Cacao

EUDR mapping for cacao — v1.1

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Cacao EUDR Overview — Colombia

EUDR Context

Field	Value
eudr_commodity	cacao
country_focus	Colombia
eudr_article9_field	deforestation_risk_assessment
eudr_evidence_type	primary_field_data
deforestation_risk	medium
last_updated	2026-05-26

Overview

Cacao is one of seven commodities regulated under the EU Deforestation Regulation (EUDR, Regulation 2023/1115). Under Article 2, operators and traders placing cacao or cacao-derived products on the EU market must ensure the product is deforestation-free (no deforestation after 31 December 2020), legally produced in the country of origin, and covered by a due diligence statement submitted to the EU Information System. Binding compliance deadlines are 30 December 2026 for large and medium operators, and 30 June 2027 for micro and small operators.

Article 9 due diligence obligations require operators to collect high-precision geolocation coordinates linking cacao to specific plots of land. For plots exceeding 4 hectares, polygon mapping using WGS-84 (EPSG-4326) projection in GeoJSON format is required. Operators must conduct risk assessments considering the prevalence of deforestation in the sourcing region, corruption indices, land-tenure security, and the presence of indigenous or local communities. Compliant cacao must be stored and transported separately from cacao of unknown or non-compliant origin.

Colombia is the world's third-largest cacao exporter and a strategically important origin for EU buyers. In 2024, Colombia achieved its highest-ever cacao production of 67,678 tonnes, with exports growing over 100%. Unlike West African origins, Colombian cacao is not a major driver of deforestation. The country signed the Cocoa, Forests and Peace agreement and is the only Latin American pilot country in the FAO/GIZ-led EUDR digital tools initiative. This positions Colombia favorably for the EUDR country benchmarking system, though challenges remain in smallholder geolocation and informal land tenure.

Colombian Context

Colombia's cacao sector is dominated by smallholder farmers, with approximately 93% of the estimated 180,000 cacao-farming families cultivating an average of 3 hectares each. Santander is the leading production department, contributing 28,044 tonnes (41% of national production) in 2024, followed by Antioquia with 7,154 tonnes (11%) and Arauca with 6,993 tonnes (10%). Other significant producing departments include Huila, Tolima, and Nariño. Fedecacao (National Federation of Cacao Growers) coordinates extension services, traceability efforts, and international market access through the National Cacao Fund.

Key challenges include an estimated 6,000 tonnes of smuggled cacao annually, limited digital infrastructure in remote producing regions like Tumaco (Pacific coast), and the need to upgrade from single-point GPS coordinates to polygon mapping for thousands of smallholder plots. The Colombian government, through the Ministry of Agriculture and Fedecacao, is investing in genetic improvement, plantation renovation, and digital traceability systems to meet EUDR requirements.

Cleantech Taxonomy Nodes

Relevant existing nodes: CT-AF-001 (Land and Soil — deforestation-free proof for cacao plots), CT-AF-002 (Forests — shade-grown cacao and deforestation monitoring), CT-AF-008 (Crops — cacao varietal improvement and yield optimization), CT-EX-014 (Remote sensing — satellite monitoring of cacao regions), CT-EX-016 (Supply chain traceability — farm-to-port tracking), CT-EX-019 (Due diligence platforms — EUDR operator compliance).

Proposed new extension nodes: CT-EX-022 (Cacao plot-level geolocation and polygon mapping), CT-EX-023 (Cacao agroforestry carbon and biodiversity monitoring), CT-EX-024 (Cacao origin certification and mass balance systems), CT-EX-025 (Cacao smallholder digital inclusion platforms), CT-EX-026 (Cacao climate adaptation and varietal resilience), CT-EX-027 (Cacao landscape-level deforestation risk scoring).

Cacao Geolocation & Traceability

EUDR Context

Field	Value
eudr_commodity	cacao
country_focus	Colombia
eudr_article9_field	geolocation
eudr_evidence_type	primary_field_data
deforestation_risk	medium
last_updated	2026-05-26

Overview

The EUDR mandates that operators provide geolocation data for every plot of land where a regulated commodity was produced. For cacao, this means that each farm or parcel must be identified with latitude and longitude coordinates to at least six decimal digits of precision. Plots exceeding 4 hectares require polygon mapping that accurately traces the perimeter using multiple GPS points, submitted in GeoJSON format with WGS-84 (EPSG-4326) projection through the EU Information System.

Traceability in cacao supply chains requires linking each physical batch of cacao beans to its specific plot of origin, maintaining this identity from farm gate through aggregation points, fermentation and drying facilities, domestic transport, port loading, and EU customs entry. Operators must ensure that compliant cacao is never mixed with cacao of unknown or non-compliant origin. All geolocation data, risk assessments, and chain-of-custody records must be retained for a minimum of five years.

For cacao specifically, traceability is more fragmented than for commodities like palm oil or soy because most cacao is cultivated on small, often unregistered plots by families with informal land tenure. National cadastral and mapping systems in producer countries frequently lack coverage of remote cacao-growing areas, making farm-level geolocation both costly and technically challenging.

Colombian Context

Colombia's cacao traceability landscape is shaped by the dominance of smallholder production (93% of farmers on plots averaging 3 hectares) and the geographic dispersion of cacao across mountainous terrain in Santander, humid lowlands in Arauca, and conflict-affected Pacific coast zones in Tumaco and Nariño. Fedecacao has been

advancing a national cacao traceability system, but coverage gaps remain, particularly in remote departments where basic digital infrastructure is limited.

Colombia is the only Latin American country participating in the FAO/GIZ-led EUDR pilot initiative, which deploys open digital tools — specifically the WHISP (World Heritage Information System for Plants) and GROUND platforms — to support geolocation and traceability. During pilot workshops, local organizations in Tumaco reported significant challenges in digitizing farm records and geolocating plots in areas with poor connectivity and limited GPS device access. Fedecacao presented its traceability progress alongside these remaining infrastructure gaps.

Since most Colombian cacao plots are under 4 hectares, single-point GPS coordinates (rather than full polygon mapping) may suffice for EUDR compliance, which reduces the technical burden on smallholders. However, aggregation at cooperative collection points still requires robust batch-level traceability systems to maintain the farm-to-port chain of custody. GIZ has highlighted Colombia's potential to become a regional reference in the use of interoperable digital traceability tools.

Cleantech Taxonomy Nodes

Directly relevant existing nodes: CT-EX-014 (Remote sensing and satellite deforestation monitoring — provides the satellite imagery layer for deforestation verification of geolocated plots), CT-EX-016 (Supply chain traceability platforms — blockchain and IoT infrastructure for cacao chain of custody), CT-EX-017 (Precision agriculture data platforms — field-level data collection for smallholder cacao farms).

Proposed new node: CT-EX-022 (Cacao plot-level geolocation and polygon mapping) — covers the specific tools and processes for collecting, validating, and submitting geolocation data for cacao plots under EUDR, including mobile GPS tools, polygon digitization for plots over 4 hectares, and integration with the EU Information System. Also relevant: CT-EX-025 (Cacao smallholder digital inclusion platforms) for addressing connectivity and device access gaps in remote cacao regions.

Cacao Deforestation Risk Assessment

EUDR Context

Field	Value
eudr_commodity	cacao
country_focus	Colombia
eudr_article9_field	deforestation_risk_assessment
eudr_evidence_type	satellite_verification
deforestation_risk	medium
last_updated	2026-05-26

Overview

Under the EUDR, operators must assess whether the cacao they source is deforestation-free, meaning no forest loss or degradation occurred on the plot of production after 31 December 2020. The risk assessment must consider factors including: the prevalence of deforestation and forest degradation in the sourcing country and region, the reliability of land-use and forest-cover data, governance indicators including corruption and rule-of-law indices, the complexity of the supply chain, and the presence of indigenous peoples or local communities whose rights may be affected.

For cacao specifically, deforestation risk profiles vary dramatically by origin. West African cocoa (Cote d'Ivoire, Ghana) is historically associated with high deforestation rates driven by shade-tree removal for full-sun monoculture. Latin American origins, including Colombia, present a more nuanced risk profile: cacao itself is not a primary deforestation driver, but cacao expansion can occur in landscapes already fragmented by cattle ranching, coca cultivation, and illicit land clearing.

The EU country benchmarking system will classify producing countries and sub-national regions as high, standard, or low risk. This classification directly affects the level of due diligence scrutiny required: operators sourcing from high-risk regions face enhanced checks, while those sourcing from low-risk regions may benefit from simplified procedures. Colombia's benchmarking outcome will significantly impact the compliance burden on its cacao exporters.

Colombian Context

Colombia's deforestation dynamics are complex. A CIAT baseline study found that cacao cultivation is not a significant direct driver of deforestation in Colombia. However, cacao-growing regions overlap with active deforestation fronts driven by other forces. The Catatumbo region (Norte de Santander), bordering Venezuela, experiences forest loss from coca cultivation and armed-group land clearing. The Pacific coast (Tumaco, Nariño) faces deforestation from illegal mining, coca, and logging. The Amazon arc (Caqueta, Guaviare, Putumayo) has seen post-peace-agreement deforestation driven by cattle ranching expansion, land speculation, and in-migration.

Santander, the largest cacao-producing department, has relatively lower deforestation risk because most cacao there is grown in established agroforestry systems on land that was converted long before the 2020 cutoff date. Arauca and parts of Antioquia present moderate risk due to proximity to the agricultural frontier. The most sensitive areas for EUDR risk assessment are emerging cacao zones in Caqueta and Putumayo, where cacao is promoted as a peace-crop substitute for coca but is expanding into recently deforested landscapes.

Satellite monitoring of Colombian cacao areas is supported by national systems including IDEAM's Forest and Carbon Monitoring System and international platforms like Global Forest Watch. Fairtrade has partnered with Satelligence to scale up satellite monitoring of forested areas around Fairtrade cocoa farms across Latin America, with full georeferencing data targeted for completion by end of 2025.

Cleantech Taxonomy Nodes

Key existing nodes: CT-AF-002 (Forests and Woodlands — deforestation monitoring and forest preservation technology), CT-EX-014 (Remote sensing and satellite deforestation monitoring — the primary technical infrastructure for EUDR deforestation risk assessment), CT-AF-001 (Land and Soil — land-use change detection on cacao plots).

Proposed new node: CT-EX-027 (Cacao landscape-level deforestation risk scoring) — covers tools and methodologies for assessing deforestation risk at the landscape scale around cacao production areas, integrating satellite data, land-tenure information, governance indicators, and proximity to deforestation fronts. This is distinct from plot-level geolocation (CT-EX-022) because it addresses the contextual risk of the broader landscape rather than the specific farm boundary.

Cacao Certification & Compliance

EUDR Context

Field	Value
eudr_commodity	cacao
country_focus	Colombia
eudr_article9_field	compliance_statement
eudr_evidence_type	certification
deforestation_risk	medium
last_updated	2026-05-26

Overview

Voluntary sustainability certifications play a critical role in EUDR compliance for cacao, though they do not automatically satisfy regulatory requirements. The EUDR explicitly states that certifications alone are not sufficient evidence of deforestation-free production — operators must still conduct their own due diligence. However, certification schemes provide structured data, audit trails, and traceability infrastructure that significantly reduce the compliance burden.

The Rainforest Alliance (which merged with UTZ in 2018, absorbing the world's largest cocoa certification programme) has upgraded its certification system to include EUDR-aligned requirements. Approximately 50% of Rainforest Alliance certificate holders in the coffee and cocoa sectors have opted into these additional EUDR requirements. The Rainforest Alliance system offers complete traceability options and allows buyers to identify certificate holders who comply with EUDR-aligned standards, including farm-level geolocation and deforestation monitoring.

Fairtrade International, the second-largest certification scheme in cocoa, focuses on empowering farmers through better prices and decent working conditions. Fairtrade has partnered with Satelligence to scale satellite monitoring of forested areas around certified cocoa farms, with a target to complete georeferencing of all Fairtrade cocoa farms in Latin America by end of 2025. Other relevant schemes include organic certification (which prohibits deforestation by definition but may lack geolocation precision) and origin-specific certifications like Cacao de Colombia (Denominacion de Origen).

Colombian Context

Colombian cacao benefits from a favorable certification landscape. The country's fine-flavor cacao (approximately 95% of production is classified as fine or flavor cacao by ICCO) commands premium prices in specialty markets, providing economic incentive for certification. Major Colombian cacao exporters — including Luker Chocolate (Casa Luker), Compania Nacional de Chocolates (Grupo Nutresa), and cooperative federations — maintain Rainforest Alliance and Fairtrade certifications across their supply chains.

For EUDR compliance mapping, certification evidence serves as a supporting layer rather than a standalone proof. Operators must cross-reference certification data with: (1) geolocation coordinates from the certified farm, (2) satellite imagery confirming no forest loss after December 2020, and (3) legal production documentation including land title or recognized tenure. The Rainforest Alliance's origin matching and mass balance systems for cocoa are designed to support this cross-referencing at scale.

A key gap for Colombian smallholders is that many produce certified cacao through cooperatives but lack individual farm-level certification records. The cooperative-level aggregation model, while efficient for marketing, can obscure plot-level traceability. Technical assistance programs (see CT-EX-020) are addressing this by helping cooperatives disaggregate their traceability records to the individual farm level required by the EUDR.

Cleantech Taxonomy Nodes

Primary existing node: CT-EX-018 (Deforestation-free certification services — Rainforest Alliance, UTZ/merged, Fairtrade, and other certification services directly applicable to cacao). Also relevant: CT-EX-019 (Supply chain due diligence platforms — the operator-side platforms that ingest certification data as evidence), CT-EX-021 (EUDR operator documentation services — documentation services that compile certification evidence into due diligence statements).

Proposed new node: CT-EX-024 (Cacao origin certification and mass balance systems) — covers the specific mechanisms for maintaining certified cacao identity through mass balance, identity preserved, and segregated supply chain models, including the Rainforest Alliance cocoa origin matching system and cooperative-level disaggregation tools. This is distinct from general certification (CT-EX-018) because it addresses the cacao-specific challenge of maintaining certification identity through complex multi-stage processing chains (fermentation, drying, roasting, grinding).

Cacao Agroforestry & Climate Adaptation

EUDR Context

Field	Value
eudr_commodity	cacao
country_focus	Colombia
eudr_article9_field	deforestation_risk_assessment
eudr_evidence_type	satellite_verification
deforestation_risk	low
last_updated	2026-05-26

Overview

Cacao is inherently an understory crop that evolved under tropical forest canopy, making shade-grown agroforestry the production system most aligned with both EUDR objectives and climate resilience. Cacao agroforestry systems integrate cacao trees with upper-canopy timber species, fruit trees, and nitrogen-fixing shade species, creating multi-strata systems that maintain forest-like structure. These systems are characterized by high structural and floristic diversity, with common companion species including timber trees (Cordia alliodora, Cedrela odorata), fruit trees (avocado, citrus), nitrogen fixers (Inga spp., Erythrina spp.), and native canopy species.

From an EUDR perspective, shade-grown cacao agroforestry represents a low-deforestation-risk production model because it preserves tree cover, maintains carbon stocks, and does not require forest clearing. Satellite-based deforestation monitoring systems can distinguish between shaded agroforestry (which retains canopy cover) and full-sun monoculture (which removes it), providing an additional verification layer for EUDR compliance. Research in the Colombian Amazon has demonstrated that cacao agroforestry landscapes store significantly more carbon per hectare than pastureland, contributing to both EUDR compliance and climate mitigation.

Climate adaptation is critical for cacao's long-term viability. A 2026 study warned that Colombia may lose one-fifth of its suitable cacao areas by 2050 due to rising temperatures, with northern Colombia, parts of the Orinoquia plains, and scattered Pacific coast zones facing the steepest declines. Shade-grown agroforestry systems provide natural climate buffering through canopy microclimate regulation, reduced soil moisture evaporation, and wind protection — making them more resilient to temperature extremes than full-sun systems.

Colombian Context

Colombia's cacao agroforestry tradition is strong, particularly in Santander where most cacao is grown under shade canopy alongside timber and fruit trees. The Cocoa, Forests and Peace agreement (signed in 2018) promotes cocoa agroforestry models that limit the agricultural frontier and protect forest margins. In the Colombian Amazon (Caqueta, Putumayo), the World Cocoa Foundation has supported sustainable cacao as an alternative livelihood to coca cultivation, using agroforestry models that integrate native tree species.

Research at CIAT (now part of the Alliance of Bioversity International and CIAT) has mapped cacao production system types across Colombia, finding that multifunctional agroforestry systems deliver acceptable cacao yields while contributing to food security, economic diversification, and climate resilience. Key cacao varieties cultivated in Colombia include regional clones selected for fine-flavor profiles and disease resistance (particularly to frosty pod rot, Moniliophthora roreri), as well as improved clones from Corpoica (now AGROSAVIA) breeding programs.

The intersection of cacao agroforestry with silvopastoral systems is particularly relevant in Colombia's agricultural frontier zones, where cattle ranching is the primary deforestation driver. Integrating cacao agroforestry corridors into silvopastoral landscapes creates tree-cover connectivity that supports both EUDR compliance and biodiversity conservation. This landscape-level approach links cacao production directly to the existing taxonomy node CT-EX-007 (Silvopastoral systems).

Cleantech Taxonomy Nodes

Key existing nodes: CT-AF-002 (Forests and Woodlands — the forest preservation dimension of shade-grown cacao), CT-EX-005 (Community-led reforestation and agroforestry — smallholder cacao agroforestry as a reforestation pathway), CT-EX-007 (Silvopastoral systems — landscape integration of cacao agroforestry with cattle areas), CT-EX-001 (Drought-resistant crop varieties — climate-adapted cacao genetics), CT-EX-003 (Heat adaptation for agriculture — shade canopy as heat mitigation).

Proposed new nodes: CT-EX-023 (Cacao agroforestry carbon and biodiversity monitoring) — covers tools for measuring and verifying the carbon storage and biodiversity outcomes of cacao agroforestry systems, supporting both carbon credit generation and EUDR evidence of forest-positive production. CT-EX-026 (Cacao climate adaptation and varietal resilience) — covers genetic improvement programs, climate-smart varietal selection, and adaptation strategies to maintain cacao productivity under changing climate conditions.

Cacao Smallholder Technical Assistance

EUDR Context

Field	Value
eudr_commodity	cacao
country_focus	Colombia
eudr_article9_field	compliance_statement
eudr_evidence_type	primary_field_data
deforestation_risk	medium
last_updated	2026-05-26

Overview

The EUDR recognizes the disproportionate compliance burden on smallholder producers through its amended provisions (Regulation 2025/2650), which allow small and micro primary operators in low-risk countries to submit simplified one-time declarations instead of full due diligence. However, even simplified compliance requires geolocation data, legal production evidence, and basic traceability — capabilities that many cacao smallholders lack without external technical assistance.

Technical assistance for EUDR compliance encompasses several dimensions: farm registration and geolocation (GPS data collection, plot boundary mapping), production documentation (harvest records, sales receipts, cooperative membership), legal compliance verification (land tenure documentation, environmental permits), and digital literacy (using mobile applications for data submission and record-keeping). For cacao smallholders, the most critical gap is typically the combination of informal land tenure and absence of georeferenced farm records.

The cost of EUDR compliance for smallholders is a major concern. Research indicates that compliance costs — including GPS device acquisition, data collection time, cooperative system upgrades, and third-party verification — can be significant relative to smallholder income. Without technical assistance and shared infrastructure (through cooperatives and sector organizations), many smallholders risk being excluded from EU supply chains entirely, redirecting their production to less regulated markets at lower prices.

Colombian Context

Colombia has approximately 180,000 cacao-farming families, with 93% classified as smallholders cultivating an average of 3 hectares. Fedecacao, through the National Cacao Fund (Fondo Nacional del Cacao), coordinates

the primary technical assistance infrastructure for these farmers, including extension services, agronomic training, genetic improvement programs, and increasingly, EUDR compliance support. The Ministry of Agriculture and strategic allies provide additional funding and coordination.

The FAO/GIZ EUDR pilot initiative in Colombia is specifically designed to build institutional capacity for smallholder compliance, deploying open digital tools (WHISP and GROUND platforms) for geolocation and deforestation verification. This initiative positions Colombia as a potential regional model for how producer countries can build public infrastructure that reduces per-farmer compliance costs. Key challenges identified during pilot workshops include: limited internet connectivity in remote cacao zones (particularly Tumaco and parts of Caqueta), low digital literacy among older farmers, informal land tenure (many farmers lack formal title), and the cost of upgrading cooperative-level data systems to support individual farm traceability.

Engagement with supply chain buyers (exporters and EU importers) is also critical. Operators can support compliance by investing in cooperative-level data systems, financing GPS device distribution, training local technicians, and funding independent verification. Luker Chocolate and Compania Nacional de Chocolates have invested in upstream traceability programs that combine certification requirements with EUDR compliance data collection, reducing duplication of effort for farmers. Community-based organizations and NGOs (including the World Cocoa Foundation's programs in Caqueta and Putumayo) complement government and industry efforts by providing localized, culturally appropriate technical assistance.

Cleantech Taxonomy Nodes

Primary existing node: CT-EX-020 (Smallholder technical assistance for EUDR — the core node for EUDR technical assistance programs, currently focused on coffee but directly applicable to cacao). Also relevant: CT-AF-006 (Smart Farming — digital tools and data platforms that smallholders need to access), CT-EX-017 (Precision agriculture data platforms — the data infrastructure underpinning farm-level compliance).

Proposed new node: CT-EX-025 (Cacao smallholder digital inclusion platforms) — covers the specific platforms, tools, and programs designed to bring cacao smallholders into digital traceability systems, including mobile-first farm registration apps, offline-capable GPS tools for areas without connectivity, cooperative data management systems, and integration with national cadastral systems. This extends CT-EX-020 (general smallholder TA) with the cacao-specific digital infrastructure dimension that is the primary bottleneck for Colombian smallholder EUDR compliance.