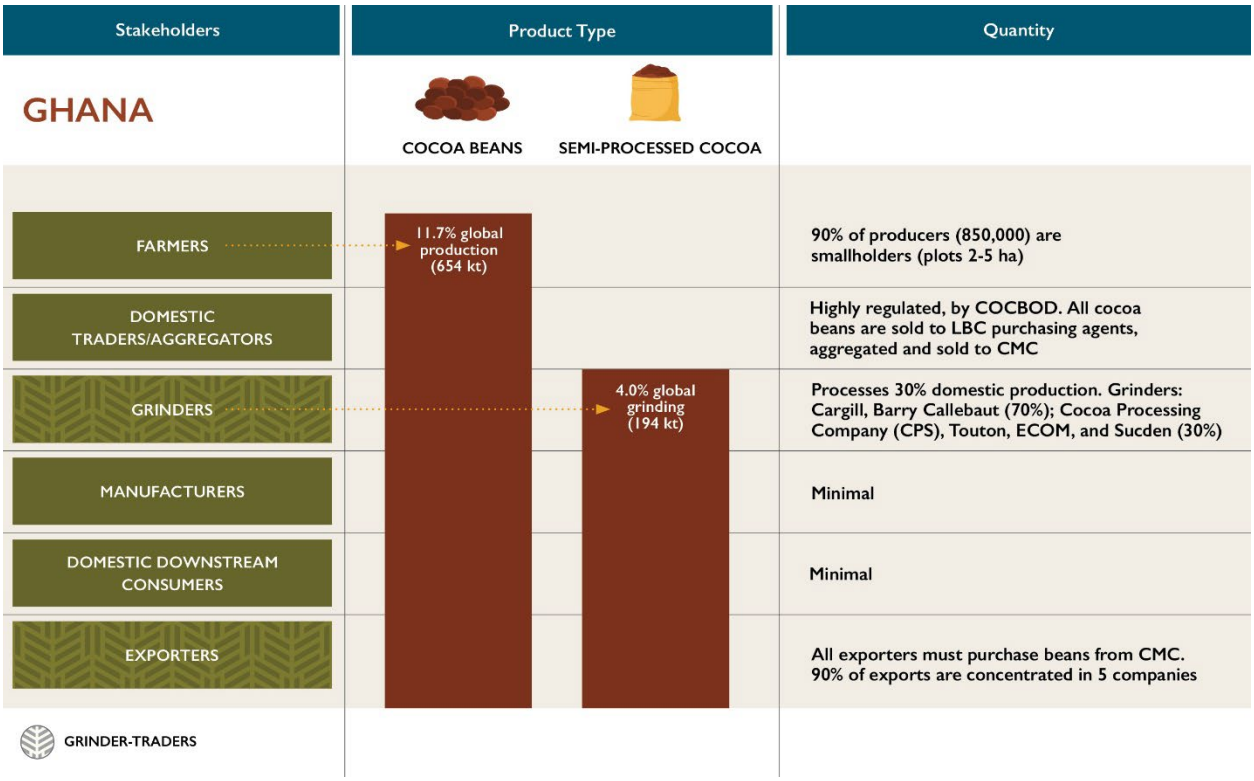
Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 26. Top destination markets for CDI semi-processed cocoa exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 3,384,543,635	100.0%	World	552,287	100.0%
Netherlands	$ 1,032,863,845	30.5%	Netherlands	187,261	33.9%
France	$ 465,133,959	13.7%	United States	77,619	14.1%
United States	$ 386,359,727	11.4%	Spain	71,902	13.0%
Spain	$ 319,034,461	9.4%	France	54,862	9.9%
Germany	$ 271,603,461	8.0%	Germany	35,226	6.4%
United Kingdom	$ 235,809,440	7.0%	United Kingdom	29,967	5.4%
Ukraine	$ 110,807,114	3.3%	Ukraine	14,936	2.7%
Türkiye	$ 65,904,671	2.0%	Egypt	9,926	1.8%
Poland	$ 57,797,457	1.7%	Poland	8,539	1.6%
Italy	$ 42,653,013	1.3%	Türkiye	7,066	1.3%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

7.2 GHANA



Source: ICF

"Cocoa is the first thing you learn in school. We are proud of cocoa in Ghana."

—KII, Ghanaian cocoa expert

Ghana is the world's second largest cocoa producer, accounting for 12% of global production in 2023 (FAOSTAT). Production is predominantly export-oriented and heavily regulated by COCOBOD, which manages price (including LID), production, marketing, and quality control.

Production has declined significantly in recent years. The 2023/24 season represents the lowest output in 15 years (U.S. Department of Agriculture Foreign Agricultural Service, 2025b). Weather conditions and CSSVD continue to affect production. Other significant concerns include cocoa smuggling and unlicensed gold mining activities (known locally as *galamsey*) being conducted on or near land used for cocoa production (U.S. Department of Agriculture Foreign Agricultural Service, 2025b). Additional factors contributing to poor cocoa production in the 2023/2024 season include increased black pod fungal disease (Phytophthora palmivora) infections, cutbacks in government-supplied insecticides, ineffective pruning exercises, and limited free fertilizer applications (U.S. Department of Agriculture Foreign Agricultural Service, 2025b).

Ghana is currently designated on the TVPRA List for child labor in cocoa production (U.S. Department of Labor, 2025a). Based on the 2018/19 National Opinion Research Center survey, the prevalence rate of child labor in cocoa production among cocoa-growing households was 94%, indicating that approximately 667,800 children work in child labor in cocoa production in Ghana. According to that same survey, 89% of children involved in child labor in Ghana's cocoa sector perform hazardous tasks (such as using sharp tools, carrying heavy loads, exposure to agrochemicals, and land clearing), and 46% work hours that interfere with schooling (U.S. Department of Labor & NORC, 2020). This and other studies suggest that child labor in Ghana's cocoa sector affects children of all age groups, with older children (12–17 years) more likely to engage in activities involving sharp tools and agrochemicals and younger children (5–11 years) more commonly involved in carrying loads and basic farm tasks (Pirkle et al., 2024; U.S. Department of Labor & NORC, 2020).

Recent reports have documented deception during recruitment, geographic isolation, and other forced labor indicators in Ghana's cocoa sector. Forced labor in Ghana is concentrated among migrant workers from non-cocoa-producing regions within Ghana or from neighboring countries (Mali, Burkina Faso, and Togo) who lack formal documentation and are in vulnerable employment situations during their initial years of work (Buhr & Gordon, 2018; Zegers, 2024). These workers are predominantly male tenant farmers but may later bring their families, and recruitment occurs through various mechanisms that may involve deceptive practices regarding working conditions and compensation (Dowuona-Hammond et al., 2021).

Cocoa beans, cocoa powder, cocoa paste, and cocoa butter exported from Ghana are at risk of being produced with child labor and forced labor. Given that these products are co-mingled throughout the supply chain, downstream cocoa supply chains are at high risk of being tainted by these practices.

7.2.1 Supply Chain

7.2.1.1 Production

The Ghanaian cocoa sector operates primarily through smallholder family farming systems, with approximately 850,000 farming families cultivating farms around 2–5 hectares in size (U.S. Department of Agriculture Foreign Agricultural Service, 2025b). In these smallholder systems, cocoa production is a household-level activity, often involving all family members, including children. Smallholder farmers often rely on family and child labor, but they may also employ informal workers for harvesting and basic processing tasks such as fermentation, drying, and bagging (Dowuona-Hammond et al., 2021; Verité, 2019).

Tenant farming arrangements exist, particularly among migrant workers from non-cocoa-producing regions who may work on farms owned by others under informal agreements. These arrangements can create conditions in which they are vulnerable to exploitative labor, particularly for migrant workers

from Mali, Burkina Faso, and Togo who lack formal documentation (Buhr & Gordon, 2018; Zegers, 2024).

Licensed buying companies (LBCs) and the Cocoa Marketing Company (CMC). Farmers sell fermented and dried cocoa beans to an LBC community-based purchasing clerk. Sale prices are required to adhere to a minimum farmgate price set by COCOBOD.[63]

The cocoa industry in Ghana is highly concentrated and characterized by extensive government involvement. All cocoa in Ghana must go through the centralized system of the governmental cocoa board regulator, COCOBOD. There are more than 40 COCOBOD-approved LBCs operating in Ghana, which employ more than 10,000 purchasing clerks (Proforest, 2022). The leading LBC is a public entity owned by COCOBOD, the Produce Buying Company Limited, which accounts for approximately 30% of the market, followed by Armajaro Ghana Limited (14%), Olam Ghana Limited (11%), and Cargill (10%) (Asoko Insight, 2025; GCB Bank, 2022). There are traceability challenges at this level of the supply chain due to co-mingling of cocoa beans from multiple farms before and after purchase by the purchase clerk and unreliable verification systems.

LBCs co-mingle cocoa beans from multiple farmers into 64 kg jute bags and record inventory and sales through multiple paper documents. Ghana requires LBCs to transfer all cocoa beans to district depots, or "takeover points," at which beans are aggregated for sale to the CMC. LBCs can pay for the segregation of their beans to maintain traceability, but this is rarely done in practice. CMC is the exclusive state seller of cocoa beans to domestic processors and exporters.

CMC sells cocoa beans to trading and processing firms, including Cargill, Barry Callebaut, ofi (Olam), Afrotripical Cocoa Processing Ltd, Cocoa Processing Company, Touton, ECOM, and Sucden (IDH, GISCO, & C-Lever-Org, 2021; LeBaron, 2018).

7.2.1.2 Processing

Historically, Ghana exported cocoa beans to Europe for processing; however, domestic processing has grown in recent decades. Ghana processes an estimated 20–40% of its domestically produced cocoa beans, depending on market conditions and seasonal variations.[64] Domestic processing is dominated by 3 multinationals (71%), and 6 companies account for 74% of cocoa exports (Asoko Insight). Despite this highly regulated market, traceability remains weak due to the co-mingling of beans from multiple farms, unreliable labor standards verification, lack of digitized documentation through the supply chain, and minimal segregation of cocoa at aggregation points at both the LBC and CMC depot level.

Major processors include the following:

- **Cocoa Processing Company:** Partially state-owned, with 3 semi-finished product factories and 1 chocolate factory (13,000 MT processed annually)
- **Cargill:** $100M Tema facility producing liquor, butter, and powder (65,000 MT capacity)
- **Barry Callebaut:** Tema facility processing liquor and nibs (67,000 MT capacity)

---

[63] COCOBOD is the Ghanaian national regulatory agency responsible for the cocoa value chain. COCOBOD's functions focus on the production, research, extension, internal and external marketing, and quality control. The functions are classified into two main sectors, pre-harvest and post-harvest, which are performed by specialized divisions or subsidiaries. Pre-harvest sector functions are performed by the Cocoa Research Institute of Ghana, the Seed Production Division, and the Cocoa Health and Extension Division. Post-harvest sector functions are handled by the Quality Control Company Limited and the CMC Limited. COCOBOD/Quality Control Company post-harvest activities target quality control measures that farmers must adhere to for acceptance of their crop at buying centers.

[64] Challenges exist in upstream traceability, as reportedly there "is no proper verification" at the point of sale between farmers and local buyers, enabling some farmers to make sales without traceability (Proforest, 2022). Upstream verification at the farm and purchasing clerk levels remain "unreliable since there is no proper verification system in place" to ensure that cocoa is coming from compliant farms and is free from child labor or forced labor (Nitidae & EU REDD Facility, 2021).

- **ofi (Olam):** Processes 43,000 MT
- **Touton:** Cocoa liquor facility opened in 2015
- **Afrotropical Cocoa Processing Ltd:** Exports processed cocoa globally, including to the Netherlands

Domestic chocolate manufacturers operate locally, producing cocoa products such as chocolate and cocoa powder for Ghanaian consumption (U.S. Department of Agriculture Foreign Agricultural Service, 2025b). However, most cocoa beans and semi-processed cocoa products are exported.

7.2.2 International Trade

Ghana is the only cocoa-producing country that has maintained a public monopoly, through COCOBOD, on the export and trading of cocoa beans. This impacts national revenue collection, as the state earns income from CMC profits, as well as import and export taxes. Unlike CDI, for which data about cocoa importers are unavailable because customs statistics services consider them to be confidential, Ghanaian customs statistics include importers' names, providing greater transparency on trading relationships (Nitidae & EU REDD Facility, 2021).

International trade statistics do not capture smuggling, and there have been reports of cocoa beans being smuggled in or out of Ghana, depending on cocoa bean prices relative to the fixed price established by COCOBOD (Naydenov et al., 2022). Togo serves as a particularly significant destination and potential transit point, as its prices adjust bimonthly based on global rates. Price differentials drive most smuggling activity. When CDI raised its farmgate price in October 2024, it created disparities in which Ivorian farmers received approximately 3,072 Ghanaian cedis per 64 kg bag, compared to Ghana's 3,000 cedis. This incentivized cross-border smuggling from Ghana to CDI. Similarly, cocoa sells for at least $137 per bag in Ghana but fetches close to $152 when smuggled to CDI.[65]

The export sector demonstrates substantial consolidation. There are 120 licensed exporters in Ghana, but the sector is highly concentrated among a small number of companies (Trase, 2024). The percentage of market concentration has varied annually, with declining production rates, but Touton, Cargill, Barry Callebaut, ECOM, OLAM, and Sucden together account for 74% of the beans exported from Ghana and 68% of the processed cocoa products exported (Nitidae & EU REDD Facility, 2021). COCOBOD's oversight of marketing and export logistics effectively consolidates cocoa sales into a single institutional channel, which is subsequently allocated among licensed export partners, many of which are subsidiaries or affiliates of the major global traders that control the world cocoa supply chains. This framework enhances the negotiating power of large traders in comparison to individual producers and smaller buyers, enabling substantial bulk contracts and reliable supply commitments to international processors and manufacturers.

In 2024, Ghana exported $1.6 billion in cocoa beans (322,175 MT) and $1.2 billion in semi-processed cocoa (169,056 MT).[66] The Netherlands was the leading market share for cocoa beans (15%), tied with Belgium (15%), followed by France (12%) and Japan (9%). The Netherlands was also the largest importer of semi-processed cocoa (26%), followed by France (14%), the United States (7%), Poland (7%), and Spain (5%) (Trade Data Monitor, 2025).

[65] Currency depreciation exacerbates these dynamics. Ghana's cedi lost more than 20% of its value against the dollar in 2024, making sales in stronger currencies like the CFA franc increasingly attractive.

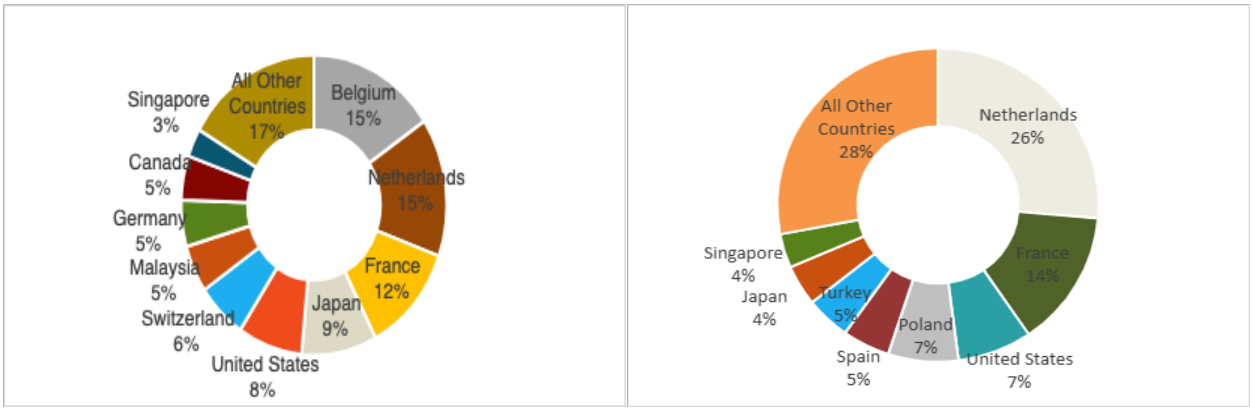
[66] With falling production rates and export demands, to avoid underutilizing domestic processing capabilities, Ghana imports some cocoa beans, usually from CDI (Bediako, 2024; Donkor, 2024; Ecofin Agency, 2025b).

Table 27. Ghana cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 1,587,121,491	322,175
1803	Cocoa paste	$ 684,210,083	99,741
1804	Cocoa butter	$ 390,382,123	42,772
1805	Cocoa powder	$ 106,404,246	26,543
	Semi-processed total	$ 1,180,996,452	169,056
1806	Chocolate products	$ 20,195,978	6,113

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Figure 14. Top destination markets by value for Ghana cocoa bean (left) and semi-processed cocoa exports (right), 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 28. Top destination markets for Ghana cocoa bean exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$1,587,121,491	100.0%	World	322,175	100.0%
Belgium	$247,268,199	15.6%	Netherlands	48,824	15.2%
Netherlands	$236,336,916	14.9%	Belgium	38,222	11.9%
France	$186,943,952	11.8%	France	35,114	10.9%
Japan	$145,415,194	9.2%	United States	31,238	9.7%
United States	$124,728,078	7.9%	Switzerland	24,144	7.5%
Switzerland	$96,323,392	6.1%	Japan	22,894	7.1%
Malaysia	$80,682,240	5.1%	Malaysia	16,130	5.0%
Germany	$79,064,871	5.0%	Germany	14,827	4.6%
Canada	$75,165,590	4.7%	Canada	13,994	4.3%
Singapore	$48,977,841	3.1%	Singapore	13,857	4.3%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

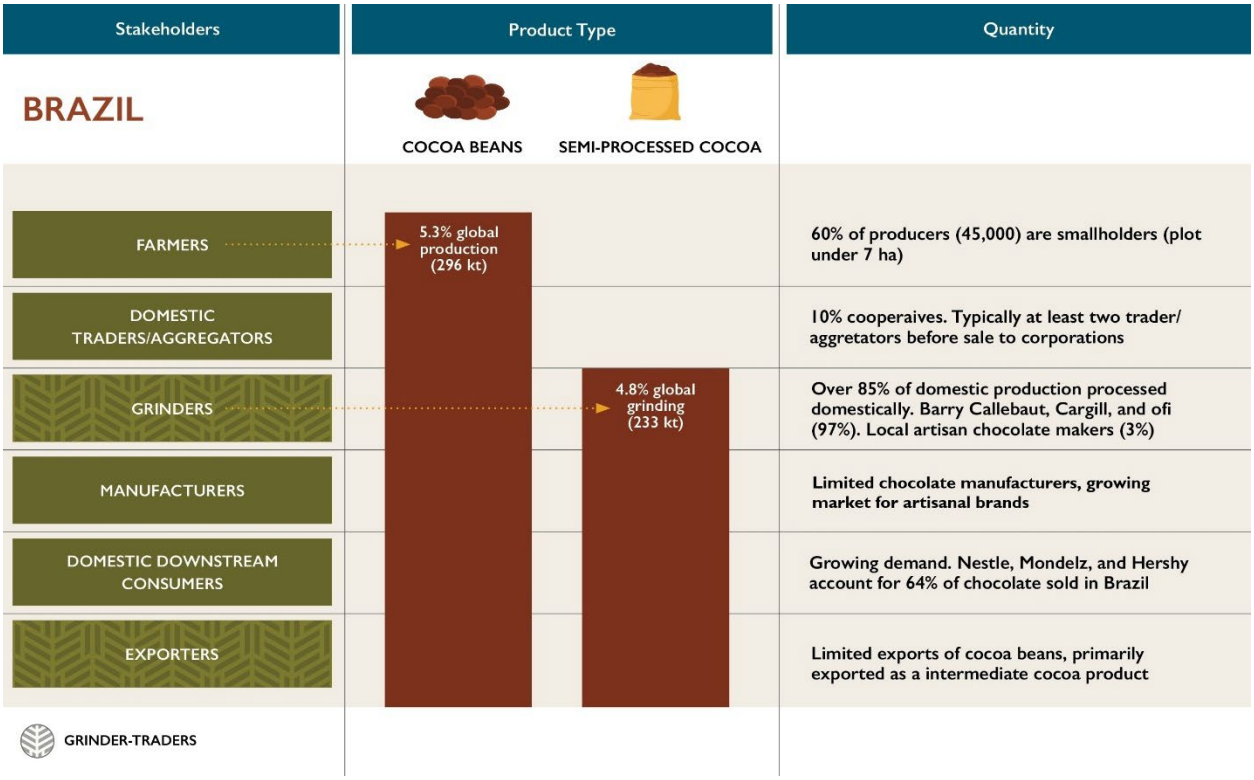
Table 29. Top destination markets for Ghana semi-processed cocoa exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 1,180,996,452	100.0%	World	169,056	100.0%
Netherlands	$ 310,759,787	26.3%	Netherlands	53,503	31.7%
France	$ 166,080,705	14.1%	United States	15,695	9.3%
United States	$ 88,344,992	7.5%	France	14,010	8.3%
Poland	$ 83,231,103	7.1%	Poland	10,967	6.5%

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
Spain	$ 56,615,084	4.8%	Spain	9,619	5.7%
Türkiye	$ 53,325,634	4.5%	Germany	6,450	3.8%
Japan	$ 49,095,099	4.2%	Brazil	6,089	3.6%
Singapore	$ 41,342,859	3.5%	China	5,922	3.5%
United Kingdom	$ 39,907,957	3.4%	Japan	5,310	3.1%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

7.3 BRAZIL



Source: ICF

Brazil ranks fifth in global cocoa production, representing 5.3% of global production (FAOSTAT, 2025). The Brazilian cocoa sector differs from other major producing countries in structure and market orientation. Approximately 60% of cocoa production is on small family farms, with the remaining 40% on larger plantations (Sevilla et al., 2024). Cocoa production has decreased by half since the 1980s, largely due to crop disease and pests (Sevilla et al., 2024). The cocoa sector is relatively small compared to other Brazilian agricultural sectors and may not receive as much attention or resources from the government, but the government's Inova Cacau 2030 plan includes a goal of increasing production to more than 400,000 tons by 2030 (Sevilla et al., 2024).

Brazil has a large domestic market for cocoa, which consumes 95% of annual production and is supplemented by cocoa bean imports to meet demands for manufacturing and domestic consumption (Trade Data Monitor, 2025; FAOSTAT, 2025; Sevilla et al., 2024).

Brazil is designated on ILAB's TVPRA List for child labor in cocoa production (U.S. Department of Labor, 2025a). Based on 2014 survey data analyzed by the International Labor Organization and Brazil's Labor Prosecution Office, approximately 8,000 children and adolescents aged 10–17 worked in cocoa

plantations. Child labor is more prevalent (77.8%) among older adolescents aged 14–17 and occurs primarily on small family farms where children perform hazardous tasks, including cutting cocoa pods with machetes, carrying heavy loads, and applying agrochemicals (Dias et al., 2015; Sevilla et al., 2024). Child labor rates in Brazil appear to be decreasing but remain higher in the agriculture sector (Sevilla et al., 2024).

Forced labor in Brazil's cocoa sector has been documented through numerous government labor inspections and NGO investigations. Forced labor in the Brazilian cocoa sector is characterized primarily by debt bondage systems in which workers become trapped through unfair loan terms, degrading living and working conditions, and exhausting work schedules (Reporter Brasil, 2020; Sevilla et al., 2024). Forced labor appears to be a greater risk on larger cocoa plantations than on small family farms. Risk is heightened on large estates through informal labor agreements that lack legal contracts, with migrant workers, particularly those from Venezuela with undocumented status, facing heightened vulnerability due to language barriers and limited legal protections (Sevilla et al., 2024). Recent prominent lawsuits in the cocoa sector on labor conditions have brought more attention to forced labor. Dedicated efforts to address child labor and forced labor have occurred over the last two decades, with efforts winding down over the last five years, though the issue appears to be coming back into focus (Sevilla et al., 2024).

Due to multiple points of co-mingling and traceability limitations, cocoa beans, cocoa powder, cocoa paste, and cocoa butter produced in Brazil are at risk of being produced with child labor.

7.3.1 Supply Chain

The structure of the cocoa production chain in Brazil is diverse, incorporating small- and medium-scale producers who establish sharecropping and partnership relationships with landowners. Small-scale farms produce approximately 60% of Brazilian cocoa. These smallholder farmers rely heavily on family labor and are mostly in the informal sector (Sevilla et al., 2024).

Sharecropping and partnership arrangements. Brazilian cocoa farmers often engage in two main types of relationships with landowners:

- **Sharecropping:** The landowner provides the land to the farmer for cultivation, and the farmer contributes labor and other inputs necessary for cocoa production. The distribution of the cocoa harvest is typically agreed upon in advance, with the landowner receiving a share and the farmer retaining the remainder.
- **Partnerships:** Both parties contribute resources and share the risks and rewards of cocoa production more equitably. The landowner may provide the land, capital, or other resources, and the farmer contributes labor, knowledge, and farming expertise (Sevilla et al., 2024).

Cooperatives. Cooperatives can support farmers through technical assistance and price negotiation with buyers. However, cooperatives are perceived as limited in their reach and institutionally weak in the cocoa sector. According to estimates, only 8% of cocoa farmers in Bahia and 11% of cocoa farmers overall are affiliated with cooperatives (Sevilla et al., 2024). While cooperatives can negotiate better prices for farmers' cocoa beans with collectors and processors, there is limited engagement. The government-led Inova Cacau 2030 plan aims to increase participation in cooperatives to 30%, provide training for cooperatives, and offer technical assistance for farmers (Sevilla et al., 2024).

Even though cooperatives are weak, they provide an opportunity for farmers to receive better prices by avoiding small traders and selling cocoa beans to cooperatives, which then sell to processors in the private sector, avoiding intermediaries.

Traders and aggregators. Middlemen are strategically located across significant cocoa-producing regions, establishing connections between growing areas and multinational processing companies. Middlemen who purchase cocoa directly from farmers in rural areas are often close to the farms. They

provide cash payment but typically offer lower purchase prices, compared to processor receiving stations. They justify this lower price by factoring in costs associated with transportation and freight to the destination where the acquired cocoa will be sold (Sevilla et al., 2024).

At the next level, collectors receive cocoa purchased by middlemen and maintain direct business relationships with multinational processing companies, which require invoices and corporate taxpayer identification numbers. In many instances, collectors are responsible for issuing fiscal documents related to production. Some medium-sized companies purchase cocoa directly from farmers (Sevilla et al., 2024).

Bean-to-bar. In Brazil, some NGO-supported efforts have connected farmers directly with niche chocolate company buyers, resulting in increased prices paid to farmers, though this has been at small volumes. Dengo Chocolates is one example of a Brazilian chocolate company that purchases cocoa beans directly from farmers. Private sector efforts have included programs from companies such as Mondelēz, with private-sector-led guidelines focused on technical assistance for good agricultural practices to increase cocoa production and increased access to credit to improve farmer livelihoods (Sevilla et al., 2024).

7.3.2 Processing and Consumption

The processing market is dominated by a few companies. Barry Callebaut, Cargill, and ofi (Olam) account for 97% of cocoa processing in Brazil (Sevilla et al., 2024). There are five factories: four in Bahia (three in Ilhéus and one in Itabuna) and one in São Paulo (Sevilla et al., 2024).

Local artisanal chocolate makers in Brazil occupy a much smaller share of the domestic market, but they have seen domestic commercial success in the artisanal bean-to-bar movement, focusing on fine flavors, sustainable practices, and direct farmer relationships or growing and harvesting in-house. Prominent brands include Nugali, Harald, Q Chocolate, Chocolate du Jour, and Mestico Chocolates.

Retail and consumption. Three major chocolate brands (Nestlé, which acquired Garoto, Mondelēz, and Hershey) account for 63.8% of the chocolate sold in the country. These brands, as well as Mars, have chocolate factories in Brazil. Mondelēz has the largest market share at 32% (Sevilla et al., 2024).

After chocolate products are manufactured, they are distributed and sold through various retail channels, including supermarkets, convenience stores, and specialty shops. In Brazil, chocolate consumption averaged 2.5 kg per capita in 2015. Chocolate purchases are concentrated in supermarkets, where chocolate products compete primarily on price (Sevilla et al., 2024).

7.3.3 International Trade

A global leader in cocoa bean production, Brazil is a net cocoa importer, as domestic production is insufficient to meet industry demands. Brazil imports cocoa beans primarily from CDI, importing approximately 25,000 MT in 2024 (Trade Data Monitor, 2025).

As approximately 95% of domestically produced cocoa supplies Brazil's processing and manufacturing demands, Brazil exports a tiny fraction of its cocoa bean production, and those that are exported are premium cocoa varieties (Sevilla et al., 2024). In 2024, Brazil exported 427 MT of cocoa beans, 40% to Switzerland and 30% to Japan (Trade Data Monitor, 2025).

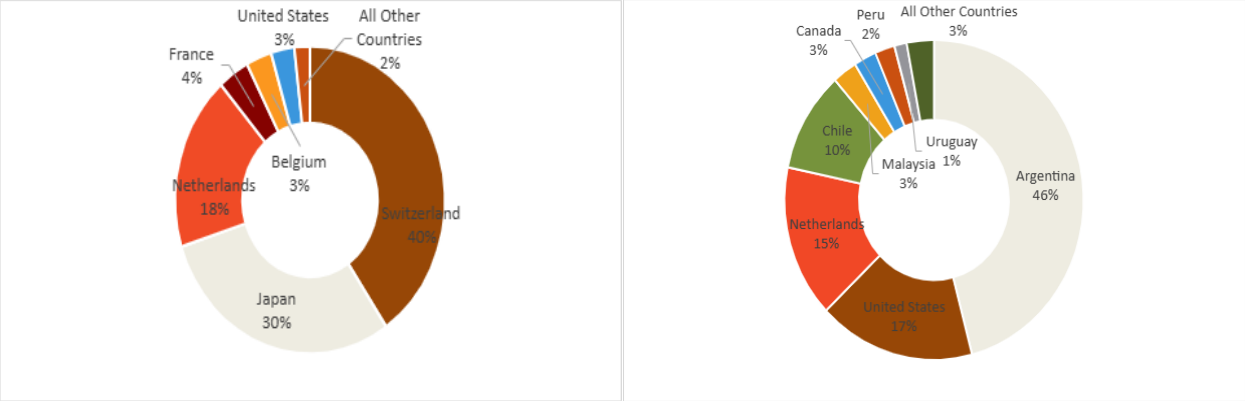
Brazil exports a relatively higher quantity of semi-processed cocoa than cocoa beans. In 2024, semi-processed exports totaled $466 million and chocolate exports totaled $175 million. Argentina was the largest destination market for semi-processed cocoa (40%), followed by the United States (17%), the Netherlands (15%), and Chile (10%) (Trade Data Monitor, 2025). Chocolate sales were concentrated in Latin America (89%), including 24% to Argentina.

Table 30. Brazil cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 1,936,983	427
1803	Cocoa paste	$ 57,077,330	6,656
1804	Cocoa butter	$ 289,366,229	28,208
1805	Cocoa powder	$ 119,695,043	24,819
	Semi-processed total	$ 466,138,602	59,683
1806	Chocolate products	$ 175,554,769	34,057

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Figure 15. Top destination markets value for Brazil cocoa bean (left) and semi-processed cocoa exports (right), 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 31. Top destination markets for Brazilian cocoa bean exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 1,936,983	100.0%	World	427	100.0%
Switzerland	$ 783,318	40.4%	Netherlands	173	40.5%
Japan	$ 573,742	29.6%	Japan	125	29.2%
Netherlands	$ 356,727	18.4%	Switzerland	99	23.2%
France	$ 72,779	3.8%	Belgium	12	2.8%
Belgium	$ 59,542	3.1%	United States	9	2.0%
United States	$ 54,153	2.8%	France	5	1.3%
Portugal	$ 8,742	0.5%	Ireland	2	0.4%
Türkiye	$ 8,116	0.4%	Portugal	2	0.4%
Ireland	$ 7,792	0.4%	Türkiye	1	0.2%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

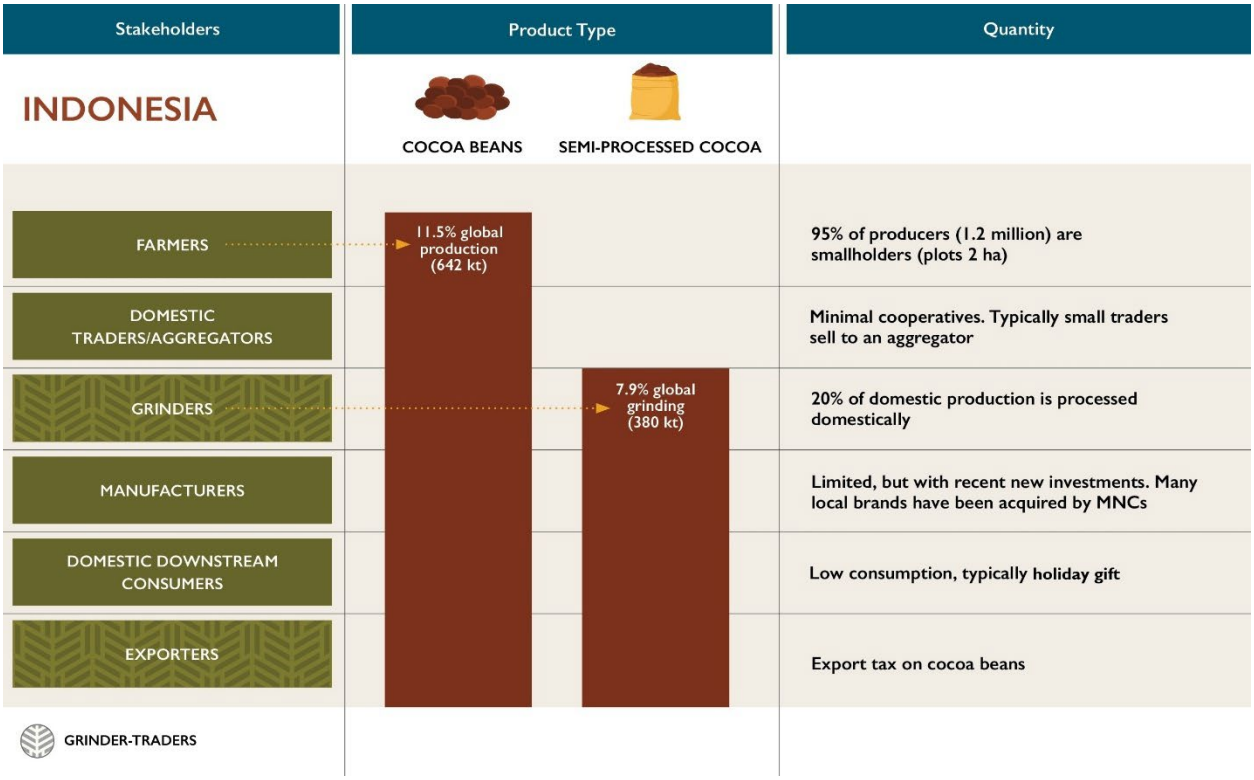
Table 32. Top destination markets for Brazilian semi-processed cocoa exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 466,138,602	100.0%	World	59,683	100.0%
Argentina	$ 213,529,428	45.8%	Argentina	23,126	38.8%
United States	$ 78,887,280	16.9%	Netherlands	9,801	16.4%
Netherlands	$ 71,757,212	15.4%	United States	8,763	14.7%
Chile	$ 47,485,896	10.2%	Malaysia	6,000	10.1%

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
Malaysia	$ 12,349,722	2.7%	Chile	4,704	7.9%
Canada	$ 11,424,027	2.5%	Peru	1,821	3.1%
Peru	$ 9,947,011	2.1%	Uruguay	1,540	2.6%
Uruguay	$ 6,275,616	1.4%	Bolivia	1,182	2.0%
Bolivia	$ 4,823,231	1.0%	Canada	1,035	1.7%
Paraguay	$ 1,595,975	0.3%	Paraguay	378	0.6%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

7.4 INDONESIA



Source: ICF

Indonesia is the third largest cocoa producer globally (11.5% global production) (FAOSTAT, 2025), with smallholder family farms dominating 99.9% of production (Sevilla et al., 2024). Production is concentrated in Sulawesi, which accounts for 75% total cocoa production (Sevilla et al., 2024), with Central Sulawesi producing nearly 20% of total cocoa output alone, followed by Southeast and South Sulawesi (BPS Statistics Indonesia, 2024).

Despite extensive government initiatives to boost the cocoa sector,[67] production has dropped due to aging cocoa trees, crop disease and pests, and alternative land use as farmers switch to other more

[67] Over the last two decades, the government has welcomed international efforts to boost production (Sevilla et al., 2024). Initiatives such the Sustainable Cocoa Enterprise Solutions for Smallholders Alliance programs, the Agribusiness Market and Support Activity program, and the Cocoa Sustainability Partnership were established to coordinate industry initiatives, and private sector partnerships with global firms such as Barry Callebaut, Cargill, ECOM, Mars, Mondelēz, Nestlé, Olam, Armajaro, and Blommer were established to integrate global cocoa firms into Indonesia's supply chain (Neilson et al., 2020).

profitable agricultural crops. As Indonesia has grown wealthier, agricultural land shifted toward cultivating crops with higher profitability margins often used for animal feed, such as rice, grains, and other livestock feed crops.

> *"Indonesia's middle class wealth development has meant that all great agricultural land has been handed over to protein production or feeding of protein. And cocoa has stayed on the unsuitable land, the hills, hillside land. So, if you go to places where it used to go in the old days and there were cocoa farms, it's all now rice or grains or whatever it might be. And that's not going to reverse because it's too, it's too profitable. You have to remember cocoa. Cocoa land competes."*
>
> *—KII, industry representative*

An industry representative noted that because cocoa cannot compete economically with these crops, it is often planted on less productive terrain, ultimately decreasing cocoa yields. In addition, the quality of Indonesia's cocoa trees are impacted by age and disease, and the lack of investment and research into tree health has slowed productivity and continues to keep yields low.

Indonesia is not currently designated on ILAB's TVPRA List for cocoa production (U.S. Department of Labor, 2025a). Limited systematic data exist on child labor prevalence in Indonesian cocoa production, although child labor remains a risk, particularly when children drop out of school. The smallholder structure in which families work together on plots averaging under two hectares creates potential for children's participation in agricultural activities. Indonesian law contains regulatory gaps because it specifies conditions for light work and limits working hours but fails to clearly define which activities constitute permissible light work for children (Sevilla et al., 2024; U.S. Department of Labor, 2025b).

Available evidence suggests that systematic forced labor in Indonesian cocoa production is limited, with no major assessments documenting significant indicators of forced labor such as debt bondage, movement restrictions, or withholding of wages.

7.4.1 Supply Chain

Smallholder farmers dominate production in Indonesia, with 95% of farmers working on less than 2 hectares of land (Sevilla et al., 2024). The cocoa sector is primarily informal, and cooperatives seem to play a limited role, although there are some reports of cooperatives providing access to credit, training, and higher farmgate prices, particularly when they are supported by NGOs and civil society organizations.

Farmers predominantly sell to local collectors, who then aggregate the cocoa beans at collection centers before they are warehoused and sold to a processing facility in Indonesia or exported.[68] Major multinational companies often operate their own buying stations, and offer better prices for certified beans. Certified beans are purchased systematically through companies like Mars, Cargill, and ofi (Olam), providing income guarantees to certified farmers and an opportunity for cooperatives and farmers to sell directly to the company and avoid the cost of intermediaries.[69]

7.4.2 Processing and Export

In another effort to increase profitability and support the broader cocoa sector, the government implemented a 15% export tax on raw beans in 2010, aiming to incentivize domestic processing, disincentivize exports of cocoa beans, and retain more value within Indonesia (Sevilla et al., 2024). As a result, there was a drop in the exports of cocoa beans as well as a greater investment into cocoa processing from the government and the private sector (Neilson et al., 2020; Sevilla et al., 2024).

---

[68] Farmers typically sell their cocoa beans unfermented, resulting in a lower quality and price.

[69] Approximately 40% of Indonesian production is certified, with lower rates in South and Central Sulawesi of around 30% (Better Than Cash Alliance, 2024).

Approximately 20% of cocoa bean production in Indonesia is processed locally, mostly by international firms, and foreign grinders now dominate Indonesia's cocoa sector (Neilson et al., 2020; Putri et al., 2015).

The Indonesian government is focused on increasing domestic cocoa processing capability by attracting MNCs to invest in processing (Antara News, 2023). Indonesia does support a small domestic processing industry, including the following companies: PT Davomas Abadi Tb, Cartenz Cocoa (PT Cartenz Cocoa), Persatu.one Group (PT Persatuone Komoditas Indonesia), Indococoa, Golden Harvest Cocoa Indonesia, Regal Cocoa Indonesia, and CV Sakti Global Lestari.

Following the 2010 government tax on raw cocoa bean exports, multinational companies invested in local grinding capacities, with companies like Barry Callebaut, Cargill, and ofi (Olam) establishing processing facilities. Major cocoa processing in Indonesia is dominated by multinational firms such as Barry Callebaut, Cargill, ofi (Olam), JB Cocoa, and Guan Chong (Confectionery Production, 2020).

Large multinational cocoa processors in Indonesia include, but are not limited to, the following:

- **ofi (Olam Food Ingredients):** Facilities in Tangerang and Banten
- **Cargill:** Facilities in Makassar and Gresik
- **Barry Callebaut:** Facilities in Makassar and Bundung; manufacturing in Gresik
- **Mars Indonesia:** Facilities in Makassar
- **JB Cocoa:** Malaysian company with facilities in Surabaya
- **Guan Chong:** Facilities in Batam (Confectionery Production, 2020; GCB Foods, 2025; Global Market Insights, 2025b)

Table 33. Indonesia cocoa exports (value, quantity), 2024

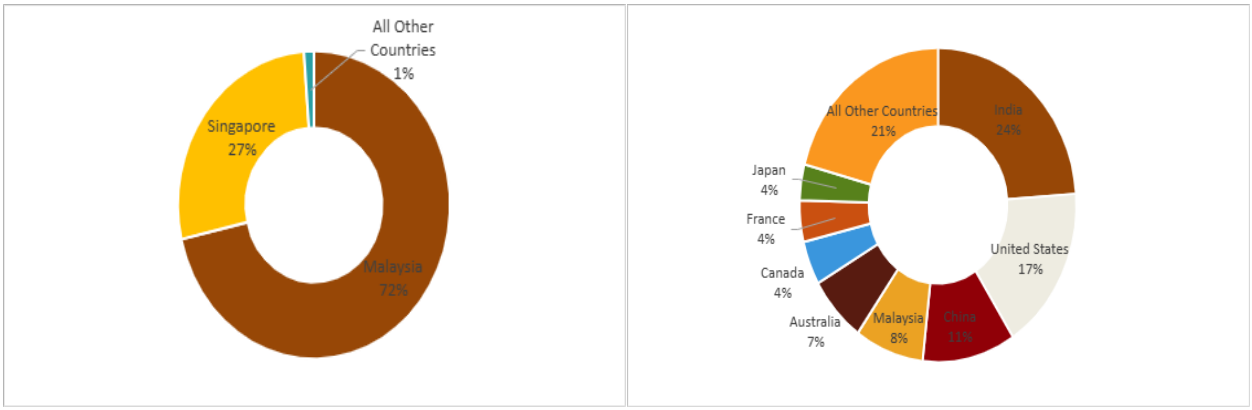
HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 114,581,238	20,988
1803	Cocoa paste	$ 284,565,764	58,171
1804	Cocoa butter	$ 1,211,369,324	106,521
1805	Cocoa powder	$ 395,523,649	98,048
	Semi-processed total	$ 1,891,458,737	262,740
1806	Chocolate products	$ 110,925,733	36,263

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Indonesian cocoa beans are exported almost exclusively to Malaysia (72%) and Singapore (27%). An industry representative shared that domestic and regional processors tend to use domestic beans to create a compound chocolate with vegetable fats for the local market. Domestic consumption of chocolate in Indonesia is relatively low and tends to be reserved for gift giving during holidays (Global Market Insights, 2025b; PT Capricorn Indonesia Consulting, 2019).

Semi-processed cocoa is exported primarily to India (24%), the United States (17%), China (11%), and Malaysia (8%) (Trade Data Monitor, 2025). Indonesian beans are also valued because they produce a hard butter. When cocoa paste is pressed to produce cocoa powder and cocoa butter, the paste needs to be alkalized to ensure that the cocoa powder develops a commercially desirable dark rich color. Typically, this process softens the butter. However, the Indonesian cocoa bean is the one bean that is resistant to that softening, so it produces a very hard butter. The hard butter allows manufacturers to produce a chocolate bar that is hard but brittle enough to snap when bitten. According to one industry representative, chocolate manufacturers often blend cocoa butter produced from Indonesian cocoa beans with other cocoa butters to create this desired consistency.

Figure 16. Top destination markets by value for Indonesia cocoa bean (left) and semi-processed cocoa (right) exports, 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 34. Top destination markets for Indonesia cocoa bean exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 114,581,238	100.0%	World	20,988	100.0%
Malaysia	$ 81,820,960	71.4%	Malaysia	12,997	61.9%
Singapore	$ 31,370,267	27.4%	Singapore	7,760	37.0%
Belgium	$ 444,187	0.4%	Netherlands	66	0.3%
Netherlands	$ 359,404	0.3%	Belgium	66	0.3%
Japan	$ 255,930	0.2%	Japan	33	0.2%
Switzerland	$ 121,012	0.1%	Cambodia	25	0.1%
Canada	$ 100,251	0.1%	Switzerland	20	0.1%
Germany	$ 70,281	0.1%	Canada	10	0.1%

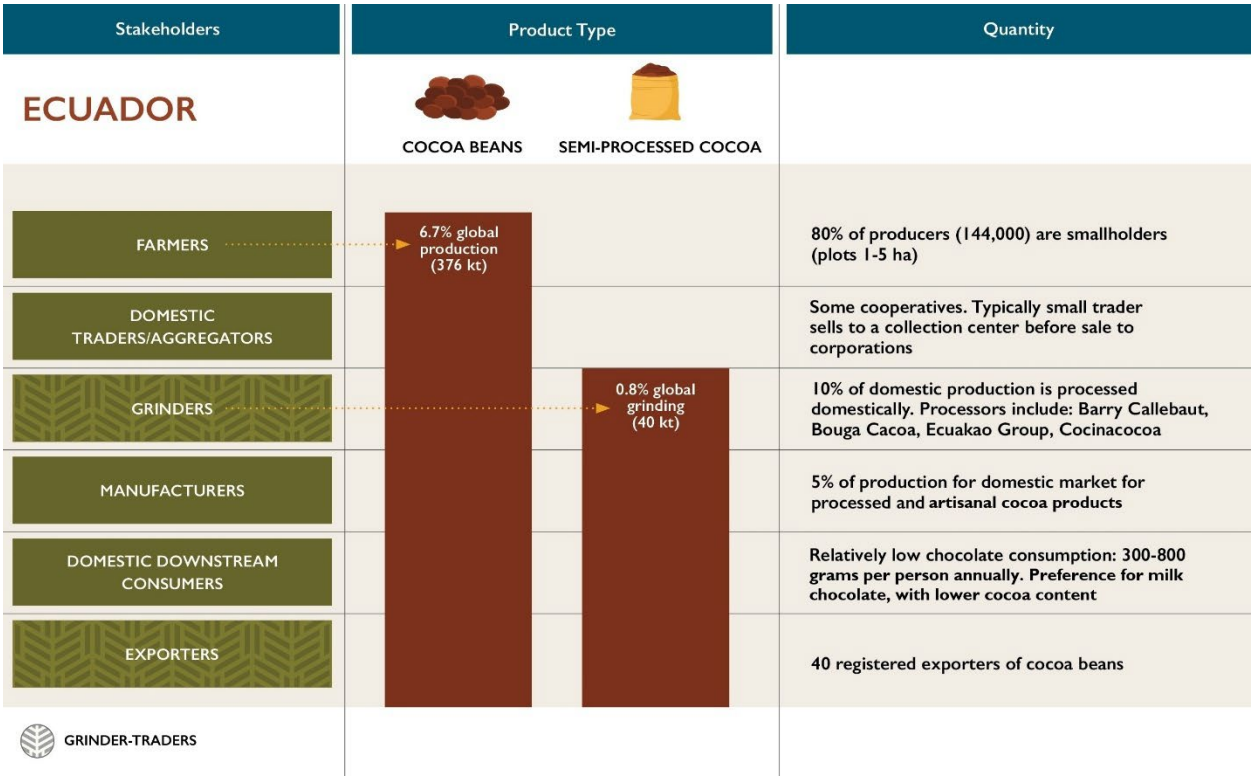
Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 35. Top destination markets for Indonesian cocoa bean exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 1,891,458,737	100.0%	World	262,740	100.0%
India	$ 440,225,168	23.3%	India	70,276	26.8%
United States	$ 313,674,994	16.6%	Malaysia	36,866	14.0%
China	$ 201,069,016	10.6%	China	32,506	12.4%
Malaysia	$ 148,340,357	7.8%	United States	26,530	10.1%
Australia	$ 127,073,342	6.7%	Australia	14,993	5.7%
Canada	$ 82,773,368	4.4%	Netherlands	8,813	3.4%
France	$ 78,838,418	4.2%	Philippines	7,056	2.7%
Japan	$ 67,893,248	3.6%	Japan	5,955	2.3%
Netherlands	$ 66,772,073	3.5%	Spain	5,764	2.2%
Germany	$ 56,611,932	3.0%	Canada	5,376	2.1%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

7.5 ECUADOR



Source: ICF

Ecuador accounted for 6.7% of total global cocoa production in 2023 (Trade Data Monitor, 2025). Per an Ecuador industry representative, the cocoa industry in Ecuador is primarily driven by small-scale subsistence farmers, with 80% of the production taking place on farms smaller than 5 hectares and 95% on farms less than 20 hectares (KII, Ecuador Industry Expert; Sevilla et al., 2024). Ecuador is gaining significance on the global stage, not only due to its growth in cocoa production, but also due to its growing market share of cocoa bean exports. In 2024, Ecuador was tied with Nigeria as the second largest exporter of cocoa beans worldwide, accounting for roughly 11% of global exports.

Ecuador is not currently designated on ILAB's TVPRA List for cocoa production, but it achieved "Significant Advancement" status in 2023 for efforts to eliminate the worst forms of child labor, with cocoa identified as a sector in which child labor occurs (U.S. Department of Labor, 2024b). National data show that 7.0% of children aged 5–14 were engaged in child labor (260,567 children) in 2022, with 85.9% of child laborers working in the agricultural sector across multiple crops including cocoa. Child labor increased from 9% in 2012 to a peak of 23.0% in 2022 before declining to 19.2% in 2023, attributed to economic pressures from falling oil prices, reduced social spending, and the COVID-19 pandemic (Instituto Nacional de Estadística y Censos, 2022; Sevilla et al., 2024). A critical data gap exists because no comprehensive nationwide child labor survey has been conducted since 2012.

There is a lack of official statistics or comprehensive studies addressing forced labor specifically in Ecuador's cocoa sector. According to U.S. Government reports, forced labor occurs in the agriculture sector broadly, with higher risks for women, children, Indigenous, Afro-Ecuadorian, migrant, and refugee populations (U.S. Department of Labor, 2025a). Labor inspections have not documented enough cases of forced labor to consider it a widespread issue, and several stakeholders report that forced labor is not currently prioritized on Ecuador's public agenda (Sevilla et al., 2024). Industry and civil society experts in Ecuador interviewed for this study indicated that they were unaware of child labor issues in

the cocoa sector, and there was insufficient quantitative data to assess child labor, although risk factors for child labor were high, given smallholders' economic vulnerability and volatile cocoa prices.

7.5.1 Production

Cocoa production accounts for approximately 12% of the country's agricultural workforce and 5% of the economically active rural population (Sevilla et al., 2024).

> *"In Ecuador, we have more than 180,000 producers distributed nationally, mainly concentrated on the provinces of Los Ríos, Esmeraldas, Guayas, Santo Domingo."*
>
> *—KII, Ecuador industry expert*

With rising production rates, some industry observers speculate that Ecuador will become the second largest cocoa exporter (Angel & Angel, 2025). Ecuador has experienced significant growth in its cocoa harvest, much of which has been due, according to an industry representative, to the success of hybrid CCN51.[70]

> *"CCN 51, which is by far the largest variety coming out of Ecuador, which is a clonal variety which is not known for its spectacular flavor […] but the trees are great at drought resistance, pest resistance, […] high productivity level, […] and they come into production relatively quickly, etc. So, this is what a lot of the growth in Ecuador has been: CCN51."*
>
> *—KII, industry representative*

Coordinated support measures implemented by Ecuador's government have facilitated farmers' investments in higher productivity and the cultivation of high-quality cocoa (Sevilla et al., 2024). Ecuador benefits from higher yield, and due to agroforestry production styles and topography, further expansion of cocoa farms into arable land is possible without deforestation. One expert also suggested that land dedicated to banana cultivation could be profitably repurposed to grow cocoa. Despite these promising production trends, heavy metals found in Ecuadorian cocoa are banned in the EU. An industry representative shared that the metals are naturally occurring in the rich volcanic Ecuadorian soil but require farming and drying methods to mitigate contamination. Violence, primarily driven by organized crime and gang activities, also has the possibility to threaten the growth of the cocoa sector (Center for Economic and Policy Research, 2023; France 24, 2025).

7.5.2 Supply Chain

Ecuador's cocoa industry operates through a rural network that channels 95% of its production to international markets.

Smallholder farmers. The majority of the country's 180,000 smallholder farmers sell their beans to small traders, and a smaller portion work with a cooperative or sell directly to collection centers.

Small traders. Small traders can operate in two distinct modes, either as traveling or stationary aggregators. Those who travel directly to farms offer farmers the convenience of on-site purchasing and transportation, albeit at a lower price than would be offered without these services. Farmers in remote areas often do not have the option to identify other buyers and may have to accept pricing. Other small traders maintain stationary operations that require farmers to transport their harvest but offer better prices to farmers. In some areas, farmers may have a choice of multiple buyers, both traveling and stationery.

Cooperatives. An alternative sale pathway for farmers is to sell to cooperatives, although it remains available to only a minority of producers. Current estimates suggest that approximately 20% of

[70] The CCN51 varietal was developed by Omero Castro in the private sector in 1965, although it was not cultivated widely until 1995.

Ecuador's cocoa farmers are members of a cooperative. Cooperatives offer substantial advantages to their members, including fermenting beans to improve quality and price and negotiating prices with collection centers, exporters, or domestic processors (Sevilla et al., 2024). The limited reach of cooperatives reflects several intersecting factors: Ecuador's 180,000 cocoa farmers are geographically dispersed across multiple provinces, making cooperative organization logistically difficult; approximately 80% of Ecuadorian farmers lack access to formal credit (U.S. Department of Labor, 2024a), which constrains their ability to meet membership requirements or fees; and the convenience and immediacy of cash sales to traveling intermediaries—who come directly to the farm—reduces the short-term incentive to participate in cooperative structures that require more coordination. Where cooperatives do function, they offer substantial advantages to their members, including fermenting beans to improve quality and price and negotiating prices with collection centers, exporters, or domestic processors (Sevilla et al., 2024).

Collection centers. Whether purchased by traveling middlemen, stationary traders, or cooperatives, the cocoa beans flow toward collection centers, which are the aggregation points at which individual harvests from across a region come together in sufficient volume to attract the attention of exporters. These centers serve as the crucial link between Ecuador's dispersed smallholder production and the international buyers who ultimately ship the beans overseas.

7.5.3 Processing and Export

Ecuador's small processing industry consumes approximately 5% of the cocoa beans produced domestically. Of the limited semi-processed cocoa exports, most are in the form of cocoa paste (Sevilla et al., 2024). An industry representative noted that domestic chocolate manufacturers, while limited, have a reputation for producing high-quality, often sustainably produced chocolates.

Artisanal chocolate makers account for a small share of total downstream use, but traditional chocolate-making brands, like Bios, have been joined by a burgeoning generation of artisanal chocolate makers, many of whom focus on bean-to-bar chocolates. Some of the well-known local brands include Pacri Chocolate, WAO Chocolate, Indameni Baez, Kallari Chocolates, Hoja Verde, To'ak Chocolate, Yanakuri, Minka, and Valdivian, as well as Nestlé Ecuador Chocolate. Ecuador supports a robust artisanal chocolate industry, many with dedicated cafes and storefronts in Quito, but one industry expert noted that Ecuadorians tend to prefer sweeter and milkier chocolate blends and therefore still import chocolate products. Likely reflecting this trend, in 2024, Ecuador imported $17 million in chocolate Columbia and $8 million from Brazil (Trade Data Monitor, 2025).

Table 36. Ecuador cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 2,500,240,162	380,146
1803	Cocoa paste	$ 156,559,111	21,469
1804	Cocoa butter	$ 40,350,718	3,202
1805	Cocoa powder	$ 13,084,437	2,751
	Semi-processed total	$ 209,994,266	27,422
1806	Chocolate products	$ 22,015,329	1,826

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Approximately 95% of the cocoa produced in Ecuador is exported. An industry expert noted that approximately 40 major companies are licensed to export cocoa beans from Ecuador.[71]

[71] Non-exhaustive list of exporters (for 2022): Outspan Ecuador, Barry Callebaut Ecuador SA, Eco Kakao SA, Inmobiliaria Guangala SA, Cargill del Ecuador CIA Ltd., Agroinstrias Arribal del Ecuadro Agroarriba SA, Ecuador Kakao Processing Proecuakao Sa, Granssouth SA, Aromas y Sabores, Manacao SA, (Trase, 2025a)

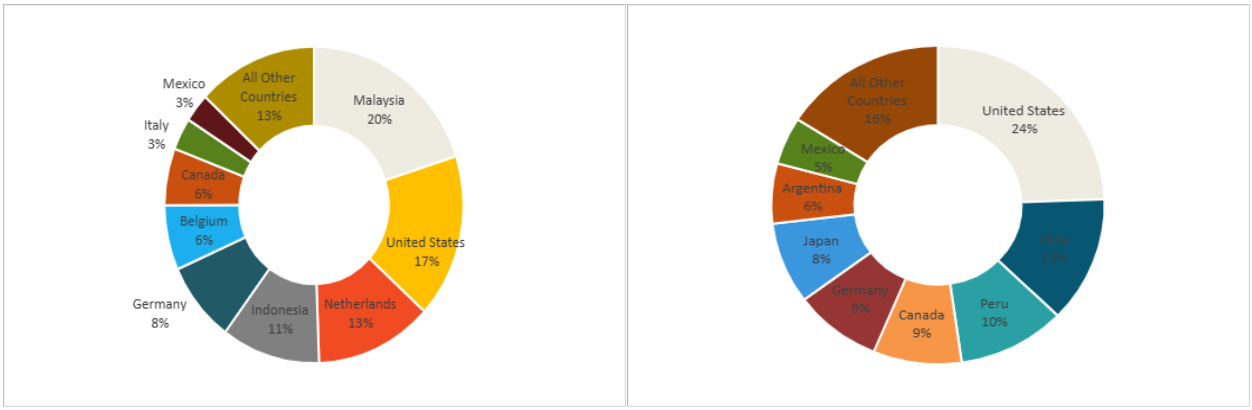
Approximately16 companies export semi-processed and finished chocolates, although the degree of overlap between the 2 groups is unclear (Sevilla et al., 2024).

In 2024, Ecuador benefited from the falling production levels in CDI and Ghana and rising global prices. Ecuador and Nigeria became the second largest global exporters of cocoa beans. Half of Ecuador's $1.5 billion in bean exports (380,146 MT) were imported by Malaysia (20%), the United States (17%), and the Netherlands (13%), followed by Indonesia (11%), Germany (8%), and Belgium (6%) (Trade Data Monitor, 2025).

Semi-processed cocoa exports accounted for a fraction of the value of cocoa beans, totaling $209 million, and were primarily exported in the form of cocoa paste (21,469 MT). Primary destination markets by value included the United States (24%), Chile (13%), and Peru (10%) (Trade Data Monitor, 2025).

Large downstream chocolate manufacturers, including Nestlé, Mars, Hershey, and Ferrero, source from Ecuador (Sevilla et al., 2024). A non-exhaustive list of importing companies includes ofi (Olam), Barry Callegaut, Cargill, Itochu, Agroindustrias, PT Jebe Koko, BJ Cocoa SDN BHD, PT Asia Cocoa, Guan Chong, General cocoa, GCB Cocoa, and PT Papandayan (Trase, 2025a).

Figure 17. Top destination markets by value for Ecuador cocoa bean (left) and semi-processed cocoa (right) exports, 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 37. Top destination markets for Ecuador cocoa bean exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 2,500,240,162	100.0%	World	380,146	100.0%
Malaysia	$ 499,569,091	20.0%	Malaysia	78,925	20.8%
United States	$ 418,443,117	16.7%	Netherlands	53,497	14.1%
Netherlands	$ 317,022,424	12.7%	United States	52,526	13.8%
Indonesia	$ 266,912,756	10.7%	Indonesia	45,288	11.9%
Germany	$ 204,724,863	8.2%	Germany	25,703	6.8%
Belgium	$ 165,368,067	6.6%	Belgium	23,227	6.1%
Canada	$ 145,652,135	5.8%	Canada	21,494	5.7%
Italy	$ 81,701,567	3.3%	Italy	13,235	3.5%
Mexico	$ 72,940,334	2.9%	India	10,956	2.9%
India	$ 65,553,150	2.6%	Mexico	10,235	2.7%

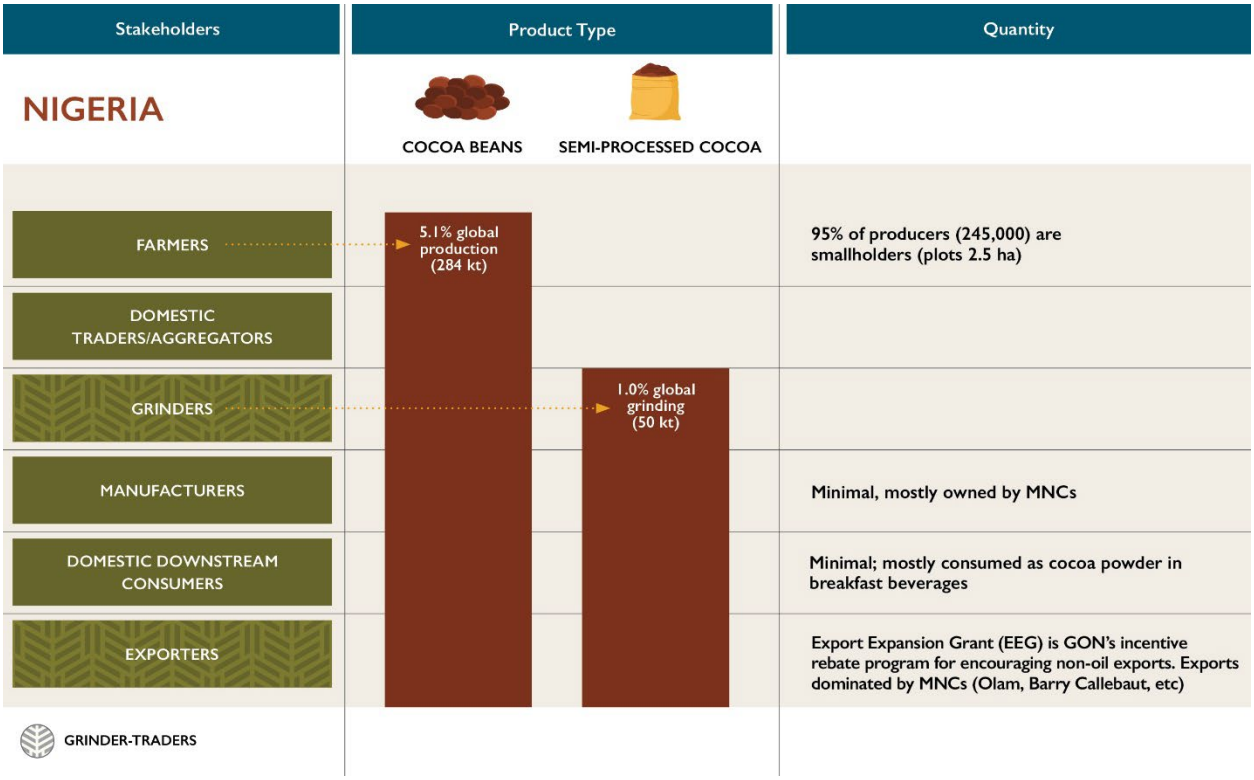
Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 38. Top destination markets for Ecuador semi-processed cocoa exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 209,994,266	100.0%	World	27,422	100.0%
United States	$ 51,244,093	24.4%	United States	6,994	25.5%
Chile	$ 26,834,740	12.8%	Canada	3,660	13.4%
Peru	$ 21,945,621	10.5%	Chile	3,076	11.2%
Canada	$ 18,030,392	8.6%	Peru	1,984	7.2%
Germany	$ 17,908,534	8.5%	Japan	1,942	7.1%
Japan	$ 17,338,441	8.3%	Colombia	1,628	5.9%
Argentina	$ 12,774,891	6.1%	Argentina	1,534	5.6%
Mexico	$ 10,107,635	4.8%	Germany	1,392	5.1%
Australia	$ 7,267,161	3.5%	Mexico	1,272	4.6%
Colombia	$ 7,025,476	3.4%	Brazil	990	3.6%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

7.6 NIGERIA



GON=Government of Nigeria
Source: ICF

Nigeria produces approximately 5% of the global supply of cocoa beans but accounted for approximately 11% of cocoa bean exports in 2024 (FAOSTAT; Trade Data Monitor, 2025). The Nigerian cocoa sector employs approximately 300,000 farmers operating predominantly on small-scale family farms (Nigerian Export Promotion Council, 2025). The South-West region serves as the country's "cocoa belt," accounting for 70% of national production, where cocoa represents more than two-thirds of household income for farming families (Furlan, 2024b).

The labor structure in the sector is characterized by small family farms in which family members provide primary labor supplemented by hired workers, who are often domestic migrants from northern Nigeria and Benin recruited through intermediary agents (Furlan, 2024b; Ryerson, 2024a). Labor conditions are shaped by extreme poverty, with 72% of Nigerian cocoa farmers living below the poverty line of $1.9 USD per day and farmers earning only 100,000–120,000 Naira ($223–264 USD) annually, forcing reliance on unpaid family labor, including children and low-cost trafficked workers (Furlan, 2024b).

Nigeria is currently designated on ILAB's TVPRA List for forced labor and child labor in cocoa production (U.S. Department of Labor, 2024b). The 2022 Nigeria Child Labor Survey found that 39.2% of children aged 5–17 engage in child labor nationally, representing approximately 24.67 million children, with rural areas showing disproportionately high rates at 44.8%, compared to 30% in urban areas (International Labour Organization & Nigeria National Bureau of Statistics, 2024). The age distribution reveals particularly concerning patterns, with 60.8% of child laborers falling in the youngest age group of 5–11 years (Corporate Accountability Lab, 2024; International Labour Organization & Nigeria National Bureau of Statistics, 2024).

Trafficking of children for cocoa work represents a systematic pattern, with Nigerian children recruited from rural areas by traffickers known as "agents" who arrange transportation to cocoa farms using deception such as promises of educational opportunities that never materialize, after which children are not allowed to leave farms and face threats or beatings if they attempt to escape (Furlan, 2024c).

The International Labor Organization's 2022 Nigeria Forced Labor Survey estimated that 617,000 adults are engaged in forced labor nationally, with agriculture accounting for 41% of estimated total male forced labor, and the Walk Free Foundation's 2023 Global Slavery Index places 1.6 million people in modern slavery in Nigeria, ranking the country the fifth highest in Africa for prevalence (Walk Free, 2024). In the cocoa sector specifically, the Corporate Accountability Lab's 2024 investigation across more than 90 farms in 34 Local Government Areas documented systematic forced labor indicators across all major cocoa-producing states (Ryerson, 2024a). Forced labor in cocoa production is characterized by movement restrictions, debt bondage practices in which recruitment-related fees can "equal the entire first year's salary," degrading living and working conditions, and withholding of wages, with workers paid only once a year (Furlan, 2024c; Ryerson, 2024a).

Prior to the 1970s, cocoa served as Nigeria's top source of foreign exchange earnings and accounted for more than 50% of Nigeria's total exports, before being overtaken by the discovery of oil reserves in the 1970s (Esan et al., 2025). An industry representative noted that the oil boom turned the government's attention away from cocoa to oil, which resulted in deregulation of the cocoa sector.

Over the decades since 1970, government investment in cocoa production shrank as resources shifted to develop crude oil exports.[72] In more recent years, Nigeria has sought to diversify its non-oil exports to rely less heavily on crude oil foreign exchange revenue earnings, which have been decreasing in value (Eboh, 2025; Ikeh, 2025). In 2022, Nigeria's government established a National Cocoa Management Committee tasked with revitalizing the country's cocoa industry along the value chain from farming to exports (Adeleye, 2024; Mbachu, 2025). In 2022, the Federal Ministry of Agriculture and Food Security began a Special Agro-Industrial Processing Zone pilot program in seven states with funding from multilateral banks[73] to create economic zones in rural areas outfitted with requisite infrastructure that would enable agribusiness and food manufacturing companies to operate in the zones, with the goal of attracting businesses and integrating production, processing, storage, transport, and export actors into

[72] Deregulation exacerbated and created some challenges for cocoa farmers' lack of access to credit and extension services; other challenges included aging, less productive trees; extreme weather events with related pest infestations and higher crop disease incidence; high rural to urban migration rates of youth; defunct processing factories; and more (Esan et al., 2025; Kehinde & Ogundeji, 2022; Mbachu, 2025).

[73] The Africa Development Bank, the International Fund for Agricultural Development, and the Islamic Development Bank.

the same zones (Chinwike, 2023; Darhei Noam Ltd, 2023; Special Agro Industrial Processing Zones, 2022).

As Nigeria expands investments in cocoa production, experts predict significantly higher cocoa output volumes in 2027 once newly planted trees have reached productive maturity in three to five years (Fountain & Huetz-Adams, 2025). These predictions are tempered by vulnerability to severe weather events. Most of Nigeria's smallholder cocoa farmers rely solely on rainfed cultivation rather than irrigation (Akinpelu et al., 2024). Consequently, Nigerian cocoa production is highly vulnerable to variations in rainfall levels and distribution (Akinpelu et al., 2024), and extreme weather events like drought. Investments in irrigation systems and development of improved cocoa plant varieties, such as drought-tolerant or disease-resistant varieties, can help increase farmer resilience to extreme rainfall variations.

7.6.1 Production and Regulations

Nigeria has plentiful farmland and labor sources[74] for cocoa production, which have been underutilized after decades of underinvestment in the cocoa industry, leading to cascading issues in the sector. One of these issues has been a shortage of young cocoa farmers and farm laborers as youth have migrated to urban zones (Ezeamalu, 2025). Younger adults (over 35 years) have gradually returned to cocoa farming due to factors such as inheriting ancestral lands and lack of urban employment opportunities, with an average Nigerian cocoa farmer age of 43 years (Kehinde et al., 2025). In 2024, Nigeria also saw a high rate of youth migrating back to rural cocoa-producing zones to become cocoa farmers, licensed buying agents (LBAs), or other cocoa supply chain actors due to the global cocoa price surge, which coincided with Nigeria's worst economic crisis in 30 years,[75] causing high unemployment and wage stagnation for most sectors except cocoa (Achirga & Sanni, 2024; Ezeamalu, 2025).

The country's cocoa bean production is driven by the large area under cocoa cultivation, rather than productivity rates per hectare, with an average national cocoa output rate below 0.5 MT per hectare (Adeleye, 2024; Kehinde & Ogundeji, 2022).[76] Cocoa-driven deforestation to capture more arable land for cocoa farming is a persistent issue in Nigeria, including illegal cultivation in protected areas like the Omo Forest Reserve, one of the African continent's largest United Nations Educational, Scientific and Cultural Organization biosphere reserves in South-West Nigeria (Adebayo, 2023). During record high global cocoa prices in 2024, farmers also expanded their production areas and replaced aging unproductive trees with high-yield varieties to capitalize on the higher cocoa prices (Esan, 2025), which may have exacerbated cocoa-driven deforestation. With the combination of increased support and favorable weather conditions in 2023–2024, the expected output for 2024 should have been much higher than the 350,000 MT that was officially recorded (Akinpelu et al., 2024; Ezeamalu, 2025). The Cocoa Research Institute of Nigeria attributes much of this gap to smuggling, which reportedly led to a loss of 200,000 MT of cocoa beans from 2024 output (Ezeamalu, 2025). According to key informants interviewed for this study, smuggled cocoa lacks traceability and has been difficult for authorities to monitor and prevent along the 2,000 km-long border between Nigeria and Cameroon (Kindzeka, 2023).

7.6.2 Supply Chain

Nigeria's domestic cocoa actors consist of a network of smallholder cocoa farmers, small traders, LBAs, and cooperatives, with small traders in between producers and LBAs at the foundation of the cocoa market. LBAs, rather than cooperatives, are the key intermediaries that handle 80% of domestic cocoa

[74] Nigeria has the largest population in Africa at more than 200 million, and one of the youngest populations globally, with a national median age of 18.1 years (Chinwike, 2023).
[75] High inflation and currency devaluation after national economic reforms have caused a cost-of-living crisis in Nigeria.
[76] The ICCO states a potential high yield of 1 MT/ha with good agricultural practices (Kehinde et al., 2025). Hybrid varieties developed by Nigeria's Cocoa Research Institute can yield potentially 1.5–2 MT/ha (Kehinde & Ogundeji, 2022).

production, purchasing beans from farmers or cooperatives, transporting beans, and conducting quality inspections before selling the cocoa to exporter-traders and domestic processors. Exporters and processors also rely on LBAs to facilitate corporate sustainability and certification programs with farmers. LBAs and cooperatives sell the majority of the aggregated cocoa beans to exporter-traders (Okojie, 2024).

Smallholder farmers. Nigeria has approximately 300,000–350,000 cocoa farmers (Kehinde et al., 2025). Cocoa is an important source of income for Nigeria's smallholder farmers, who produce more than 90% of Nigeria's cocoa beans (Chinwike, 2023; Darhei Noam Ltd, 2023; TraceX Technologies, 2025).[77] Farmers most commonly sell their cocoa beans to an LBA, sometimes through a small trader, but they can also sell cocoa beans to cooperatives.

Small traders. Small traders purchase and aggregate cocoa beans from multiple farmers to sell to LBAs. It is estimated that there are approximately 28,000 small traders, 14 to 20 per LBA. There is limited publicly available information on Nigeria's small cocoa traders, in contrast to the extensive literature on West African small traders (*pisteurs*) and the relatively well-documented studies on Cameroon's small traders (*coxeurs*) (Atabong, 2023; International Cocoa Organization, 2023).[78]

Licensed Buying Agents. LBAs, formally licensed intermediaries, sometimes referred to more generically as large traders, dominate farmgate cocoa bean aggregation and sales to exporters and processors in Nigeria. LBAs account for approximately 80% of cocoa bean purchases from farmers, with cooperatives accounting for the remaining 20% of supply (Adeleye, 2024). LBAs sell most of their aggregated batches to exporters and supply residual quantities to domestic processing firms (Adeleye, 2024).

For farmers who are not affiliated with cooperatives, LBAs provide them with credit, transportation services, and agricultural inputs in exchange for exclusive purchase rights to the farmer's cocoa harvest; LBAs also provide farmers with training on Good Agricultural Practices and other requirements for obtaining certifications that offer price premiums (Adeleye, 2024). Exporters and processors rely on LBAs not only for logistical coordination and delivery of contractually specified volumes of cocoa beans, but also for facilitating corporate sustainability and certification programs with farmers (Adeleye, 2024). Certifications are an increasingly important requirement from international buyers and for market access in Europe due to anticipated supply chain compliance regulations like the EUDR. Given their multifunctional roles, LBAs take on high operational costs, especially for transport and storage of cocoa beans (Akinrotimi, 2025),[79] and the farmgate price offered to farmers is the residual price after accounting for the operational costs. From their warehouses, LBAs deliver aggregated cocoa beans to their clients' wholesale storage facilities, primarily concentrated in Lagos, from which the beans are graded and stored before being either transported to domestic processing plants or prepared for export (Dunmola et al., 2025; International Cocoa Organization, 2023).

---

[77] Chinwike (2023) cites the National Bureau of Statistics 2013 survey figures of 18 cocoa-producing states on a total of 1,363,600 hectares. A report from the ICCO on Nigeria's value chain cites different figures from a 2005 Cocoa Research Institute of Nigeria survey used in Nigeria's 2019–2028 National Cocoa Plan; a total of 22 states have 640,000 ha under cocoa cultivation, but most cocoa production is typically associated with 14 states. The ICCO report's estimate after reconciling the National Bureau of Statistics and Cocoa Research Institute of Nigeria surveys is 658,824 ha under cocoa cultivation (International Cocoa Organization, 2023). Various sources cite figures from either of these sources.

[78] The Commodity Boards Act of 1977 outlines terms for commodity boards in appointing and licensing agricultural commodity buying agents, but there are otherwise no publicly available regulations that set specific codes of conduct for Nigerian LBAs like Cameroon's cocoa LBA regulations. The Commodity Boards Act only prohibits false representation as a licensed agent (Part IV, section 20) but does not explicitly prohibit unlicensed buyers.

[79] Adoption of Good Post-harvest Handling Practices to reduce post-harvest losses and enhance cocoa bean quality for better sale prices could potentially offset some of these high operational costs, but only 43.3% of LBAs surveyed in the South-West region of Nigeria had adopted these practices (Akinrotimi, 2025).

Cooperatives. Within the domestic cocoa market, cooperatives in Nigeria handle only about 10% of cocoa beans sales from farmers (Adeleye, 2024). Most cooperatives lack the capacity to sell their products directly to exporters and processors, given their lack of financial capital and inability to aggregate high volumes of cocoa due to difficulties with transportation and other logistics (Adeleye, 2024). Thus, most cooperatives make their sales to LBAs (Adeleye, 2024). Organized auctions by cooperatives do not appear to be a common marketing method in Nigeria; sources reviewed for this report indicated that cooperatives negotiate sales to LBAs, exporters, or processors on an individual basis rather than holding organized auctions, which are not mentioned as a market pathway (Adeleye, 2024; Chinwike, 2023; International Cocoa Organization, 2023).

7.6.3 Processors and Exports

In 2024, Nigeria and Ecuador were the second largest exporters of cocoa beans, but Nigeria was a relatively insignificant global supplier of semi-processed cocoa. Nigeria aspires to expand its cocoa processing capabilities to increase the exports of semi-processed cocoa products, but less than half of the grinding facilities in Nigeria are currently functional (Ikeh, 2025; International Cocoa Organization, 2023).[80]

Domestic processing facilities suffer from underutilization rates. Nigeria's domestically owned cocoa processing companies[81] had a combined average operating capacity of 30% for grinding and processing cocoa beans (International Cocoa Organization, 2023; Chinwike, 2023). On the other hand, two foreign majority-owned Nigerian processors (Cadbury Nigeria Processing, a Mondelēz subsidiary, and Tulip Cocoa Processing, a subsidiary of Theobroma of the ECOM Group) had a combined average operating capacity of 65% (International Cocoa Organization, 2023). Although there are many variables to explain these discrepancies, major contributing factors are the limited cocoa supply for processors after trader-exporters purchase the majority of available cocoa bean output (Okojie, 2024; International Cocoa Organization, 2023) and the ongoing economic crisis that has increased cocoa processors' already high operational costs and devalued the national currency (Achirga & Sanni, 2024; Akinfenwa, 2024).

Consumption. Nigeria's domestic consumption of processed cocoa products is minimal. Residual domestic cocoa powder is used to produce local breakfast beverages, biscuits, and ice cream, and to supply Nigeria's 11 artisanal chocolatiers[82] and an unknown number of bakeries and confectioneries (International Cocoa Organization, 2023; U.S. Department of Agriculture Foreign Agricultural Service, 2011).

Processing. Nigerian subsidiaries of MNCs that manufacture downstream cocoa products for domestic consumption non-exhaustively include the following: Nestlé Nigeria (Nestlé), FrieslandCampina WAMCO Nigeria (Royal FrieslandCampina), Barry Callebaut Nigeria (Barry Callebaut), Susan Cocoa (Amel International Services Ltd), and Promasidor (Promasidor South Africa) (ICCO, 2023; Chinwike, 2023).

Nigerian cocoa exporters are highly concentrated with a few MNCs that own Nigerian subsidiaries (Adelye, 2024) that control more than 50% of cocoa bean exports (International Cocoa Organization, 2023). Top cocoa exporters in Nigeria include (with parent companies in parenthesis if available) ofi Nigeria Cocoa (ofi [Olam]), Johnvents Industries Ltd. (Johnvents Group), Sucden Nigeria Cocoa (Sucden

[80] Out of 15 processing facilities in Nigeria, approximately 4 to 6 are currently operational (Akinfenwa, 2024; International Cocoa Organization, 2023; Okojie, 2024).

[81] International Cocoa Organization, 2023 report: Alpha Cocoa Systems, FTN Cocoa Processing Company, JohnVents Industries, Ile-Oluji Cocoa Products and Plantation Industries. Alpha Cocoa, however, appears to be not operational or closed, as a 2025 online search for the company's website yielded no results.

[82] Dune, Pod, Loshes, Yemmies, Roostarr, Choc Boy, Sunshine Chocolate, Loom, Kalabari Gecko, Chockridge, and an array of baking confectionery, boutiques, and cafes (International Cocoa Organization, 2023; Chinwike, 2023)

SA), Tulip Cocoa (Theobroma), Starlink Global and Ideal Ltd., Olatunde International Ltd., DUNE Nigeria Ltd., and WACOT Limited (Tropical General Investments Group) (Adelye, 2024).

Domestically owned cocoa export trading companies include major Nigerian cocoa processor-exporters such as Olatunde International Ltd. and Starlink Global and Ideal Ltd.[83] (Adeleye, 2024; Chinwike, 2023).

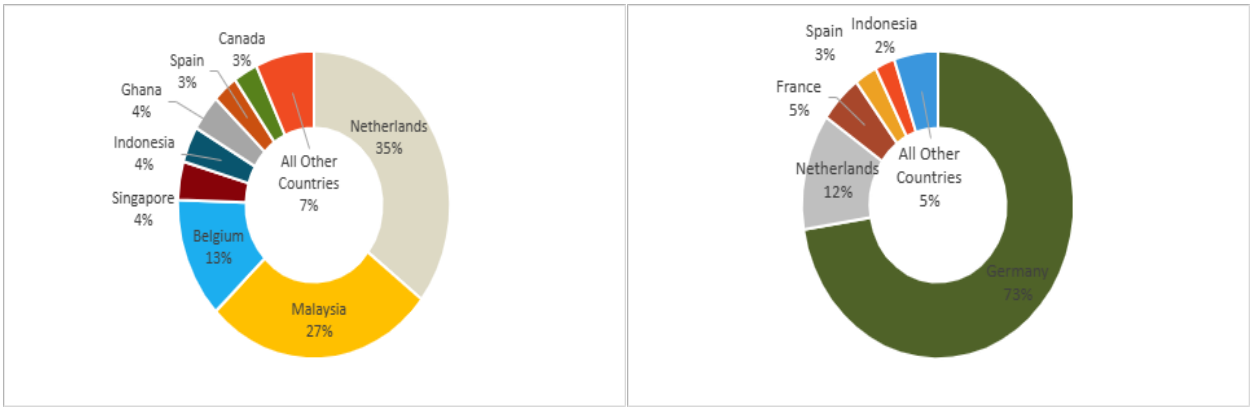
A majority of domestically produced cocoa beans are exported, 80% as cocoa beans, with the remaining 20% exported as semi-processed cocoa (Trade Data Monitor, 2025, International Cocoa Organization, 2023). In 2024, Nigeria tied with Ecuador as the second largest exporter of cocoa beans (by volume and value), exporting $2.4 billion (392,139 MT).[84] The Netherlands was the largest destination market by value, at 35%, followed by Malaysia (27%), Belgium (13%), and Singapore (4%) and Indonesia (4%).[85] The vast majority of semi-processed cocoa was exported to Germany (73%), the Netherlands (12%), and France (5%).

Table 39. Nigeria cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 2,437,888,247	392,139
1803	Cocoa paste	$ 67,985,473	16,831
1804	Cocoa butter	$ 206,359,574	16,300
1805	Cocoa powder	$ 905,127	240
	Semi-processed total	$ 275,250,174	33,371
1806	Chocolate products	$ 651,183	298

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Figure 18. Top destination markets by value for Nigeria cocoa bean (left) and semi-processed cocoa exports (right), 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 40. Top destination markets for Nigeria cocoa bean exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 2,437,888,247	100.0%	World	392,139	100.0%
Netherlands	$ 865,094,600	35.5%	Netherlands	161,186	41.1%
Malaysia	$ 665,912,123	27.3%	Malaysia	89,352	22.8%

[83] No affiliation to the Starlink company owned by SpaceX; name similarities are coincidental.
[84] International trade statistics do not include illegally traded cocoa; therefore, the estimates of 200,000 MT of cocoa beans smuggled to Cameroon are not reflected in official data (Ezeamalu, 2025).

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
Belgium	$ 309,536,901	12.7%	Belgium	44,897	11.5%
Singapore	$ 97,848,834	4.0%	Ghana	14,907	3.8%
Indonesia	$ 92,496,706	3.8%	Canada	14,030	3.6%
Ghana	$ 92,371,790	3.8%	Indonesia	11,919	3.0%
Spain	$ 73,190,971	3.0%	Singapore	11,785	3.0%
Canada	$ 69,954,136	2.9%	Spain	11,598	3.0%
Italy	$ 42,650,596	1.8%	Italy	8,659	2.2%
Türkiye	$ 40,029,072	1.6%	Germany	6,466	1.7%

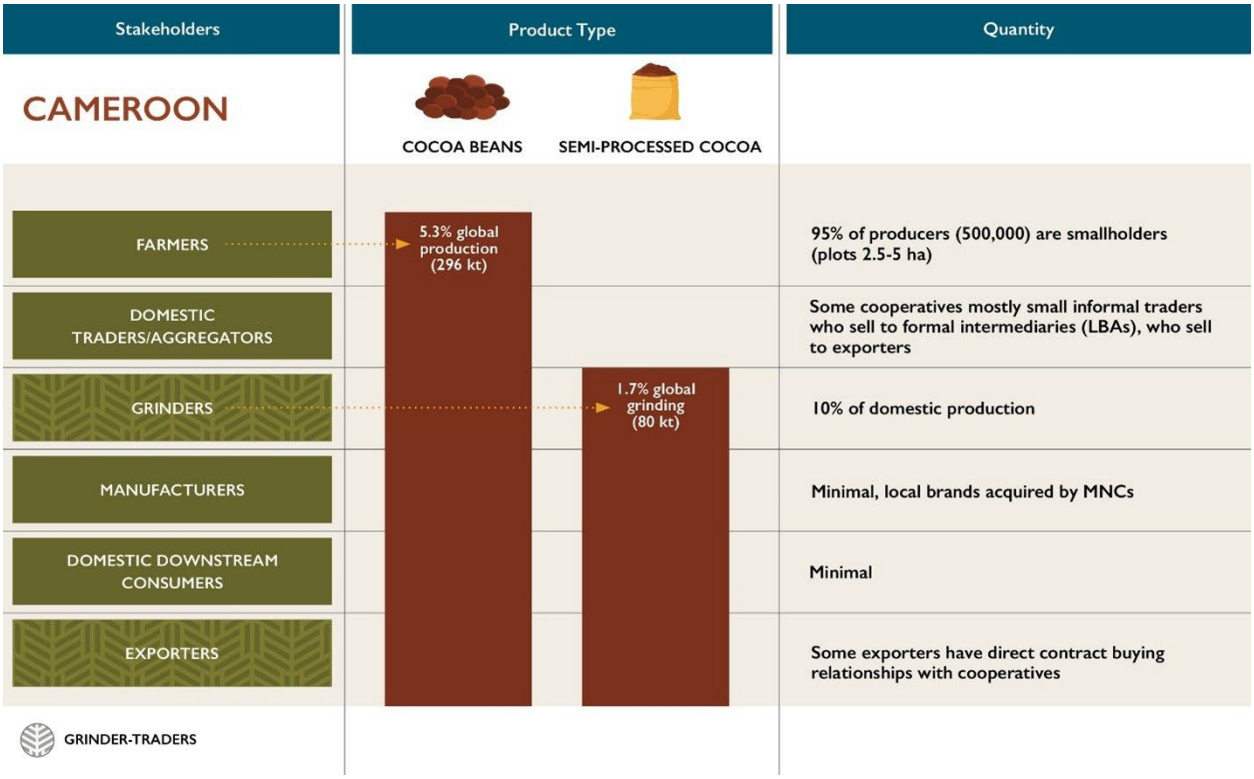
Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 41. Top destination markets for Nigeria semi-processed cocoa exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 275,250,174	100%	World	33,370	100%
Germany	$ 199,268,550	72.4%	Germany	19,875	59.6%
Netherlands	$ 33,624,821	12.2%	Netherlands	6,194	18.6%
France	$ 13,947,988	5.1%	Spain	2,520	7.6%
Spain	$ 7,356,668	2.7%	Indonesia	1,132	3.4%
Indonesia	$ 6,506,660	2.4%	United States	860	2.6%
United States	$ 4,329,770	1.6%	France	698	2.1%
Singapore	$ 2,623,657	1.0%	Uruguay	626	1.9%
Uruguay	$ 1,700,580	0.6%	Bulgaria	330	1.0%
United Kingdom	$ 1,541,898	0.6%	Singapore	260	0.8%
Türkiye	$ 983,182	0.4%	Poland	207	0.6%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

7.7 CAMEROON



Source: ICF

Cameroon represents approximately 5% of cocoa production globally (FAOSTAT, 2025). The Cameroonian cocoa sector operates predominantly through small family farms averaging 2–5 hectares, and family labor serves as the primary source of labor supplemented by hired workers during peak harvest seasons. Cocoa is Cameroon's most important cash crop and agricultural export, with a total export value second only to the country's petroleum exports, providing livelihoods to an estimated 400–500,000 smallholder farmers across production regions (Fabre et al., 2022; Fair Labor Association, 2022).

Cameroon is currently designated on ILAB's TVPRA List for child labor in cocoa production (U.S. Department of Labor, 2024b). Limited comprehensive data exist on the overall prevalence of child labor in Cameroon's cocoa sector, but a recent Fair Labor Association study of 15 cocoa-producing communities across Cameroon's cocoa-producing areas found that among the 50 households surveyed, 55% of the children identified were engaged in labor on cocoa farms (Furlan, 2024a). Reports of child labor in the cocoa sector indicate that children are engaged in hazardous tasks, including the use of machetes for harvesting, application of pesticides, and carrying heavy loads (U.S. Department of State, 2025b). Historical data indicate that the vast majority of working children in Cameroon were found in the agricultural sector (U.S. Department of Labor, 2025b). Child trafficking for forced labor in cocoa production has been documented, with children from marginalized communities at particularly high risk of being trafficked to work on cocoa farms, and government studies confirm that traffickers use regional migration routes to move children to CDI and bring children from Mali, Burkina Faso, Benin, and Togo to Cameroon for agricultural work (Furlan, 2024a, 2024c; U.S. Department of State, 2025b).

Limited comprehensive data exist on the prevalence of forced labor among adults in Cameroon's cocoa sector, although organizations such as Free the Slaves have documented forced labor practices affecting

both adults and children in the country's cocoa production (Furlan, 2024c). Forced labor indicators include debt bondage, abusive living conditions, and abuse of isolation, among others (Furlan, 2024a).

Due to multiple points of co-mingling and traceability limitations, cocoa beans, cocoa powder, cocoa paste, and cocoa butter exported from Cameroon are at risk of being produced with child labor.

7.7.1 Production and Regulations

Cameroon's cocoa production has traditionally been concentrated in the South West (43.4%) and Centre (36.1%) regions, accounting for more than 80% of the country's total production; the South, Littoral, and East regions account for the rest, with nearly 20% of cocoa production (Office National du Cacao et du Café, 2025). Two-thirds of Cameroon's cocoa is shade-grown, and the country has maintained a higher ratio of forest cover than CDI and Ghana, with forests covering approximately 40% of Cameroon's land mass (Green Development Advocates, 2024). Cameroon's low rate of deforestation may give it and other highly forested countries a competitive advantage for market access to the EU once the EUDR is enforced in 2026. According to some environmental groups, however, Cameroon faces a high risk of becoming a major deforestation hotspot in relation to its efforts to increase cocoa production (Mighty Earth, 2024), which would threaten the country's ability to export to the EU, its largest export market. Cameroon's government started implementing a series of multi-stakeholder "cocoa actions," with the aim of achieving national sustainability objectives and ensuring continued access to the European market (Food and Agriculture Organization of the United Nations, 2025b).

Cameroon's cocoa production has steadily increased over the last two decades, aided by policies to improve cocoa productivity, yields, and farmer incomes (Ingram et al., 2025). After CDI and Ghana experienced poor cocoa yields from abnormally severe weather events and crop diseases in 2023–2024, Cameroon contributed to filling demand gaps. Record high global cocoa prices in 2024 fluctuated throughout the year, but farmgate tripled that of previous seasons (Office National du Cacao et du Café, 2024).[86]

Within this context, Cameroon aspires to increase its share of global production to 6% of the global cocoa market by 2030 (Food and Agriculture Organization of the United Nations, 2025a) and to emerge as a relatively more important cocoa producer.[87]

Cameroon smallholder farmers were able to benefit from skyrocketing cocoa prices, as the government does not regulate cocoa prices. Prior to the 1990s, Cameroon had a highly regulated market system for its agricultural commodities, with cocoa commercialization and exports controlled by the National Produce Marketing Board (*Office National de Commercialisation des Produits de Base)*, which served as the country's sole marketer and exporter for cocoa (Lenou Nkouedjo et al., 2020). Under this system, Cameroon had price stabilization guarantees for producers, and federations of cocoa cooperatives enjoyed a monopoly on producers' cocoa sales (Lenou Nkouedjo et al., 2020). The country's economic crisis in the 1980s resulted in the liberalization of Cameroon's cocoa sector in 1991 after the implementation of structural adjustment programs required by World Bank and International Monetary Fund donor countries (Herve & Zhao, 2018).

After market liberalization, the National Produce Marketing Board dissolved, and the Cameroonian government established two bodies with limited oversight for cocoa: the National Cocoa and Coffee

[86] As an example of farmgate prices, on April 30, 2024, the farmgate price for cocoa beans in Cameroon reached $9,700/MT (International Food Policy Research Institute, 2024).

[87] Cameroon adopted an ambitious goal to double cocoa production output by 2030 (Green Development Advocates, 2024), with a target of producing 640,000 tons of cocoa for 2025 in the country's National Agricultural Investment Plan (Fabre et al., 2022). However, it appears to be an unrealistic goal: according to experts interviewed for this study, progress has been off to a slow start; there is a projected global surplus of cocoa supply due to lower demand in 2025–2026, and cocoa prices fell by 40% in September 2025, after reaching a peak in 2024 (Business in Cameroon, 2025a).

Board (ONCC), housed within the Ministry of Trade, and the Interprofessional Council of Coffee and Cocoa, which acts as an industry association (Lenou Nkouedjo et al., 2020). ONCC is Cameroon's authorized regulatory body for the country's cocoa industry from farmgate to export (Office National du Cacao et du Café, 2025) but does not influence financing of cocoa marketing and production as the *Office National de Commercialisation des Produits de Base* used to do (Lenou Nkouedjo et al., 2020). Rather, the ONCC supervises quality control for cocoa exports, monitors export statistics, monitors international agreements on cocoa and coffee, markets Cameroonian cocoa exports, and represents the country in international cocoa trading platforms (Office National du Cacao et du Café, 2025).

7.7.2 Supply Chain

Cameroon's domestic cocoa value chain resembles a pyramid in its structure of market actors. At the base are the country's smallholder cocoa farmers, who depend on cocoa as a cash crop that contributes to their livelihoods. The subsequent tier consists of cooperatives that provide member farmers with collective services before and during production season, and post-harvest processing and transport. In the same tier are the buying agents (both licensed and unlicensed—the latter will henceforth be referred to as illegal traders in this section) who purchase cocoa beans from farmers and provide services of aggregating, bulking, and transporting cocoa beans from farmgate to local storage facilities and exporter warehouses. Cameroonian law N°95/11 of 27 July 1995 mandates that every cocoa intermediary agent must be formally registered with the government and carry an identifying card issued by the Cocoa and Coffee Inter-professional Council (Lenou Nkouedjo et al., 2020). Legal, approved traders are cooperatives and LBAs for organized group sales and contract sales with exporters (International Cocoa Organization, 2023).

Buying agents sell cocoa to trader-exporters, who link domestic supply networks to international markets. In Cameroon, most of the exporters are national subsidiaries of MNCs, which are at the apex of the pyramid and process Cameroon's cocoa bean exports in foreign countries into semi-processed cocoa products that are then sold and manufactured into end products such as chocolate bars.

Smallholder farmers. Approximately 95% of Cameroon's 500,000 cocoa producers are smallholder farmers with farm sizes between 2.5 to 5 ha (Ngwang & Meliko, 2021; Office National du Cacao et du Café, 2025). Most cocoa farmers in Cameroon are male (77% nationally, and up to 98% in certain production regions/study zones) with limited formal land ownership and access to extension services (Ingram et al., 2025; Ngwang & Meliko, 2021). Women household members help with the harvesting and conduct most of the post-harvest, on-farm processing activities of drying and fermenting the cocoa beans (Ingram et al., 2025).

Smallholder farmers may sell their cocoa beans to three different types of intermediaries: unlicensed/illegal small traders, LBAs, and cooperatives. All intermediaries ultimately sell to a small concentrated market of buyers, predominantly MNCs.

Unlicensed small traders. In practice, Cameroon's farmgate purchases are primarily dominated by small, illegal traders known as *coxeurs* (comparable to West African *pisteurs*), who aggregate many small batches of cocoa from dispersed smallholder farmers in remote areas and are usually not associated or organized with cooperatives (Lenou Nkouedjo et al., 2020). Traders provide smallholder farmers with credit, input, or cash in pre-financed agreements during production or at the point of sale, and they transport the cocoa beans from the farms to LBAs' storage facilities (KII, Industry Expert; Lenou Nkouedjo et al., 2020; Mighty Earth, 2025). In exchange for these multiple services, these illegal traders reduce buying prices below actual farmgate values for the cocoa purchased from farmers (Mighty Earth, 2024; International Cocoa Organization, 2023; Fabre et al., 2022). Farmers in need of liquidity opt for

these illegal trades as they can sell undried cocoa beans,[88] while illegal traders can increase price deductions due to the elevated moisture levels and make a higher profit margin (Lenou Nkouedjo et al., 2020).

Small illegal traders may act independently or on an unregistered, commissioned contract basis with LBAs to deliver a predetermined volume of cocoa beans to the LBA within a specified timeframe, and, in turn, the LBAs may provide credits to *coxeurs* to make the required purchase quotas (Fabre et al., 2022; Ingram et al., 2025; Lenou Nkouedjo et al., 2020; Mighty Earth, 2024). Because Cameroon's LBA regulations[89] tie the right to purchase cocoa and to operate storage points to registration and possession of a licensed, non-transferable buyer card, an LBA cannot transfer that right to an unregistered person. Thus, LBAs that subcontract farmgate purchasing roles to an unregistered trader would be engaged in an illegal practice subject to penalties, but this is not enforced in practice, demonstrated by the continuing endemic presence of small traders. Exporters and processors buy cocoa supplies from LBAs who aggregate the small batches of cocoa into a sufficient volume acceptable to exporters; LBAs also perform standardization checks and packaging needed to meet export requirements (Lenou Nkouedjo et al., 2020). Small traders also smuggle cocoa beans between Cameroon and its neighboring country Nigeria, particularly in the north (Atabong, 2023).

LBAs. Well-resourced cocoa farmers with better access to road networks and higher harvest volumes of cocoa beans may choose to sell directly to LBAs, who loan farmers vehicles at a cheap rate to transport the harvests to the LBAs' warehouses (Lenou Nkouedjo et al., 2020). LBAs may operate independently or may be affiliated with an exporter or processor (International Cocoa Organization, 2023). LBAs provide farmers, small traders, and cooperatives with transportation services to transport cocoa beans to their warehouses (Lenou Nkouedjo et al., 2020) and store cocoa beans at an accredited warehouse before selling the cocoa beans to exporters or processors (International Cocoa Organization, 2023). Cooperatives usually cannot meet the high volumes required for direct trades to exporters/processors. Therefore, LBAs purchase cocoa beans from cooperatives at organized markets/auctions as well as directly from farmers who can produce high volumes of cocoa, and from small traders (International Cocoa Organization, 2023; Lenou Nkouedjo et al., 2020).

Cooperatives. Cooperatives[90] support member cocoa farmers from pre-harvest to post-harvest with farming inputs, agricultural training, support for sustainability certifications, transportation, aggregation, quality control, and sales. Cooperatives set a marketing calendar that is distributed to farmers and buyers at the start of the growing season (International Cocoa Organization, 2023). After the cooperatives aggregate cocoa beans from their farmer members, the beans are sold at an auction (called an organized market in Cameroon), at which an ONCC representative must be present to monitor as LBAs make bids (International Cocoa Organization, 2023). The cooperatives set a baseline minimum price to start the auction, resulting in more favorable prices since the prices go up from the minimum as the LBAs bid (Lenou Nkouedjo et al, 2020). Cooperatives are also the primary mechanism through which farmers participate in certified cocoa programs that provide a premium; for example, the

[88] Colloquially referred to as "wet beans," they exceed the maximum humidity content of 8% for dried cocoa, which tends to lower bean quality and make it more susceptible to mold during storage and transport (Lenou Nkouedjo et al., 2020). Cameroonian regulations prohibit the sale of wet beans (International Cocoa Organization, 2023).
[89] Ministry of Commerce, Ministerial decree No. 36 of 02 September 2014, Articles 5–6, text available at: https://www.cameroontradeportal.cm/tradeportal/templates/Tip_accueil/docs/arretes/2014_decret_condition_de_commercialisation.pdf.
[90] Cameroon's Ministry of Agriculture and Rural Development and the ONCC do not seem to have published an official figure of registered cocoa cooperatives on their websites, but a cocoa value chain study published in 2023 by the ICCO cites the ONCC as having supervised 289 cooperatives during the 2020–2021 organized cocoa market sales.

Rainforest Alliance/UTZ and Fairtrade certifications provide a premium of approximately $80–240 USD per metric ton[91] (Ingram et al., 2025).

Cooperatives with limited means of transportation for aggregation of their members' produce typically rent vehicles from LBAs in exchange for guaranteeing an exclusive supply to the LBA that provided the vehicles with deductions for the costs of transportation and related services (Lenou Nkouedjo et al., 2020). Alternatively, some cooperatives choose exclusive contracts with a specific LBA, in which both parties negotiate terms at the start of the season with fixed sales prices (Lenou Nkouedjo et al., 2020). While cooperatives typically require members to sell cocoa beans exclusively to the cooperative, in practice, some members do not follow regulations and sell a portion of their produce to *coxeurs* or other buyers due to the cooperatives' limitations to quickly transport cocoa beans from farms, the slow nature of cooperative payments, and cooperatives' lack of liquidity (Lenou Nkouedjo et al. 2020; International Cocoa Organization, 2023).[92]

Therefore, officially recorded volumes of cocoa beans tracing the supply chain to the cooperative or farmer level do not account for undocumented sales with illegal traders, who co-mingle cocoa to meet volume demands from their buyers. Further, although information about Cameroon's cooperatives relationships with illegal traders was not readily available at the time of the writing of this report, a supply chain NGO representative interviewed noted that precedence in CDI indicates that cooperatives selling to exporters must meet exporters' higher volume demands of cocoa bean quotas. In such a situation, cooperative members' unregulated transactions with illegal traders could also serve to increase farmers' total volumes of cocoa beans to meet cooperative quotas.

7.7.3 Processors and Exports

Cameroon processors grind approximately a third of domestically produced cocoa. The national government promotes processing industries through tax incentives and training programs through the Chamber of Agriculture, Fisheries, Livestock, and Forests. Barry Callebaut, and its subsidiary SIC Cacoas, is a leading grinder in Cameroon. CDI-owned Atlantic Cocoa operates a processing facility in Kribi. Domestic processors include Neo Industry and Africa Processing, as well as chocolate manufacturer Cococham (African Farming, 2025).

Most of Cameroon's cocoa trading companies are subsidiaries of large MNCs (Herve & Zhao, 2018).[93] For the 2024/2025 season, the ONCC reported that SIC Cacaos (subsidiary of Barry Callebaut) led cocoa export market shares with 14.9%, followed by Sbet with 11.9%, Telcar[94] with 10.4%, and Atlantic Cocoa with 10.3% (Business in Cameroon, 2025).

International trade statistics do not include smuggled cocoa. Along the Nigeria-Cameroon border, political unrest and the anglophone separatist crisis have intensified illicit cross-border trade, with anglophone rebels preventing Cameroonian farmers from selling to francophone areas and pushing them toward Nigerian buyers who offer better prices and immediate payment (Kindzeka, 2023).

---

[91] Converted from Ingram et al.'s estimation of 50–150 CFA (0.08–0.24 USD) per kilogram using U.S. Treasury Currency Exchange Converter.

[92] MNCs like Cargill and ofi (Olam) have increasingly invested in direct sourcing, meaning that they contract with and purchase directly from cooperatives or company-registered farmers for better traceability and increased oversight with labor and environmental standards.

[93] ONCC lists 49 approved and active traders of cocoa and coffee on its website; however, the list is dated from 2022 and does not appear to have been updated for 2025, nor does it distinguish which traders/exporters are specific to cocoa, coffee, or both (Office National du Cacao et du Café, 2022).

[94] Cameroon's cocoa traders experienced major shifts in 2024. Telcar Cocoa is a domestically owned cocoa trading and exporting company that ranked as Cameroon's top cocoa trader and exporter for two decades until early 2025, when sales fell by more than 50% after losing its partnership with Cargill, allegedly due to Telcar's struggles in meeting Cargill's updated sustainability and labor standards requirements (Business in Cameroon, 2025b).

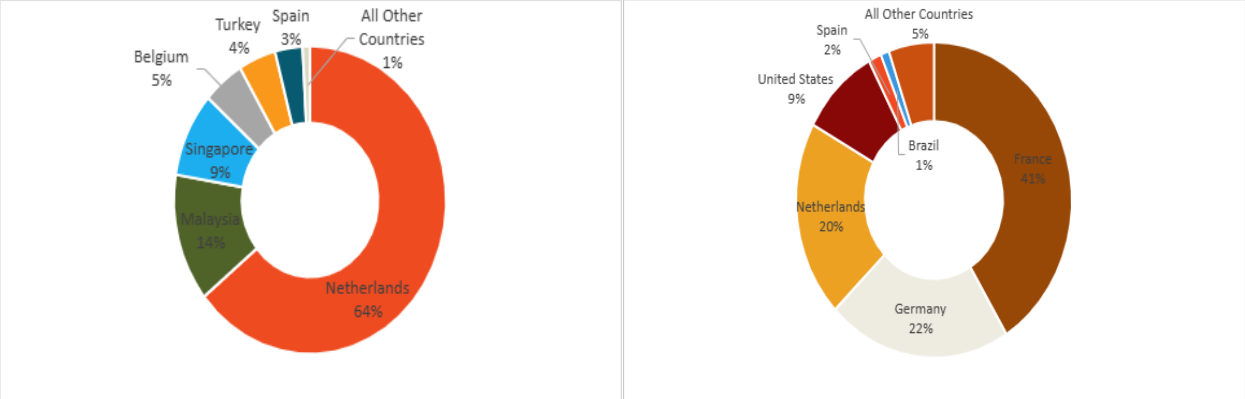
Table 42. Cameroon cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 1,303,910,674	238,869
1803	Cocoa paste	$ 295,113,101	56,304
1804	Cocoa butter	$ 331,254,553	28,007
1805	Cocoa powder	$ 31,179	6
	Semi-processed total	$ 626,398,833	84,317
1806	Chocolate products	$ 818,985	18,703

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

The majority (64%) of the $1.3 billion dollars in cocoa bean exports in 2024 were imported by the Netherlands, followed by Malaysia (14%) and Singapore (9%).[95] Semi-processed cocoa exports, primarily in the form of cocoa paste or cocoa butter, were $626 million and exported to France (41%), Germany (22%), the Netherlands (20%) and the United States (9%) (Trade Data Monitor, 2025).

Figure 19. Top destination markets by value for Cameroon cocoa bean (left) and semi-processed cocoa exports (right), 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 43. Top destination markets for Cameroon cocoa bean exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$1,303,910,674.00	100.0%	World	238,869	100.0%
Netherlands	$795,185,731.00	61.0%	Netherlands	151,135	63.3%
Malaysia	$166,414,732.00	12.8%	Malaysia	26,646	11.2%
Singapore	$110,298,287.00	8.5%	Singapore	17,387	7.3%
Belgium	$60,395,866.00	4.6%	Türkiye	15,587	6.5%
Türkiye	$54,899,770.00	4.2%	Belgium	8,917	3.7%
Spain	$40,518,768.00	3.1%	Spain	8,535	3.6%
France	$21,790,145.00	1.7%	France	3,683	1.5%
Indonesia	$21,635,371.00	1.7%	Germany	2,496	1.1%
Germany	$17,886,846.00	1.4%	Indonesia	2,415	1.0%

[95] Cocoa beans smuggled between Cameroon and neighboring Nigeria are illegal and therefore not reflected in international trade statistics (Atabong, 2023).

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
Canada	$9,928,752.00	0.8%	Canada	1,131	0.5%
Italy	$3,145,589.00	0.2%	Italy	454	0.2%

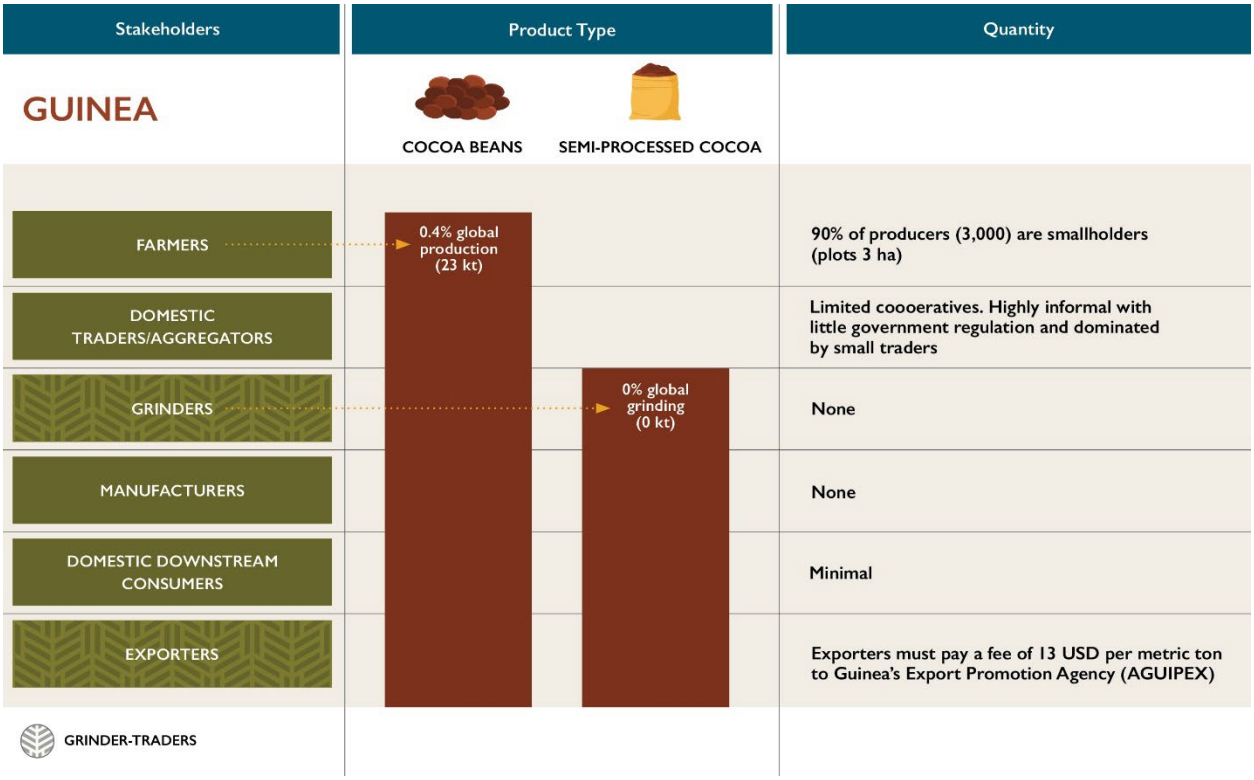
Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 44. Top destination markets for Cameroon semi-processed cocoa exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 626,398,833	100.0%	World	84,317	100.0%
France	$ 257,897,387	41.2%	France	23,799	28.2%
Germany	$ 135,014,637	21.6%	Netherlands	20,936	24.8%
Netherlands	$ 126,160,906	20.1%	United States	15,747	18.7%
United States	$ 58,003,294	9.3%	Germany	12,774	15.2%
Spain	$ 9,493,248	1.5%	Spain	2,623	3.1%
Brazil	$ 6,173,296	1.0%	Uruguay	1,999	2.4%
Uruguay	$ 5,270,127	0.8%	Malaysia	1,820	2.2%
United Kingdom	$ 5,134,285	0.8%	Brazil	1,420	1.7%
Malaysia	$ 5,115,702	0.8%	Poland	700	0.8%
Switzerland	$ 5,077,750	0.8%	United Kingdom	577	0.7%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

7.8 GUINEA



Source: ICF

Cocoa production in Guinea is small and highly informal. There are limited data on current estimates for smallholder farmers, but data from 2001 show roughly 3,000 farmers working in Guinea's cocoa sector

on plots averaging 3.2 hectares (Food and Agriculture Organization of the United Nations, 2001). These farmers are typically in the Forest Guinea region, particularly in Nzérékoré, Lola, and Macenta (Koffi, 2025). Domestic supply chains are highly informal, with little government regulation, and are dominated by small-scale intermediaries (World Bank, 2023a). There is limited cooperative presence in Guinea's cocoa sector.

Overall, there is a significant lack of reporting and research on labor conditions in Guinea's cocoa sector. Research across international organizations, NGOs, academic institutions, industry bodies, and news media demonstrated very limited information specifically on child labor or worst forms of child labor related to cocoa in Guinea. Instead, available reporting tends to focus on general child protection issues at the national level rather than sector-specific findings.

Three factors likely explain this gap: (1) Guinea is a smaller cocoa producer compared to CDI (44% of global cocoa production) and Ghana (16%), and as a result receives less research attention and donor funding (Food Empowerment Project, 2022); (2) the most detailed reporting on labor conditions in Guinean cocoa dates back to a 2002–2006 International Labor Organization study that has seen little follow-up field research since (International Labour Organization, 2007); and (3) Guinea may function more as a transit country for child trafficking and smuggled Ivorian cocoa rather than as a major cocoa producer (Wahome, 2025). As a result, labor risks in the Guinean supply chain are likely to be under-reported instead of being nonexistent, pointing to a research gap.

Cocoa-specific reporting for child labor in Guinea is scarce, but child labor has been documented at the national level. A total of 31.2% of children aged 5–14 were reported to be working, most commonly in agriculture (cashews, coffee, and cocoa), mining, street vending, and domestic work (U.S. Department of Labor, 2025b). Certain prefectures face significantly higher rates of child labor. In Boké, roughly 66% of children aged 5–17 were engaged in child labor, and in Mamou, 70% of children aged 5–17 were engaged in child labor (Centre on Human Trafficking Research and Outreach, 2023).

Guinea is both a source and transit country for child trafficking in West Africa, where children are moved from rural regions to cities such as Conakry, Kankan, and Labé. Children are also trafficked across borders to CDI, Mali, Senegal, Sierra Leone, and Guinea-Bissau for labor in mines, farms, and households (U.S. Department of State, 2025a). Guinea's high rates of child poverty, limited access to schooling, and weak health infrastructure create conditions that push families to send children away for better opportunities. As a result, children are often recruited by distant family members under the guise of educational opportunities (Alexander, 2021).

There are no recent dedicated studies on forced labor in Guinea's cocoa supply chain, but forced labor exists in Guinea's broader agricultural sector, which relies heavily on informal, migrant, and family labor, making coercion harder to detect (Food and Agriculture Organization of the United Nations, 2020). Informal employment is extremely high among adults, with roughly 96% of the workforce working in the informal sector, often in agriculture, which heightens vulnerability to forced labor (Diallo et al., 2017).

Children and adults are typically trafficked to CDI, Mali, Senegal, Sierra Leone, and Guinea-Bissau and exploited in agricultural labor. High-risk populations in Guinea include internal migrants from rural prefectures (Labé, Kankan, Faranah), cross-border West African migrants from Mali, Sierra Leone, and Senegal, children in agricultural households, and women and girls in hidden forms of forced labor such as domestic servitude (United States Agency for International Development, 2017; U.S. Department of State, 2025a).

7.8.1 Supply Chain

Cocoa production in Guinea is modest, at about 23,000 MT of cocoa per year or 0.4% of global cocoa production (FAOSTAT, 2025). Most of Guinea's cocoa is grown in the country's Forest Region, especially in prefectures like Nzérékoré, Macenta, Yomou, and Guéckédou, where the climate and soil

are well suited for cultivation (Koffi, 2025). Farmers typically grow cocoa in mixed agroforestry systems, combining cocoa trees with other food and fruit crops (Koffi, 2025). Main challenges facing Guinea's cocoa sector include low productivity from aging trees and poor farming practices, disorganized supply chains, lack of quality control, limited export capacity, and weak regulatory oversight (Padilla & Menza, 2024; World Bank, 2023a). Guinea also faces issues around smuggled Ivorian cocoa beans, which distort market prices, undermine traceability, and reduce the Guinean government's export revenue (France 24, 2024).

Small-scale intermediaries are typically small traders who travel between villages to buy directly from farmers and then resell the product to larger traders in towns or at border points. Intermediaries in Guinea are usually unlicensed and operate outside government regulation, and they handle almost all cocoa trade occurring within the country. After local collectors, cocoa is moved to exporters in the capital, Conakry, or is smuggled across borders for better prices (World Bank, 2023a). Weak cooperative structure and the dominance of unlicensed intermediaries impede effective traceability.

Despite the high informality of the sector, a small number of Guinean government agencies are nominally involved in cocoa export and regulation. The Ministry of Agriculture and Livestock oversees general agricultural policy, and the Ministry of Trade regulates commercial activity and export procedures. The Guinean Export Promotion Agency issues export authorizations and collects a fee of $13 USD per metric ton of cocoa exported (AGUIPEX, 2023). The Customs Authority manages inspections at border points and the Port of Conakry, and the National Service for Quality Control is responsible for enforcing the recently introduced National Cocoa Quality Standard. Unlike neighboring CDI and Ghana, Guinea does not have a national cocoa board or centralized marketing authority, and the domestic market is fully liberalized.

Cocoa processing in Guinea is minimal. Almost all cocoa is exported as raw beans, and there is no industrial grinding or domestic processing capacity in the country. Guinea also has limited capacity for storage and fermentation of cocoa beans, which is integral to developing flavor. Since cocoa beans are generally fermented and dried on farms rather than in centralized facilities, proper storage is essential to prevent mold and quality loss. Raw cocoa beans typically need to be exported within about six months of harvest to maintain quality standards, so timing is critical (Omas, 2025). While local processing is limited, one Conakry-based company, Zeïna Cacao, started producing chocolate that was sold abroad in 2021 (World Bank, 2023a).

7.8.2 Exports

Almost all cocoa is exported as raw beans through private traders in Conakry, and exports are primarily shipped to the Netherlands, Malaysia, and Indonesia (Observatory of Economic Complexity, 2025). Private traders operating in Guinea's cocoa sector include companies such as Berete Corporation, Guinea Trade Export Company, Groupe Venus International, International Agro Industrie Commodities, and Wadnuts, all of which purchase cocoa from rural intermediaries and export through Conakry (Go Africa Online, 2025; Guinea Trade Export Company, 2025; International Agro Industrie Commodities, 2025; Venus Group SARL, 2025).

Cocoa trade in Guinea is highly informal, as most trade occurs outside regulation at the farm level, where beans are sold through unregistered collectors in cash without receipts, contracts, or adequate quality control (World Bank, 2023a). Eventually, cocoa enters the formal system when it is sold to licensed exporters in Conakry, where the product is weighed, graded, and registered with the Guinean Export Promotion Agency and ultimately is officially declared to customs at the Port of Conakry (World Trade Organization, 2018). Guinea produced 23,000 MT of cocoa beans in 2023, and in 2024, Guinea

exported 71,178 MT in cocoa beans. This tripling of production estimate to export (even over different time frames) is likely due to smuggled cocoa beans from CDI.[96]

Trafficking of CDI cocoa into Liberia and Guinea increased in 2024. This trend increased, after smuggling reduced since 2000, driven in part by rising global prices (Ecofin Agency, 2025a). Reporting suggests that approximately two-thirds of Ivorian cocoa entering the informal market is moved by land into Guinea, and the remain one-third is transported across the Cavally River into Liberia. The smuggled Ivorian cocoa enters the local supply chains before export (Ecofin Agency, 2025a). Due to the significant dependence of both Guinean cocoa exports and regional cocoa trading on informal channels and unregistered intermediaries, cocoa beans from various origins are frequently mixed together, which complicates the process of verifying the origin of cocoa exported from Guinea.

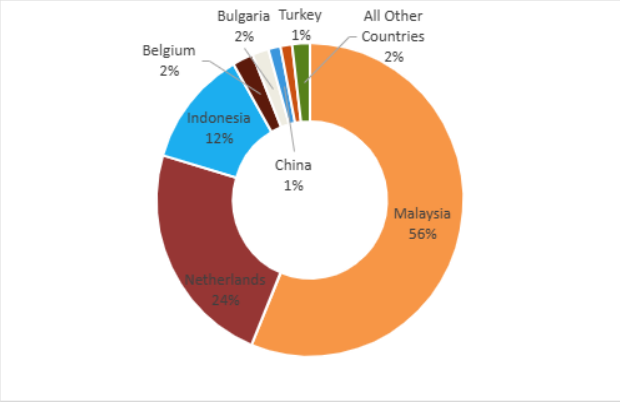
In 2024, Malaysia imported just over half (56%) of Guinea's cocoa beans by value, followed by the Netherlands (24%) and Indonesia (12%) (Trade Data Monitor, 2025). Guinea does not export semi-processed cocoa due to a lack of domestic processing facilities.[97]

Table 45. Guinea cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 488,546,594	71,178
1803	Cocoa paste	$ 1,442	NA
1804	Cocoa butter	$ 1,344	NA
1805	Cocoa powder	0	0
	Semi-processed total	$ 2,786	NA
1806	Chocolate products	0	NA

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Figure 20. Top destination markets by value for Guinea cocoa bean exports, 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

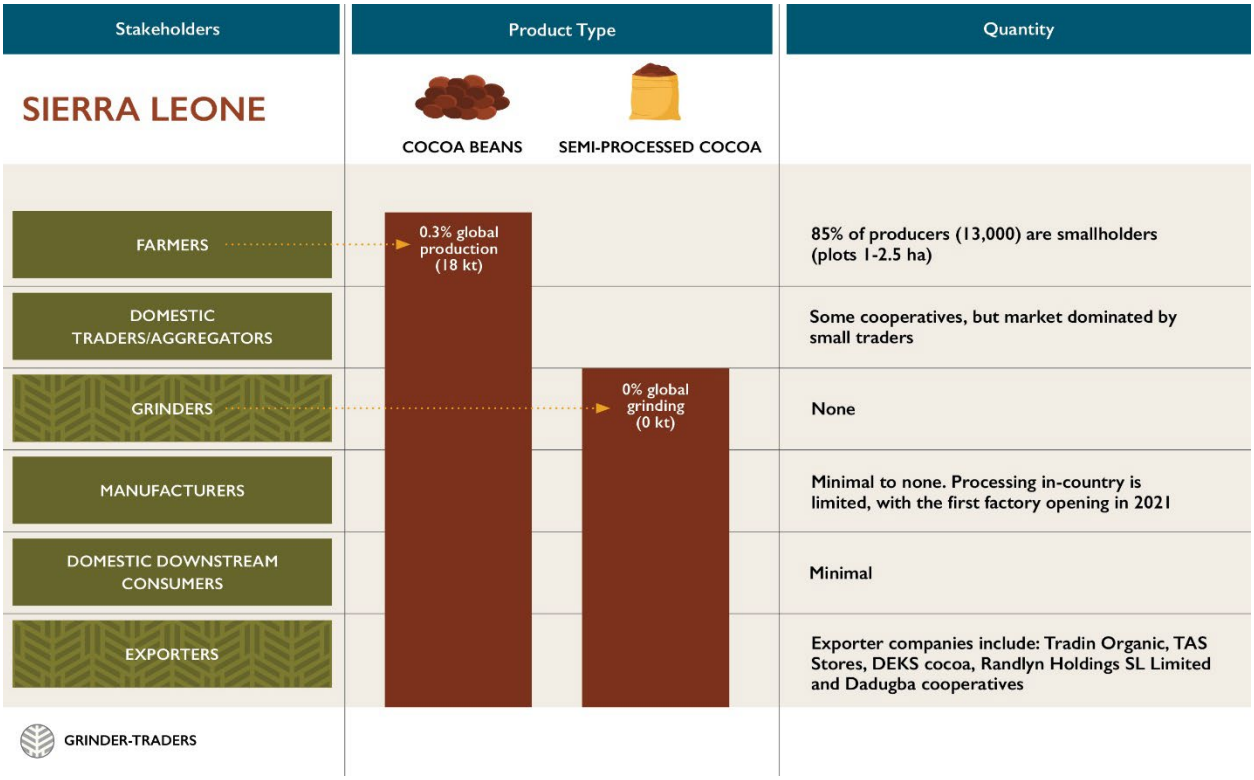
[96] While the time frames for production and trade differ, the exact quantity of beans smuggled cannot be derived from these data. The more than 300% increase supports documented reports of smuggling.
[97] Although Guinea reports minimal quantities of semi-processed goods, it does not engage in domestic cocoa processing. For completeness, a trace amount of exports are recorded as reported by Trade Data Monitor in Table 45.

Table 46. Top destination markets for Guinea cocoa bean exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 488,546,594	100.0%	World	71,178	100.0%
Malaysia	$ 270,868,981	55.4%	Malaysia	31,052	43.6%
Netherlands	$ 112,622,204	23.1%	Netherlands	23,533	33.1%
Indonesia	$ 58,214,584	11.9%	Indonesia	8,435	11.9%
Belgium	$ 10,658,246	2.2%	Belgium	2,070	2.9%
Bulgaria	$ 8,298,584	1.7%	Bulgaria	1,753	2.5%
China	$ 6,195,250	1.3%	Türkiye	1,030	1.5%
Türkiye	$ 5,902,936	1.2%	China	802	1.1%
Estonia	$ 5,576,573	1.1%	Estonia	802	1.1%
Lithuania	$ 3,409,507	0.7%	Lithuania	496	0.7%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

7.9 SIERRA LEONE



Source: ICF

In 2024, Sierra Leone produced roughly 18,000 MT per year, or 0.3% of global cocoa production (FAOSTAT, 2025). Cocoa production is concentrated in the eastern districts of the country in Kailahun, Kenema, and Kono, as well as some parts of Bo district and Tonkolili, where it is the main source of income for more than 13,000 smallholder farming households (International Cocoa Organization, 2023; Ministry of Agriculture and Forestry, 2019). Cocoa is one of Sierra Leone's leading cash crops, ranking as the fifth largest export commodity for the country (Organic Development Finance, 2023).

Sierra Leone is currently designated on ILAB's TVPRA List for child labor in cocoa production (U.S. Department of Labor, 2024b).

Cocoa production was significantly disrupted during Sierra Leone's civil war (1991–2002), with output dropping by 60% by the time the conflict ended (Fornah, 2025). The 2013–2016 Ebola outbreak also hurt farming and trade, but production of cocoa has since rebounded, reaching roughly 18,000 MT annually in recent years as the sector gradually recovered (FAOSTAT, 2025; Tradin Organic, 2025a).

Cocoa farmers face persistent challenges to productivity. Farmers struggle with low yields caused by CSSVD and black pod disease, a fungal disease that affects around 75% of farms (World Bank, 2022). Aging trees, poor soil quality, lack of access to credit, low input usage, and poor post-production handling practices also contribute to low yields for Sierra Leonean cocoa (Ministry of Agriculture and Forestry, 2019; Moinina et al., 2023). The country's recent history has also shaped its cocoa production. Cocoa was Sierra Leone's top export during the civil war (1991–2002), but insecurity and displacement led many farmers to abandon their plantations (World Bank, 2022). The 2013 Ebola virus disease also set back the country's cocoa production (Tradin Organic, 2025a).

Despite these constraints, Sierra Leone has a niche advantage in cocoa exports: nearly all cocoa produced by smallholder farmers is naturally organic due to favorable climate and soil conditions (World Bank, 2022). In 2019, Sierra Leone ranked as the world's third largest exporter of organic cocoa. While organic cocoa is highly profitable for exporters and aggregators, farmers capture a relatively smaller percentage of profit and need greater investment in replanting, tools, and training to raise productivity (Moinina et al., 2023).

Domestic cocoa processing remains limited in Sierra Leone, with most beans exported in raw form and at lower margins compared to semi-finished products (World Bank, 2022). In 2021, the country opened its first large-scale cocoa-processing facility with the capacity to process a quarter of the national output (African Business, 2021). Shifting toward domestic processing is a key step to raising farmer incomes, strengthening quality control, and gradually building downstream capacity for Sierra Leone's cocoa industry (African Business, 2021).

7.9.1 Supply Chain

The actors in Sierra Leone's cocoa market include both informal and formal actors. Public agencies such as the Ministry of Agriculture and Forestry, the Sierra Leone Agricultural Research Institute, and the Sierra Leone Chamber for Agribusiness Development, along with certification bodies, provide oversight and coordination across the value chain (Ministry of Agriculture and Forestry, 2019). Public agencies are also intended to supply farmers with inputs and planting materials, although the Government of Sierra Leone has acknowledged the challenges in fulfilling that mandate (Ministry of Agriculture and Forestry, 2019). In addition to the Ministry of Agriculture and Forestry and the Sierra Leone Agricultural Research Institute, farmers most commonly procure seeds and other planting materials from NGOs, cocoa exporters, and their own stockpiles (Ministry of Agriculture and Forestry, 2019).

Farmers. Smallholder farmers typically sell their beans to informal middlemen traders, who then sell to larger aggregators and exporters who are responsible for collecting, transporting, storing, and certifying the cocoa (Ministry of Agriculture and Forestry, 2019).

Small traders. Informal actors, working outside of regulated channels, include village-level bean collectors and unregistered aggregators who operate with cash payments, without contracts, and with limited traceability (World Bank, 2022). Formal actors include public agencies and licensed cooperatives that provide quality certifications, standardized pricing, and contracts. These intermediary traders often serve as a substitute source of credit for farmers as they offer advanced credit in the absence of formal financial institutions, but also capture the largest share of profits in the value chain (Center for Effective Global Action, 2025). Exporters dominate access to global markets in Sierra Leone, particularly for cocoa certified as organic (World Bank, 2022).

Cooperatives. There are a small number of cooperatives registered in Sierra Leone, including the Ngoleagorbu Cocoa Farmers' Union in Kenema District, Kasiyatama Cocoa Farmers' Cooperative in Kono District, Ngoyila Cocoa/Coffee Farmers' Cooperative in Kenema, Moawoma Rural Women's Cocoa Dev. Cooperative, and Salmed Cocoa/Coffee Farmers Cooperative (Fairtrade Africa, 2025; IDH, 2020; Salmed Cocoa/Coffee Farmers Cooperative, 2020; Sierra Leone's Investment and Export Promotion Agency, 2025b, 2025a). These cooperatives comply with quality and certification standards like Fairtrade, Ecocert, and Rainforest Alliance, and some cooperatives hold exporting licenses that allow direct export.

Cooperatives in Sierra Leone are small in number but serve an important organizational purpose. When farmers join cooperatives, they are able to compete with traditional private cocoa exporting companies and ask for higher prices, which ultimately forces private companies to pay more. Some private companies have the ability to offer incentives, such as transportation of cocoa, or materials for storage, which allows farmers to store their product past harvest season instead of selling it for lower prices (World Bank, 2010).

7.9.2 Exports

The main exporting companies in Sierra Leone include Tradin Sierra Leone, DEKS CACO, and TAS Stores (DEKS Cacao, 2025; TAS Stores, 2025; Tradin Organic, 2025b). Farmer-led organizations such as the Ngoleagorbu Cocoa Farmers' Union can also export directly to markets in Europe and beyond, having obtained their own export licenses in 2020 (IDH, 2020; Ngoleagorbu Cacao Farmers, 2025).

Cocoa is almost exclusively exported in the form of beans, given the country's extremely limited domestic processing capacity (Trade Data Monitor, 2025; World Bank, 2022). In 2021, the country opened its first large-scale cocoa-processing facility with the capacity to process a quarter of national output (African Business, 2021).

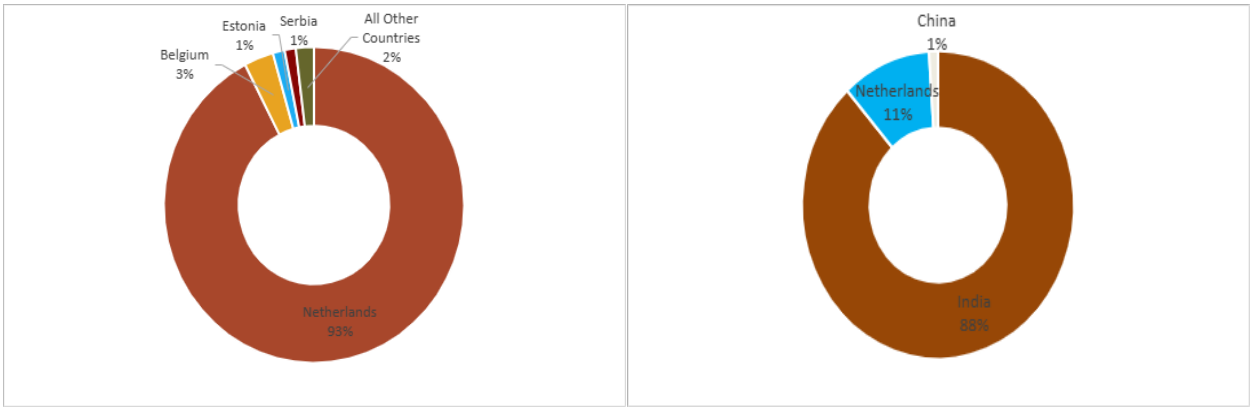
Table 47. Sierra Leone cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 142,787,067	29,271
1803	Cocoa paste	$ 1,652,478	128
1804	Cocoa butter	$ 46	0
1805	Cocoa powder	$ 18,435	1
	Semi-processed total	$ 1,670,959	129
1806	Chocolate products	$ 144,354	18

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

The vast majority (93%) of cocoa bean exports are imported by the Netherlands. Of the cocoa paste produced domestically, 88% is exported to India and 11% to the Netherlands (Trade Data Monitor, 2025).

Figure 21. Top destination markets by value for Sierra Leone cocoa bean (left) and semi-processed cocoa exports (right), 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 48. Top destination markets for Sierra Leone cocoa bean exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 142,787,067	100.0%	World	29,271	100.0%
Netherlands	$ 131,938,727	92.4%	Netherlands	27,662	94.5%
Belgium	$ 4,511,089	3.2%	Belgium	628	2.2%
Estonia	$ 1,827,077	1.3%	Estonia	228	0.8%
Serbia	$ 1,715,978	1.2%	Bulgaria	225	0.8%
Italy	$ 793,045	0.6%	Serbia	172	0.6%
Switzerland	$ 692,484	0.5%	Switzerland	124	0.4%
Bulgaria	$ 655,206	0.5%	Italy	110	0.4%
Türkiye	$ 429,139	0.3%	Türkiye	75	0.3%
United Kingdom	$ 121,002	0.1%	Germany	25	0.1%
Germany	$ 75,264	0.1%	United Kingdom	17	0.1%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 49. Top destination markets for Sierra Leone semi-processed cocoa exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 1,670,959	100.0%	World	129	100.0%
India	$ 1,475,705	88.3%	India	100	77.4%
Netherlands	$ 176,883	10.6%	Netherlands	28	21.7%
China	$ 17,568	1.1%	China	1	0.9%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

APPENDIX 8: SELECT IMPORTING COUNTRIES

8.1 NETHERLANDS

The Dutch cocoa industry encompasses the entire value chain from import and processing to final chocolate production, but it plays a dominant role in processing. The Netherlands is the world's largest cocoa bean importer and the second largest cocoa grinder, behind CDI (see Appendix 5), as well as the leading global importer and exporter of semi-processed cocoa. While nearly a third of cocoa beans imports are re-exported, the majority are processed domestically. The Netherlands is the dominant European hub for cocoa processing, distinguished by its strategic location, substantial processing capacity, and concentration of major industry players. The Dutch cocoa industry centers around the Port of Amsterdam, where many cocoa and chocolate companies maintain their operations.

8.1.1 Imports[98]

The Netherlands is the leading global destination market for cocoa beans, importing a quarter of all global cocoa beans exported in 2024 (Trade Data Monitor, 2025). The Netherlands is also the largest importer by value of semi-processed cocoa, with $2.3 billion (fourth largest by quantity with 375,549 MT). Both cocoa bean and semi-processed imports are used by the Netherland's processing industry, as well as re-exported. In 2024, half of the semi-processed cocoa imports by quantity were in the form of cocoa paste (190,026 MT), which are typically processed by domestic facilities into cocoa butter and cocoa powder for domestic chocolate manufacturing or export.

Table 50. The Netherlands cocoa imports (value, quantity), 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 4,733,429,929	906,939
1803	Cocoa paste	$ 973,615,936	190,026
1804	Cocoa butter	$1,178,680,208	138,121
1805	Cocoa powder	$ 199,849,555	47,402
	Semi-processed total	$ 2,352,145,699	375,549
1806	Chocolate products	$ 2,244,609,194	347,364

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

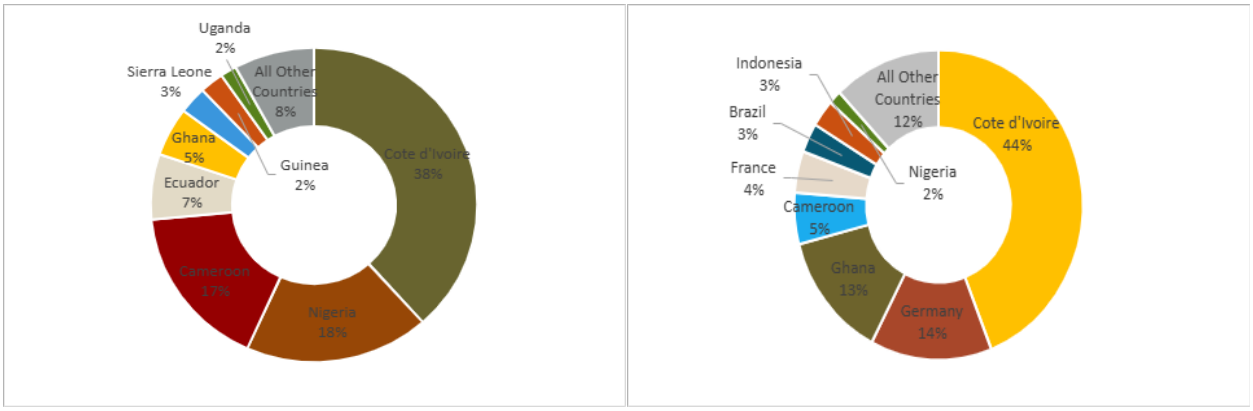
The Netherlands primarily sources its cocoa beans and semi-processed cocoa from West Africa. The import pattern underscores the significant position of CDI as a supplier of both cocoa beans and semi-processed cocoa, alongside the crucial contributions of Nigeria, Cameroon, Ecuador, and Ghana as sources of cocoa beans. The $4.7 billion in cocoa beans imports to the Netherlands in 2024 were primarily sourced from CDI (38%), Nigeria (18%), Cameroon (17%), and Ecuador (7%). Unlike most European countries that import semi-processed cocoa products from neighboring nations, the Netherlands sources the majority of its cocoa directly from producing countries; however, imports from Germany (14%) and France (4%) illustrate the complexity of the cocoa supply chain, as products are imported and subsequently re-exported in different downstream forms (Trade Data Monitor, 2025).

CDI, the largest source of cocoa beans, was also the largest source of cocoa paste imports to the Netherlands, commanding a 65% market share, followed by Cameroon (10%), Ghana (9%), and Germany (8%) (Trade Data Monitor, 2025). CDI was also the leading source of cocoa butter imports (29%),

[98] In the narrative portions of each country profile in this appendix, proportions of imports and exports stated are based on quantity (MT) shares, rather than value shares, because value shares systematically understate risk. Beans and semi-processed cocoa products exported from producing countries like CDI and Nigeria enter at lower per-unit prices than European re-exports, so value shares shift the apparent origin toward lower-risk intermediary countries.

followed by Germany (18%), Ghana (15%), France and Indonesia (6% each), and Brazil (5%). Cocoa powder, which constitutes a much smaller percentage of the Netherland's semi-processed cocoa imports (only 8% by value) was primarily sourced from CDI (32%), Ghana (26%), Belgium (12%), Germany (12%), and Brazil (6%) (Trade Data Monitor, 2025).

Figure 22. Top source markets by value for the Netherlands cocoa bean (left) and semi-processed cocoa (right) imports, 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 51. Top source markets for the Netherlands imports of beans (value and quantity), 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 4,733,429,929	100%	World	906,939	100%
CDI	$ 1,813,885,502	38.3%	CDI	351,328	38.7%
Nigeria	$ 865,094,600	18.3%	Nigeria	161,186	17.8%
Cameroon	$ 795,185,731	16.8%	Cameroon	151,135	16.7%
Ecuador	$ 317,022,424	6.7%	Ecuador	53,497	5.9%
Ghana	$ 236,336,916	5.0%	Ghana	48,824	5.4%
Sierra Leone	$ 131,938,727	2.8%	Sierra Leone	27,662	3.1%
Guinea	$ 112,622,204	2.4%	Guinea	23,533	2.6%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 52. Top source market for the Netherland imports of semi-processed cocoa (value and quantity), 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 2,352,145,699	100%	World	375,549	100%
CDI	$ 1,032,863,845	43.9%	CDI	187,261	49.9%
Germany	$ 319,702,285	13.6%	Ghana	53,503	14.3%
Ghana	$ 310,759,787	13.2%	Germany	31,848	8.5%
Cameroon	$ 126,160,906	5.4%	Cameroon	20,936	5.6%
France	$ 101,525,253	4.3%	France	12,719	3.4%
Brazil	$ 71,757,212	3.1%	Brazil	9,801	2.6%
Indonesia	$ 66,772,073	2.8%	Indonesia	8,813	2.4%
Nigeria	$ 33,624,821	1.4%	Belgium	8,619	2.3%
Belgium	$ 32,188,290	1.4%	Nigeria	6,194	1.7%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

8.1.2 Exports

According to the *Centraal Bureau voor de Statistiek,* approximately three-quarters of cocoa beans imported into the Netherlands are processed domestically into chocolate or semi-finished products such as cocoa powder, cocoa butter, and cocoa paste. In 2024, the Netherlands imported 909,939 MT of cocoa beans, solidifying its position as the world's—and Europe's—largest net bean importer. In the same year, the Netherlands exported 215,377 MT; the remaining 76% of cocoa bean imports (694,562 MT) remained in-country for processing. Even as the majority of cocoa beans imported into the Netherlands are transformed into semi-processed cocoa or chocolate, the country also imports semi-processed cocoa (Trade Data Monitor, 2025).

In 2024, a total of 215,377 MT of cocoa beans were exported, valued at $1.4 billion. The majority of these beans were re-exported to Germany (72%), followed by Austria (8%) and Italy (3%) (Trade Data Monitor, 2025).

Table 53. Top destination markets for cocoa bean exports from the Netherlands (value and quantity), 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 1,364,163,951	100.0%	World	215,377	100.0%
Germany	$ 992,284,855	72.7%	Germany	157,112	73.0%
Austria	$ 114,387,751	8.4%	Austria	21,129	9.8%
Italy	$ 44,698,347	3.3%	Italy	6,168	2.9%
Slovakia	$ 34,445,439	2.5%	Poland	3,824	1.8%
Greece	$ 25,559,710	1.9%	Greece	3,511	1.6%
France	$ 24,879,134	1.8%	Slovakia	3,470	1.6%
Poland	$ 21,327,560	1.6%	Switzerland	3,290	1.5%
Belgium	$ 18,108,365	1.3%	France	3,189	1.5%

Source: Trade Data Monitor, 2025. Value (f.o.b.), as reported by exporter.

The dominant form of cocoa exports from the Netherlands, in terms of both value and volume, is semi-processed cocoa. In 2024, the Netherlands exported $7.2 billion in semi-processed cocoa, more than 5 times the value of cocoa beans and more than twice the value of chocolate exports. Semi-processed cocoa products were primarily exported to Europe, and destination markets include Germany (26%), Belgium (17%), and France (8%) (Trade Data Monitor, 2025).

Table 54. The Netherlands cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 1,364,163,951	215,377
1803	Cocoa paste	$ 2,007,319,206	249,967
1804	Cocoa butter	$ 3,791,316,179	288,200
1805	Cocoa powder	$ 1,408,988,859	312,956
	Semi-processed total	$ 7,207,624,244	851,123
1806	Chocolate products	$ 2,947,709,030	486,319

Source: Trade Data Monitor, 2025. Value (f.o.b.), as reported by exporter.

Table 55. Top destination markets for semi-processed cocoa exports from the Netherlands, 2024

Destination	Value (USD)	Market share (%)	Destination	Quantity (MT)	Market share (%)
World	$ 7,207,624,244	100%	World	851,123	100%
Germany	$ 1,874,792,512	26.0%	Germany	189,197	22.2%
Belgium	$ 1,219,282,613	16.9%	Belgium	108,613	12.8%

Destination	Value (USD)	Market share (%)	Destination	Quantity (MT)	Market share (%)
France	$ 566,787,681	7.9%	France	65,656	7.7%
United Kingdom	$ 427,169,682	5.9%	United States	55,661	6.5%
Poland	$ 350,656,641	4.9%	United Kingdom	40,098	4.7%
United States	$ 296,971,224	4.1%	Italy	33,988	4.0%
Italy	$ 259,740,105	3.6%	Poland	33,147	3.9%
Switzerland	$ 230,432,087	3.2%	Türkiye	32,561	3.8%
Türkiye	$ 204,495,723	2.8%	Russia	27,985	3.3%

Source, Trade Data Monitor, 2025. Value (f.o.b.), as reported by exporter.

8.1.3 Stakeholders

The Netherlands import industry hosts several prominent cocoa importers and traders, most notably ofi (Olam), Cargill, and ECOM. These MNCs also maintain extensive sourcing and processing facilities in West Africa that facilitate trade to the Netherlands. There are also numerous Dutch cocoa traders, including Daarnhouwer, and multiple specialized storage companies that operate in the Port of Amsterdam area, including Commodity Centre Netherlands, C.J. Hendriks Group, Cotterell, C. Steinweg Group, CWT Commodities, Dutch Cocoa BV, Katoen Natie, and Vollers. These storage specialists provide critical warehousing infrastructure that enables the Netherlands to function as a distribution hub for re-export of cocoa beans or export of semi-processed products (Port of Amsterdam, 2025).

Cocoa beans and semi-processed cocoa imported into the Netherlands are used to meet the demands of the domestic processing and chocolate manufacturing industries. Major processing facilities are concentrated in Amsterdam and Zaanstad. The largest processors are internationally renowned MNCs, but the Netherlands also hosts small and mid-size processors, including the Crown of Holland and the Dutch Cocoa Factory. According to the Dutch Ministry of Foreign Affairs, the biggest cocoa processors/grinders in the Netherlands are Cargill, ECOM Group (Dutch Cocoa, Tulip Cocoa and Theobroma), and ofi (Olam) (CBI, 2025b). A non-exhaustive list includes the following:

- **Cargill Cocoa & Chocolate.** Cargill is one of the largest players in the global cocoa market and has a significant processing facility in the Netherlands. It operates Europe's only dedicated center for development and production of cocoa coatings and fillings in the Netherlands, and the company is actively pursuing capacity expansion at this facility.
- **ECOM.** One of the world's largest cocoa traders and processors, with four cocoa trading offices, six factories, and two exclusive off-take agreements with partner factories. Two of these factories are located in the Netherlands: Dutch Cocoa B.V. and Tulip Cocoa Ede Plant. These factories specialize in cocoa powder, cocoa butter, and cocoa paste: ECOM (Dutch Cocoa Factory) and ECOM (Tuplip Cocoa Ede Plant) (ECOM, 2025).
- **ofi (Olam Food Ingredients).** Ofi (Olam) owns two cocoa processing facilities in the Netherlands that produce cocoa butter, cocoa liquor, and cocoa powder. De Zaan is a subsidiary of ofi (Olam.)
- **Crown of Holland.** Mid-size cocoa processor.
- **Dutch Cocoa Factor.** Mid-size historic processor of cocoa butter and powder.

The Netherlands hosts a diverse array of chocolate manufacturers, ranging from global multinationals to innovative domestic brands. Most chocolate manufactured in the Netherlands is categorized as mainstream chocolate of average quality, produced using bulk cocoa. Major players include the following:

- **Barry Callebaut.** The world's largest industrial chocolate manufacturer operates a production facility in the Netherlands known for its high-quality chocolate products (Barry Callebaut, 2023; CBI, 2025d).

- **Mars Nederland.** Mars operates a chocolate production facility in Veghel producing products under various chocolate brands, including M&Ms, Milky Way, Snickers, and Twix.
- **Mondēlez International.** Claims to be the second largest market leader in chocolate in the Netherlands.
- **Nestlé Netherlands.** Headquartered in Amstelveen, Nestlé maintains an active presence in the Dutch chocolate market but does not operate a cocoa processing facility. Nestlé has a production plant in Nunspeet, which produces baby food for the Dutch and European market and sells its brand name chocolate products in-country (CBI, 2025a; Nestlé, 2020).
- **Tony's Chocolonely.** A Dutch chocolate company founded with the mission of ending exploitation, including forced labor, child labor, and deforestation, in the global cocoa industry. Tony's is known for its advocacy approach to chocolate production and operates Tony's Open Chain is a business-to-business sourcing initiative that invites other companies to adopt its five sourcing principles of traceability, fair pricing, long-term commitments, farmer empowerment, and quality improvement (Tony's Chocolonely, 2025; Tony's Open Chain, 2025).
- **De Zaan.** A brand within ofi's cocoa ingredients portfolio, De Zaan offers a wide range of cocoa products and is known for its quality and innovation.
- **Verkade.** A traditional Dutch brand that makes a range of quality chocolate products.
- **Chocolatemakers.** An artisanal chocolate producer that focuses on sustainability and direct trade relationships with cocoa farmers.
- **Droste.** One of the oldest chocolate brands in the Netherlands, and renowned for its cocoa powder and chocolates.
- **Heinde en Verre.** A relatively new artisanal chocolate maker that exports globally.

8.2 BELGIUM

Belgium is a major global and regional hub in the cocoa industry, concentrating on the re-export of cocoa beans and chocolate production. It is the largest cocoa bean re-exporter in Europe, re-exporting 75% of its cocoa bean imports, the inverse trade pattern of leading cocoa bean importer and second largest cocoa bean re-exporter, the Netherlands. Belgium accounts for 2% of global grinding (see Appendix 5) and is a net importer of semi-processed cocoa, highlighting the domestic industry's focus on chocolate manufacturing over intermediate cocoa processing. Renowned for its quality chocolate production, Belgium is the second largest global exporter of chocolate products (Trade Data Monitor, 2025).[99]

8.2.1 Imports

In 2024, Belgium imported $2.4 billion in semi-processed cocoa, primarily in the form of cocoa paste or cocoa butter, in addition to cocoa bean imports[100] (Trade Data Monitor, 2025). A leading global importer of cocoa beans, Belgium primarily sourced $2 billion in cocoa beans imports from CDI (50%), Nigeria (15%), Ghana (12%), and Ecuador (8%).

Table 56. Belgium cocoa imports (value, quantity), 2024

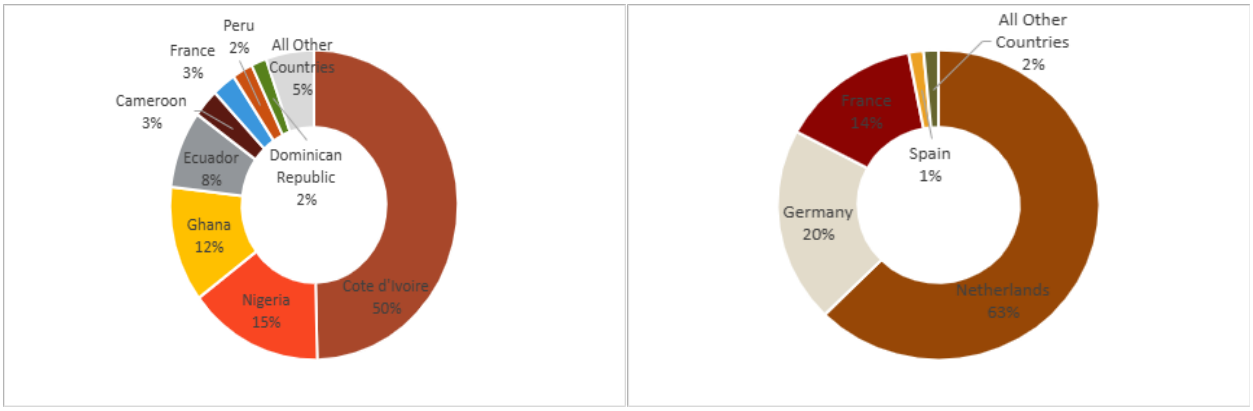
HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 2,065,760,834	327,127
1803	Cocoa paste	$ 758,704,041	89,336
1804	Cocoa butter	$ 1,520,425,818	108,301

[99] For chocolate to bear the prestigious "Belgian Chocolate" designation, it must be manufactured within Belgium's borders, designed to reinforce the chocolate's premium positioning in global markets (CBI, 2024a).
[100] In 2024, net cocoa bean imports totaled 86,647 MT (Trade Data Monitor, 2025).

HS code	Description	Value (USD)	Quantity (MT)
1805	Cocoa powder	$ 136,343,871	29,497
	Semi-processed total	$ 2,415,473,730	227,134
1806	Chocolate products	$ 1,792,270,030	274,325

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Figure 23. Top source markets by value for Belgium cocoa bean (left) and semi-processed cocoa (right) imports, 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Belgium imports semi-processed cocoa almost exclusively from European countries, primarily the Netherlands (62%), followed by Germany (20%) and France (14%), reflecting regional interdependence in the semi-processed cocoa sector (Trade Data Monitor, 2025).

Table 57. Top source markets for Belgium imports of cocoa beans (value and quantity), 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$2,048,339,414	100%	World	327,127	100%
CDI	$1,015,219,092	49.6%	CDI	170,921	52.3%
Nigeria	$309,536,901	15.1%	Nigeria	44,897	13.7%
Ghana	$247,268,199	12.1%	Ghana	38,222	11.7%
Ecuador	$165,368,067	8.1%	Ecuador	23,227	7.1%
Cameroon	$60,395,866	3.0%	Cameroon	8,917	2.7%
France	$54,501,418	2.7%	Peru	7,791	2.4%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 58. Top source markets for semi-processed cocoa imports to Belgium, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 2,449,116,540	100%	World	227,134	100%
Netherlands	$ 1,528,796,807	62.4%	Netherlands	142,586	62.8%
Germany	$ 497,780,652	20.3%	Germany	42,822	18.9%
France	$ 347,165,868	14.2%	France	29,434	13.0%
Spain	$ 36,249,268	1.5%	Spain	8,666	3.8%
United Kingdom	$ 10,866,082	0.4%	Vietnam	780	0.3%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

8.2.2 Exports

Although Belgium is the largest re-exporter of cocoa beans, its largest and most valuable cocoa export is chocolate products, valued at $5.2 billion in 2024, more than the combined value of cocoa beans ($1.6 billion) and semi-processed cocoa ($363 million) exports. Belgium is the second largest global exporter of chocolate products, behind Germany. Destination markets for chocolate product exports are concentrated in Europe, led by the Netherlands, Germany, France, the United Kingdom, and the United States (Trade Data Monitor, 2025). Its chocolate manufacturing sector is export-focused, and it is also supported by a high level of domestic chocolate consumption, with approximately 5.6 kg per capita annually (CBI, 2024a).

Belgium is the leading European exporter of cocoa beans, and the vast majority (80%) of its cocoa beans exports are to Germany and France (Trade Data Monitor, 2025).

Table 59. Belgium cocoa exports by HS code (value and quantity), 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 1,552,749,929	239,480
1803	Cocoa paste	$ 209,432,983	20,190
1804	Cocoa butter	$ 100,479,559	6,254
1805	Cocoa powder	$ 53,945,185	8,131
	Semi-processed total	$ 363,857,727	34,575
1806	Chocolate products	$ 5,235,909,763	696,700

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Figure 24. Top destination markets by value for Belgium cocoa bean (left) and semi-processed cocoa (right) exports, 2024

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 60. Top destination markets of Belgium cocoa bean exports, 2024

Destination	Value (USD)	Market share (%)	Destination	Quantity (MT)	Market share (%)
World	$ 1,552,749,929	100%	World	239,480	100%
Germany	$ 846,974,064	54.6%	Germany	149,995	62.6%
France	$ 439,637,849	28.3%	France	53,827	22.5%
Austria	$ 90,292,028	5.8%	Austria	10,940	4.6%
Slovakia	$ 52,305,849	3.4%	Slovakia	5,681	2.4%
Netherlands	$ 29,523,004	1.9%	Netherlands	5,366	2.2%
Italy	$ 27,494,895	1.8%	Italy	3,366	1.4%
Spain	$ 13,761,517	0.9%	Canada	2,769	1.2%
Poland	$ 11,930,254	0.8%	Spain	1,975	0.8%
Indonesia	$ 11,137,979	0.7%	Indonesia	1,377	0.6%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Belgium is a net importer of semi-processed cocoa for its chocolate manufacturing industry (227,134 MT), although it does export small amounts of semi-processed cocoa products, primarily in the form of cocoa paste. Of the $363 million in semi-processed cocoa exports, the majority were exported to Poland (23%), Germany (11%), and Sweden (9%) (Trade Data Monitor, 2025).

Table 61. Top destination markets for semi-processed cocoa exports from Belgium, 2024

Destination	Value (USD)	Market share (%)	Destination	Quantity (MT)	Market share (%)
World	$363,857,728	100%	World	34,574	100%
Poland	$83,856,417	23.1%	Poland	7,790	22.5%
Germany	$38,348,181	10.5%	Sweden	3,260	9.4%
Sweden	$33,864,484	9.3%	Germany	2,726	7.9%
Canada	$28,125,473	7.7%	Canada	2,673	7.7%
Norway	$24,001,586	6.6%	Norway	2,293	6.6%
France	$19,222,959	5.1%	Netherlands	1,984	5.7%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

8.2.3 Stakeholders

The Belgian cocoa processing industry is highly concentrated among 3 dominant processors and manufacturers, which control more than 90% of production:

- **Barry Callebaut.** Operates the world's largest chocolate factory in Wieze
- **Cargill.** Chocolate production facilities in Mouscron and Antwerp
- **Puratos.** Operates multiple factories across Belgium, focus on industry sales (Puratos, 2025)

In addition to the dominant processors, several major multinational confectionery companies operate Belgian production facilities, including the following:

- **Mondelēz.** Facilities in Herentals and Namen
- **Ferrero.** Chocolate manufacturing facilities in Arlon

Smaller specialty chocolate brands include Neuhaus, Leondias, and Galler. Belgium's industry association, Choprabisco, supports a small but growing artisanal chocolate segment, featuring boutique producers such as David Maenhou (Choprabisco, 2025). However, many of these smaller artisanal brands in Belgium source their chocolate from the three major processors, rather than through direct bean-to-bar traceable sourcing methods, common among other artisanal chocolate makers.

8.3 GERMANY

Germany's central European location and excellent logistics infrastructure position it as both a major consumer market and a strategic trade hub for chocolate distribution. Germany's cocoa industry functions primarily as a cocoa processing and chocolate manufacturer, rather than a re-export hub. It is the third largest cocoa grinder, behind CDI and the Netherlands, accounting for 9.5% of global grinding in 2024 (see Appendix 5).

8.3.1 Imports

Germany imports the majority of its cocoa beans from European re-exporters, primarily from the Netherlands (35%) and Belgium (26%), followed by producing countries CDI (24%) and Ecuador (8%) (Trade Data Monitor, 2025). As Germany is a member of the EU, EU customs data also report imports

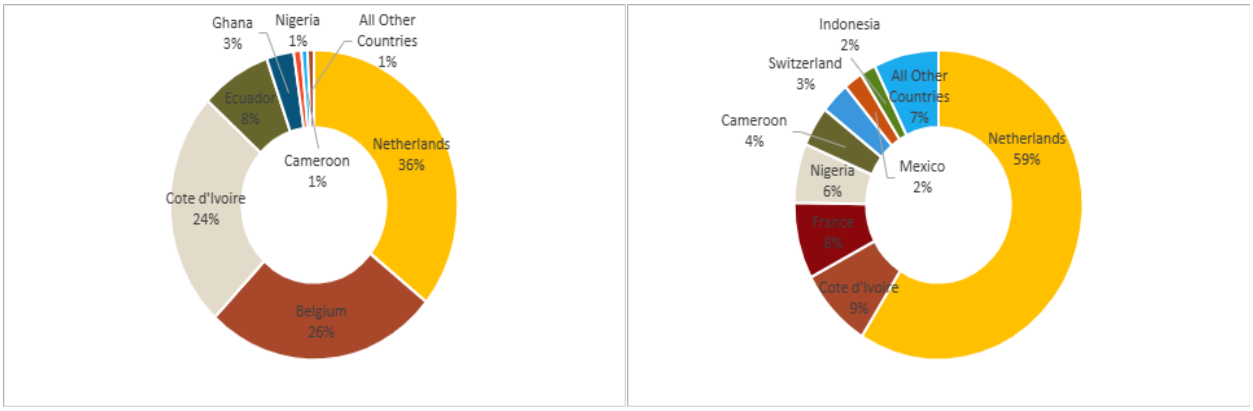
by country of origin for intra and extra EU.[101] Reported data indicate that cocoa beans imported through the Netherlands and Belgium were originally primarily sourced from CDI, as well as Ecuador and Ghana.

Table 62. Germany cocoa imports, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 2,586,605,236	405,559
1803	Cocoa paste	$ 1,048,810,065	138,737
1804	Cocoa butter	$ 2,021,301,954	181,356
1805	Cocoa powder	$ 174,843,294	36,790
	Semi-processed total	$ 3,244,955,313	356,883
1806	Chocolate products	$ 3,756,697,873	528,803

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

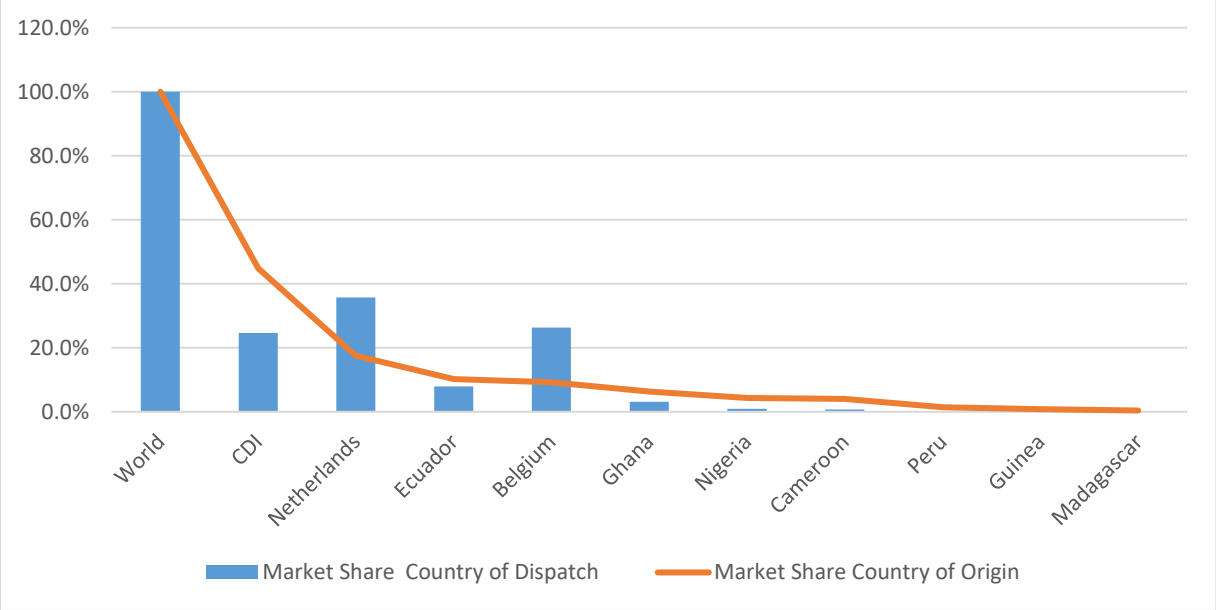
Figure 25. Top source markets by value for Germany cocoa bean (left) and semi-processed cocoa (right) imports, 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

[101] As noted in the Methodology section of this report, trade data reported by EU Customs and Eurostat cannot be directly quantitatively compared due to reporting discrepancies, but the data can be compared to highlight trends in trade flows.

Figure 26. Source market share by value of Germany cocoa bean imports, by country of dispatch (Eurostat) and country of origin (EU Customs), 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 63. Germany imports of cocoa beans by source market, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 2,586,605,236	100%	World	405,559	100%
Netherlands	$ 923,885,820	35.7%	Belgium	129,311	31.9%
Belgium	$ 680,358,007	26.3%	Netherlands	123,694	30.5%
CDI	$ 636,045,017	24.6%	CDI	99,591	24.6%
Ecuador	$ 204,724,863	7.9%	Ecuador	25,703	6.3%
Ghana	$ 79,064,871	3.1%	Ghana	14,827	3.7%
Nigeria	$ 22,069,204	0.9%	Nigeria	6,466	1.6%
Cameroon	$ 17,886,846	0.7%	Cameroon	2,496	0.6%
Peru	$ 5,645,631	0.2%	Peru	874	0.2%
Dominican Republic	$ 4,313,685	0.2%	Dominican Republic	825	0.2%
Madagascar	$ 3,792,554	0.2%	Madagascar	415	0.1%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 64. Germany imports of cocoa beans, EU Customs, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	2,575,653,348	100%	World	402,907	100%
CDI	1,153,491,590	44.8%	CDI	187,209	46.5%
Netherlands	450,565,186	17.5%	Netherlands	56,214	14.0%
Ecuador	263,595,374	10.2%	Belgium	54,412	13.5%
Belgium	238,635,056	9.3%	Ecuador	32,099	8.0%
Ghana	161,784,040	6.3%	Ghana	25,363	6.3%
Nigeria	112,343,325	4.4%	Nigeria	17,528	4.4%
Cameroon	103,483,752	4.0%	Cameroon	14,185	3.5%
Peru	36,056,090	1.4%	Peru	6,501	1.6%
Guinea	19,990,868	0.8%	Guinea	3,109	0.8%
Madagascar	10,228,457	0.4%	Nicaragua	1,631	0.4%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Germany plays a limited role in trading cocoa beans, with only 2% of its cocoa beans re-exported. The vast majority of imports are ground domestically to meet the demands of the domestic processing industry. In addition to cocoa bean imports for domestic processing, Germany also imports large volumes of semi-processed cocoa and is the leading global importer of cocoa butter (Trade Data Monitor, 2025).[102]

Table 65. Source markets for German imports of semi-processed cocoa, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 3,244,955,313	100%	World	356,884	100%
Netherlands	$ 1,908,617,935	58.8%	Netherlands	191,035	53.5%
CDI	$ 271,603,461	8.4%	France	45,221	12.7%
France	$ 257,480,321	7.9%	CDI	35,226	9.9%
Nigeria	$ 199,268,550	6.1%	Nigeria	19,875	5.6%
Cameroon	$ 135,014,637	4.2%	Switzerland	14,903	4.2%
Switzerland	$ 106,006,455	3.3%	Cameroon	12,774	3.6%
Mexico	$ 68,977,978	2.1%	Ghana	6,450	1.8%
Indonesia	$ 56,611,932	1.8%	Mexico	4,700	1.3%
Ghana	$ 39,819,866	1.2%	Indonesia	4,345	1.2%
Peru	$ 35,545,998	1.1%	Spain	4,028	1.1%

Source: Trade Data Monitor, 2025. Value (c.i.f.) as reported by importer.

8.3.2 Exports

Germany's re-exports of cocoa beans are quite limited, accounting for only 2% of total imports, which amounts to 7,346 MT (Trade Data Monitor, 2025). Germany is a net importer of semi-processed cocoa, yet it stands as the leading global exporter of this product. These trade figures do not necessarily indicate direct re-exports, as there are various trade patterns within the sub-categories of semi-processed cocoa.[103] Moreover, Germany ranks as the third largest cocoa grinder, processing the vast majority of the 405,559 MT imported cocoa beans into semi-processed goods. While the bean conversion ratio varies by downstream good, the volume of domestically processed beans would exceed the 333,275 in semi-processed cocoa imports, more than doubling the semi-processed cocoa available

[102] Research did not identify significant discrepancies between Eurostat import data and EU Customs data regarding the country of origin. Consequently, imports from European nations are not explicitly classified as re-exports in this report.
[103] Germany exported 82,300 MT more cocoa powder than it imported in 2024 and exported 458,661 MT more in chocolate products (Trade Data Monitor, 2025).

to domestic chocolate manufacturers. The semi-processed cocoa products are ultimately used in chocolate manufacturing.

Given the dominant role of Germany as a chocolate manufacturer, its destination market for chocolate products is spread throughout Europe and the United States. The dominant import market, France, accounted for 12% of the market share, illustrating the more diffuse destination base of chocolate products relative to semi-processed goods.

Table 66. German cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 55,497,539	7,346
1803	Cocoa paste	$ 941,202,882	95,297
1804	Cocoa butter	$ 1,761,267,510	118,888
1805	Cocoa powder	$ 499,425,461	119,090
	Semi-processed total	$ 3,201,895,853	333,275
1806	Chocolate products	$ 7,106,714,783	987,464

Source: Trade Data Monitor, 2025 Value (f.o.b.), as reported by exporter.

Table 67. Top destination markets for semi-processed cocoa exports from Germany, 2024

Destination	Value (USD)	Market share (%)	Destination	Quantity (MT)	Market share (%)
World	$ 3,201,895,853	100.0%	World	333,275	100.0%
Poland	$ 583,474,868	18.2%	Poland	53,179	16.0%
Belgium	$ 543,733,345	17.0%	Belgium	50,603	15.2%
Italy	$ 422,269,273	13.2%	Italy	42,056	12.6%
Netherlands	$ 385,474,563	12.0%	Netherlands	29,698	8.9%
France	$ 176,867,684	5.5%	France	22,225	6.7%

Source, Trade Data Monitor, 2025. Value (f.o.b.), as reported by exporter.

8.3.3 Stakeholders

While its chocolate manufacturing sector is export-oriented, Germany also boasts the second highest global chocolate consumption per capita, at 9.1 kg annually (Weitnauer Group, 2025). Most chocolate confectionery in Germany are sold at the retail level through supermarkets. The grocery sector in Germany is highly concentrated; four corporate groups (Edeka-Group, Schwarz-Group [Lidl and Kaufland], REWE Group, and Aldi [Süd and Nord]) control approximately 70–80% of the German food trade (CBI, 2025e; Gaia Cacao B.V., 2021). Most cocoa products in Germany are produced by private label companies, including Delitzscher, Faruchoc, Weinrich, Ludgig Schokolade, and Storck. The biggest chocolate brands (Milka [Mondelēz], Ritter Sport, and Lindt & Sprüngli) sell more than 57% of all chocolate bars in Germany (CBI, 2025e).

The processing sector features major multinational players, including Barry Callebaut, Cargill, and ofi (Olam), as well as Germany companies: Schokinag Schokolade Industrie GmbH, August Storck, Albrecht & Dill Trading, CARE Naturkost, and Naturkost Übelhör. These companies operate large-scale grinding and refining facilities that produce semi-finished cocoa products for both domestic consumption and export to other European manufacturers.

The chocolate manufacturing sector is highly concentrated, with the top 5 manufacturers accounting for approximately 55% of market share.

- **August Storck KG.** A leading German confectionery company
- **Ferrero International.** Operates production facilities in Arlon
- **Mondelēz International.** Milka brand

- **Mars Incorporated.** Significant manufacturing presence
- **Lindt & Sprüngli.** Swiss chocolatier
- **Ritter Sport.** Chocolate bar manufacturer, family-owned since 1912
- **Cargill.** Chocolate factory in Berlin
- **Halloren Schokoladenfabrik.** Founded in 1804

8.4 SWITZERLAND

Switzerland is recognized for its production of high-quality chocolates. Its domestic and cocoa processing and manufacturing industry supports its export-oriented chocolate market (Swiss Platform for Sustainable Cocoa, 2025)

8.4.1 Imports

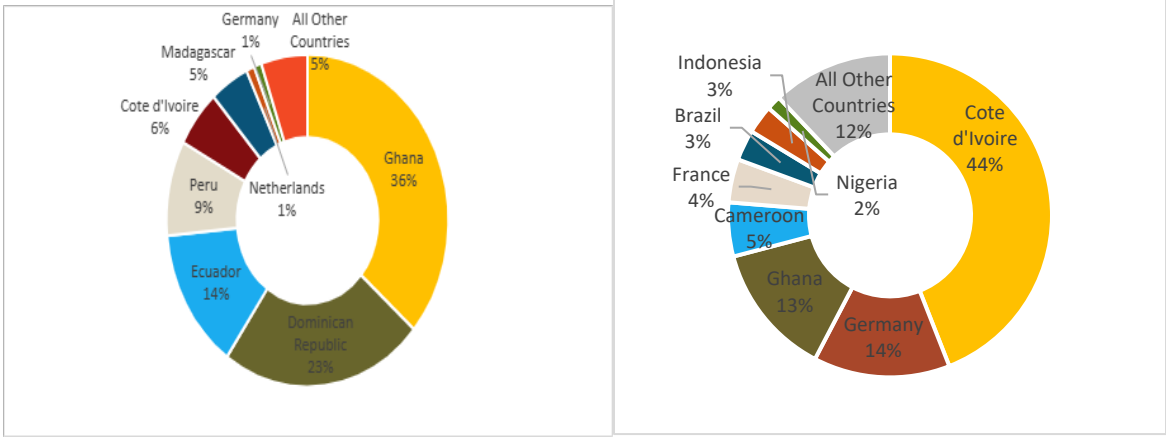
Switzerland imports its cocoa beans almost entirely from producing countries. In 2024, the largest source markets for cocoa beans were Ghana (36%) and the Dominican Republic (23%), followed by Ecuador (14%) and Peru (9%) (Trade Data Monitor, 2025; CBI, 2022). In addition to cocoa bean imports, Switzerland imports a similar volume of semi-processed cocoa, primarily in the form of cocoa butter. Semi-processed cocoa was predominantly sourced from CDI (44%), Germany (14%), and Ghana (13%) (Trade Data Monitor, 2025).

Table 68. Switzerland cocoa imports, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 265,027,585	58,794
1803	Cocoa paste	$ 96,589,795	9,365
1804	Cocoa butter	$ 399,253,471	31,041
1805	Cocoa powder	$ 23,150,496	4,666
	Semi-processed total	$ 518,993,762	45,072
1806	Chocolate products	$ 358,387,800	37,521

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Figure 27. Top source markets by value for Switzerland cocoa bean (left) and semi-processed cocoa (right) imports, 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 69. Top source markets for Switzerland imports of beans (value and quantity), 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 264,720,098	100%	World	58,794	100%
Ghana	$ 96,323,392	36.4%	Ghana	24,144	41.1%
Dominican Republic	$ 61,642,541	23.3%	Dominican Republic	9,808	16.7%
Ecuador	$ 36,708,452	13.9%	Ecuador	8,542	14.5%
Peru	$ 24,487,449	9.2%	Peru	5,892	10.0%
CDI	$ 14,823,400	5.6%	CDI	3,870	6.6%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 70. Top source markets for Switzerland semi-processed cocoa imports (value and quantity), 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 518,993,761	100%	World	45,072	100%
Netherlands	$ 308,710,028	59.5%	Netherlands	24,648	54.7%
Germany	$ 84,116,702	16.2%	Germany	7,867	17.5%
France	$ 55,571,289	10.7%	France	4,969	11.0%
Malaysia	$ 24,678,519	4.8%	Malaysia	3,035	6.7%
Belgium	$ 9,829,688	1.9%	Belgium	872	1.9%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

8.4.2 Exports and Stakeholders

Switzerland has the highest chocolate consumption per capita in the world, at 11 kg per person annually (Weitnauer Group, 2025).[104] Even with strong domestic consumption demand, a majority of the chocolate produced in Switzerland is exported. Chocolate product exports are the dominant form of cocoa exports at $1.2 billion, 10 times the value of semi-processed cocoa exports (Trade Data Monitor, 2025).[105]

Table 71. Switzerland cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 5,052,802	640
1803	Cocoa paste	$ 132,569,473	20,616
1804	Cocoa butter	$ 27,630,940	1,933
1805	Cocoa powder	$ 13,089,455	2,600
	Semi-processed total	$ 173,289,868	25,149
1806	Chocolate products	$ 1,173,722,370	130,434

Source: Trade Data Monitor, 2025. Value (f.o.b.), as reported by importer.

Switzerland is home to 16 major chocolate manufacturers and several medium-sized chocolate producers. Leading the industry are large multinationals such as Barry Callebaut, Lindt & Sprüngli,

[104] Dark chocolate is preferred by 66% of consumers in French-speaking regions, while milk chocolate is favored by 70% of consumers in German-speaking regions (CBI, 2022). Swiss consumers have a strong preference for fair trade and organic cocoa (CBI, 2022; Res Gehriger, 2024). Organic and fair trade Swiss companies include Durig Chocolatier Lausanne, Stella Bernrain, and Pronatec.

[105] Switzerland re-exports around 1% of cocoa bean imports. The top destination markets for 90% of cocoa bean exports are the Netherlands, France, and Germany (Trade Data Monitor, 2025). Of the 25,149 MT of semi-processed cocoa, 55% was exported to Germany and 34% to Italy (Trade Data Monitor, 2025).

Nestlé, Stella Bernrain, and PRONATEC. Chocolat Frey, which is part of the Migros Group, is also a significant producer of chocolate for Migros' well-known private label brand.

The high-end chocolate market in Switzerland features an increasing number of bean-to-bar chocolate makers that directly source cocoa beans from their origin and oversee all processes of sourcing, roasting, grinding, and refining to enhance quality and traceability. Notable names in this segment include Choba, La Flor, Orfeve, and Sadé Chocolat. In addition, there are several premium chocolate shops such as Teuscher, Max Chocolatier, Läderach, and Sweetzerland.

Germany is the top importer of chocolate products from Switzerland, accounting for 25% by value, followed by the United States (10%), France (9.6%), the United Kingdom (9%), and Canada (7%) (Trade Data Monitor, 2025).[106]

Table 72. Destination markets for Switzerland chocolate product exports, 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$ 1,173,722,370	100%	World	130,434	100%
Germany	$ 245,657,246	20.9%	Germany	28,395	21.8%
United States	$ 116,412,092	9.9%	United Kingdom	12,539	9.6%
France	$ 112,670,522	9.6%	France	11,310	8.7%
United Kingdom	$ 109,907,993	9.4%	Canada	10,846	8.3%
Canada	$ 87,849,987	7.5%	United States	9,096	7.0%

Source: Trade Data Monitor, 2025. Value (f.o.b.), as reported by exporter.

8.5 UNITED STATES

The United States is a major downstream market and cocoa processing hub reliant on imports, with significant domestic grinding capacity and deep integration with North American and multinational supply chains. In 2024, the United States ranked as the sixth largest global importer of cocoa beans and, in the 2023/24 season, the fifth largest cocoa grinder worldwide, accounting for approximately 6% of global grinding (see Appendix 4 and Appendix 5).[107] Domestic cocoa production is negligible, making the U.S. cocoa and chocolate industry structurally dependent on foreign supply.[108]

However, the cocoa industry in the United States faced changing trade patterns in 2024 due to market conditions. In 2024, U.S. cocoa bean imports declined sharply to roughly 50% lower than prior, and a significant amount of cocoa processing was redirected to Canada (U.S. Department of Agriculture Economic Research Service, 2025).

The United States functions as a critical end market, processor, and regional trade intermediary within the global cocoa supply chain. Its reliance on imported cocoa, exposure to global price shocks, and integration with multinational and North American production networks highlight both its economic importance and its vulnerability to upstream supply risks, including those linked to labor conditions in cocoa-producing countries.

[106] According to trade association Chocosuisse, Switzerland exported nearly 117,354 MT of bars and small-format chocolate individually portioned consumer chocolate products (Chocosuisse, 2025). Ninety percent of chocolate product exports were under HS 1806.32 and HS 1806.90.
[107] The United States is not a member of the ICCO, which includes 51 member countries: 22 cocoa bean exporters (86% of global market share) and 29 cocoa-importing countries (72% of global market share) (International Cocoa Organization, 2025d).
[108] Hawaii is the only state that has a climate conducive to producing cocoa beans and has a nascent but growing cocoa bean industry (Boyanton, 2025).

8.5.1 Imports

The United States imported just under 200,000 MT of cocoa beans in 2024. [109] The United States primarily sourced cocoa bean imports from Ecuador (38%), CDI (30%), and the Dominican Republic (12%).

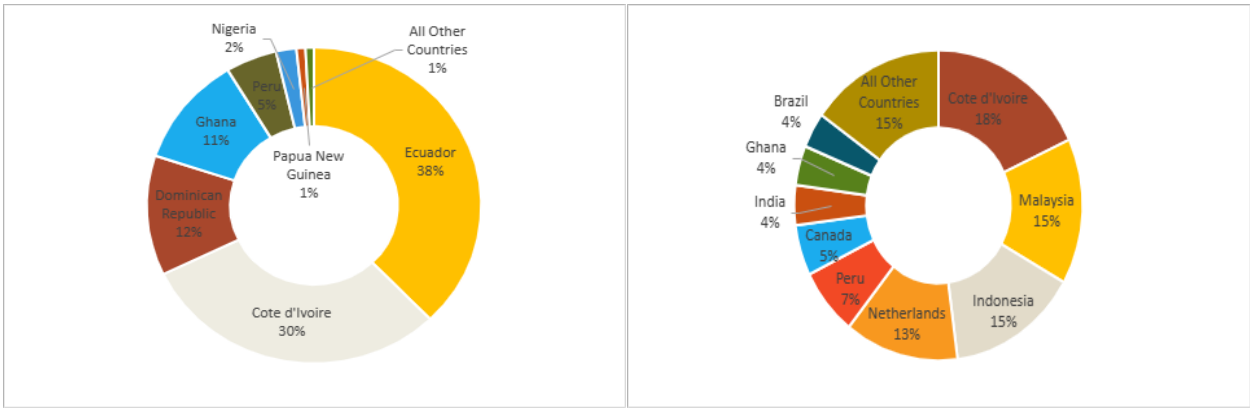
Of the cocoa and chocolate products imported into the United States, the largest import segment in value and volume is in the form of chocolate products valued at $4.8 billion, nearly double the value of semi-processed cocoa imports. Americans consume approximately 5–6 kg of chocolate per capita (Global Market Insights, 2025b). Chocolate imports were sourced from Canada (54%) and Mexico (14%). Semi-processed cocoa imports were sourced from CDI (18%), Malaysia (15%), Indonesia (15%), and the Netherlands (13%) (Trade Data Monitor, 2025).

Table 73. United States cocoa imports, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 1,109,762,077	197,473
1803	Cocoa paste	$ 634,396,307	126,638
1804	Cocoa butter	$ 1,075,050,663	88,205
1805	Cocoa powder	$ 434,144,657	96,430
	Semi-processed total	$ 2,143,591,627	311,273
1806	Chocolate products	$ 4,835,267,490	756,900

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Figure 28. Top source markets by value for U.S. cocoa bean (left) and semi processed cocoa (right) imports, 2024



Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 74. Top source markets for U.S. imports of cocoa beans (value and quantity), 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$1,109,762,077	100.0%	World	197,473	100%
Ecuador	$418,443,117	37.7%	CDI	81,499	41.3%
CDI	$332,851,945	30.0%	Ecuador	52,526	26.6%
Dominican Republic	$135,797,709	12.2%	Ghana	31,238	15.8%
Ghana	$124,728,078	11.2%	Dominican Republic	18,620	9.4%

[109] From 2000 to 2002, the United States imported an average of 425,000 MT of cocoa annually. Volumes of cocoa bean imports decreased by 22% in 2023, and by another 26% in 2024.

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
Peru	$55,053,629	5.0%	Peru	6,592	3.3%
Nigeria	$21,791,431	2.0%	Nigeria	3,350	1.7%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

Table 75. Top source markets for U.S. imports of semi-processed cocoa products (value and quantity), 2024

Country	Value (USD)	Market share (%)	Country	Quantity (MT)	Market share (%)
World	$2,143,591,627	100.0%	World	311,274	100%
CDI	$386,359,727	18.0%	CDI	77,619	24.9%
Malaysia	$325,638,902	15.2%	Netherlands	53,680	17.3%
Indonesia	$313,674,994	14.6%	Malaysia	39,360	12.7%
Netherlands	$274,448,039	12.8%	Indonesia	26,530	8.5%
Peru	$149,867,079	7.0%	Cameroon	15,747	5.1%

Source: Trade Data Monitor, 2025. Value (c.i.f.), as reported by importer.

8.5.2 Exports

In 2024, the United States drastically increased its cocoa bean exports to Canada by 150%, from 8,377 MT in 2023 to 128,663 MT, primarily due to soaring global prices due to supply disruptions, as well as new U.S. tariffs on cocoa. These factors rendered purchasing from the United States (under the United States-Mexico-Canada Agreement) and processing in Canada more profitable, thereby altering trade patterns and providing Canadian processors with the opportunity to satisfy U.S. demand or cater to their domestic market with more affordable beans (CZ app, 2025).

MNCs like Barry Callebaut that have processing and manufacturing facilities across North America are able to adapt quickly to market conditions have and have increased exports of Canadian chocolate to the United States. Producers in Canada and Mexico are poised to benefit at the expense of American businesses. U.S. chocolate manufacturers also responding to changing market conditions by reducing the size of chocolate products and including a larger variety of non-chocolate flavors (U.S. Department of Agriculture Economic Research Service, 2025).

Table 76. United States cocoa exports by HS code, 2024

HS code	Description	Value (USD)	Quantity (MT)
1801	Cocoa beans	$ 667,928,997	157,050
1803	Cocoa paste	$ 88,640,601	18,154
1804	Cocoa butter	$ 222,748,700	29,816
1805	Cocoa powder	$ 140,603,384	30,648
	Semi-processed total	$ 451,992,685	78,618
1806	Chocolate products	$ 2,192,939,564	395,925

Source: Trade Data Monitor, 2025. Value (f.o.b.), as reported by exporter.

Table 77. Top destination markets for cocoa beans exports from U.S., 2024

Destination	Value (USD)	Market share (%)	Destination	Quantity (MT)	Market share (%)
World	$ 667,928,997	100.0%	World	157,050	100.0%
Canada	$436,927,036.00	65.4%	Canada	128,663	81.9%
Netherlands	$129,147,637.00	19.3%	Netherlands	15,488	9.9%
Belgium	$58,846,186.00	8.8%	Belgium	6,860	4.4%

Destination	Value (USD)	Market share (%)	Destination	Quantity (MT)	Market share (%)
Estonia	$18,631,620.00	2.8%	Estonia	2,023	1.3%
Tunisia	$9,125,226.00	1.4%	Japan	1,288	0.8%

Source, Trade Data Monitor, 2025. Value (f.o.b.), as reported by exporter.

Table 78. Top destination markets for semi-processed cocoa exports from U.S., 2024

Destination	Value (USD)	Market share (%)	Destination	Quantity (MT)	Market share (%)
World	$2,143,591,627	100.0%	World	311,274	100%
CDI	$386,359,727	18.0%	CDI	77,619	24.9%
Malaysia	$325,638,902	15.2%	Netherlands	53,680	17.3%
Indonesia	$313,674,994	14.6%	Malaysia	39,360	12.7%
Netherlands	$274,448,039	12.8%	Indonesia	26,530	8.5%
Peru	$149,867,079	7.0%	Cameroon	15,747	5.0%

Source, Trade Data Monitor, 2025. Value (f.o.b.), as reported by exporter.

While the United States was net importer of chocolate products, it also exported $2.2 billion in 2024 to Canada (55%) and Mexico (16%) and $451 million in semi-processed cocoa products, primarily to Canada (83%) and Mexico (11%) (Trade Data Monitor, 2025).

8.5.3 Stakeholders

The U.S. cocoa processing industry was valued $4.3 billion in 2024, and it is estimated to grow in the coming years (Dey, 2025). U.S. cocoa processors have hubs in California, Texas, New York, and Florida (Mordor Intelligence, 2025).

While publicly available shipping data are not exhaustive, all cocoa and chocolate products imported with available data included the following importers:

- **Barry Callebaut USA** (Illinois). Barry Callebaut imports cocoa products to the United States through its subsidiary in Chicago, IL. While shipping records are not exhaustive, available data suggest that Barry Callebaut frequently, but not exclusively, purchases from its subsidiaries, suggesting a high degree of vertical integration.
- **ofi Americas/Olam Americas Inc.** (Fresno, CA). The Olam Group's cocoa ingredients business—formerly branded as Olam Cocoa and now operating as ofi Cocoa under the ofi (Olam Food Ingredients) brand—imports cocoa to the United States through its U.S. subsidiary. U.S. Customs records indicate that Olam Americas Inc., One World Trade, and related entities continue to appear as importers of record for cocoa shipments as of 2024–2025, despite the parent company's rebranding to ofi following its 2020 reorganization (ofi, 2025; ImportGenius, 2025).
- **General Cocoa** (New York). General Cocoa (Genco) is owned by Sucden, a soft commodities trading group that is licensed to export cocoa from CDI and Nigeria.
- **Atlantic USA** (New York). Atlantic USA, also operating as Atlantic Cocoa Company and ECOM Cocoa – Atlantic USA, is a New York–based importer and exporter of cocoa products. The company supplies cocoa beans and semi-processed cocoa products (including cocoa butter, powder, and liquor) to the U.S. market and operates as part of the ECOM cocoa trading network, with sourcing from producing countries in West Africa and Latin America
- **Ikea Supply** (Texas). IKEA Supply (operating in the United States as IKEA Food Supply US Inc. and IKEA Supply AG) acts as the importer of record for cocoa-containing food products used in IKEA retail and food service operations. Available import records indicate that cocoa enters the United States embedded in finished or semi-finished food items (e.g., pastries and desserts)

supplied through IKEA's global food supply chain, rather than as bulk cocoa beans or semi-processed cocoa ingredients.

- **Cargill Cocoa & Chocolate** (Minnesota). Headquartered in the United States. Cargill Cocoa & Chocolate Supplier is the importer of record. Available records indicate that the majority of Cargill's cocoa imports to the United States were in the form of cocoa powder.

Once imported cocoa beans are processed, leading processors in the United States include the following:

- **Blommer Chocolate Company.** Historically the largest cocoa bean processor in North America and major business-to-business supplier of cocoa products.
- **Barry Callebaut USA LLC.** U.S. arm of the global Swiss–based cocoa and chocolate maker, processor, and supplier.
- **Cargill Cocoa & Chocolate.** Integrated sourcing and processing plant network in North America.
- **Smaller processors.** United Cocoa Processor, Inc., and Puratos Chocolate USA.

Leading chocolate manufacturers include the following:

- **The Hershey Company.** Brands include Reese's, Hershey's, Kit Kat, etc.
- **Mars, Inc. (Mars Wrigley Confectionery).** Brands include M&Ms, Snickers, Milky Way, Dove, etc.
- **Mondēlez International.** Brands include Cadbury (U.S. distribution), Oreo chocolate twists, Toblerone, etc.
- **Nestlé (U.S. operations).** Brands include Tollhouse, Butterfinger, Baby Ruth, Raisinets, 100 Grand, Goobers, Oh Henry!, etc.
- **Lindt & Sprüngli USA.** Brands include Lindt, Ghirardelli, Russell Stover, and Caffarel, as well as Hofbauer and Küfferle.
- **Ferrero USA.** Brands include Ferrero Rocher, Nutella, and Kinder products.

In addition to major corporate processors and manufacturers, there is a growing artisanal market that focuses on quality or bean-to-bar production. A non-exhaustive list includes Guittard Chocolate Company, TCHO (California), Theo Chocolate (Washington), Chcolove (Colorado), Castronovo Chocolate & Other Bean-to-Bar Makers (Florida), and Beyond Good (New York).