



AGRINFO

DEFORESTATION PRODUCTS

OVERVIEW OF COUNTRIES
AFFECTED BY REGULATORY
CHANGE

AFRICA

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1. INTRODUCTION

The European Union's Regulation (EU) [2023/1115](#) on deforestation-free products is expected to have a significant impact on suppliers as they seek to address new requirements aimed at ending the EU's contribution to deforestation through consumption of agricultural products. This transition creates challenges worldwide, and particularly in Africa where the production of affected products for the EU market represents a significant proportion of revenue from agricultural trade, and is central to the livelihoods of millions of people.

The extent to which sectors in different countries will have to adjust to the EU Deforestation Regulation (EUDR) will depend on the organisation of the sector (the complexity and fragmentation of the supply chain); technical and institutional capacity; the existing traceability and certification schemes; and the level of public–private dialogue and cooperation. Understanding the particular challenges and needs of an individual country or sector requires a detailed case-by-case assessment.

However, it is helpful to build an overall picture of which countries and which sectors may be particularly affected by the EUDR. This short report highlights those countries and value chains viewed to be most sensitive to EU policy change in general – it does not take into account the specific requirements of the EUDR – drawing on a methodology developed for the implementation of the [AGRINFO](#) programme. This methodology (set out in Annex I) aims to place agricultural exports to the EU market in a broader economic and developmental context.

The scope of AGRINFO is agri-food products, and the importance of the agri-food sector is central to the methodology developed. The non-agri-food deforestation products (most notably timber and rubber) that are included within the scope of the EUDR cannot be incorporated into this methodology in a way that allows a direct comparison. Nevertheless, data on these markets is included in this report and some points of comparison are provided in a way that we hope contributes to the overall picture.



Summary

- Under the methodology developed in this report, the 10 countries and sectors identified as being likely to be the most affected by changes to EU rules (including the EUDR) are: **Côte d'Ivoire** (cocoa), **São Tomé and Príncipe** (cocoa), **Burundi** (coffee), **Cameroon** (cocoa), **Sierra Leone** (cocoa), **Ethiopia** (coffee), **Uganda** (coffee), **São Tomé and Príncipe** (palm oil), **Ghana** (cocoa) and **Liberia** (cocoa).
- On average, 37% of Africa's agrifood deforestation products exports (in volume) are destined for the EU market. The most dependent sector on the EU market is cocoa (53% of global exports) followed by coffee (46%).
- In many countries, over 50% of global exports in certain deforestation products are currently exported to the EU. In cocoa, this is the case for Cameroon, Liberia, Nigeria, São Tomé and Príncipe, Sierra Leone and Togo. Over 50% of Burundi and Uganda coffee exports and São Tomé and Príncipe's palm oil exports are destined for the EU.
- Of the seven EUDR deforestation products exported from Africa to the EU, cocoa is the largest in export value (58% of the total of deforestation product exports), followed by timber (16%), coffee (12%) and rubber (9%).
- Among deforestation products, the EU is most dependent upon African countries as a source of cocoa (77% of imports sourced from Africa), followed by coffee (14%) and rubber (10%).
- The overall economic importance of exports of deforestation products can be highly significant. Côte d'Ivoire's exports revenue from these products is equivalent to 5.7% of the country's GDP. For Liberia and São Tomé and Príncipe exports represent 2.9% of GDP and 2% for Cameroon.



2. THE DEFORESTATION PRODUCTS MOST AFFECTED BY EU REGULATORY CHANGE

The EUDR covers seven product sectors that have both food and non-food applications. In this report, the products from all seven sectors are referred to for simplicity as “deforestation products”. A distinction is then made between those destined for the food chain – “agri-food deforestation products” – and “non-agri-food deforestation products”.

2.1. Africa’s exports of deforestation products

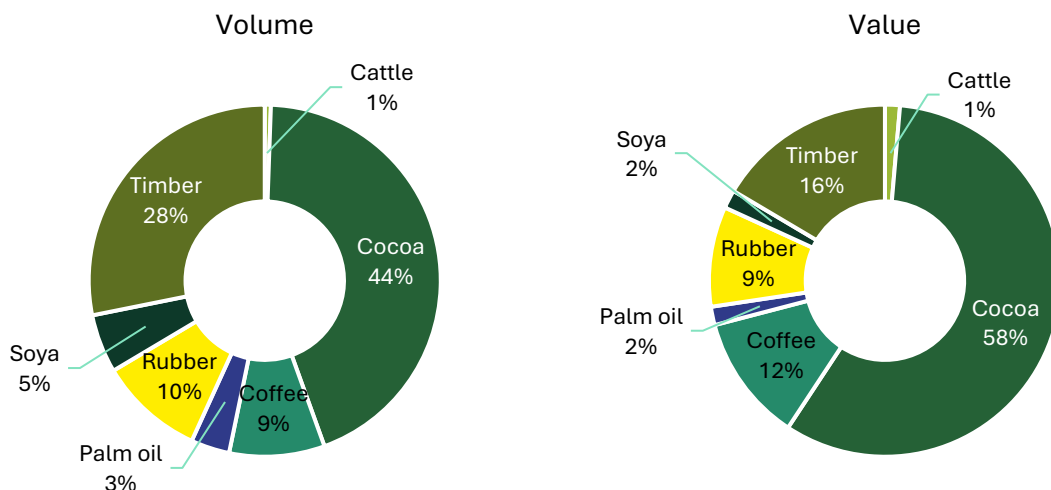
Africa exports both agri-food and non-agri-food deforestation products, with certain sectors falling into both categories. Of these, palm oil is almost exclusively food oriented, whereas cattle-related products are largely non-agri-food (see Table1).

Table 1 : Africa’s exports of deforestation products to the EU: share destined for agri-food and non-agri-food uses. Source: COLEAD based on Eurostat.

Sector	% Agri-food	% Non-agri-food
Cattle	11.5	88.5
Cocoa	100	0
Coffee	100	0
Palm oil	99.9	0.1
Rubber	0	100
Soya	100	0
Timber	0	100

Cocoa is considerably the largest of the deforestation products exported from Africa, representing 44% in volume and 58% in value of all deforestation product exports. Cocoa is followed by timber and rubber (see Figure 1), although timber’s significance is considerably less in value terms (16% of all African deforestation product exports) than in volume (28%).

Figure 1 : Share of each deforestation category on the deforestation products exported from Africa to the EU27, 2020–2022 average, in volume and value. Source: COLEAD based on Eurostat.





With the exception of timber, African deforestation product exports in each sector are typically dominated by a single country (see Table 2 **Error! Reference source not found.**). Most notable in this respect is Côte d'Ivoire, which exports 65 and 57% of Africa's trade with the EU in rubber and cocoa, respectively. The timber sector is far more diversified, with Cameroon, the largest exporter, taking a 20% share of all African timber exports.

Table 2 : Largest exporters of each deforestation product to the EU27 in volume (tonnes, 2020–2022 average) and their respective share of the African export market. Source: COLEAD based on Eurostat.

Cattle			Cocoa			Coffee		
Country	Exports to EU27	Share of African exports to EU	Country	Exports to EU27	Share of African exports to EU	Country	Exports to EU27	Share of African exports to EU
South Africa	10,499	40.8	Côte d'Ivoire	1,135,669	56.5	Uganda	197,606	49.3
Kenya	4,873	19.0	Ghana	386,664	19.2	Ethiopia	84,608	21.1
Namibia	2,961	11.5	Cameroon	217,629	10.8	Tanzania	35,439	8.8
Egypt	2,043	7.9	Nigeria	176,650	8.8	Kenya	20,175	5.0
Morocco	1,785	6.9	Sierra Leone	17,184	0.9	Côte d'Ivoire	17,424	4.3
Total exports from Africa	25,713		Total exports from Africa	2,010,767		Total exports from Africa	401,163	

Palm oil			Rubber			Soy		
Country	Exports to EU27	Share of African exports to EU	Country	Exports to EU27	Share of African exports to EU	Country	Exports to EU27	Share of African exports to EU
Côte d'Ivoire	71,529	43.9	Côte d'Ivoire	286,820	64.9	Nigeria	125,899	51.1
Gabon	35,536	21.8	Nigeria	26,864	6.1	Togo	78,846	32.0
Liberia	22,261	13.7	Liberia	26,708	6.0	Egypt	11,499	4.7
Ghana	15,564	9.6	Ghana	23,897	5.4	Benin	8,844	3.6
Sierra Leone	5,020	3.1	Cameroon	21,242	4.8	Ethiopia	7,524	3.1
Total exports from Africa	162,922		Total exports from Africa	441,626		Total exports from Africa	246,305	

Timber		
Country	Exports to EU27	Share of African exports to EU
Cameroon	263,851	20.5
Gabon	235,444	18.3
South Africa	189,086	14.7
Congo	101,254	7.9
Namibia	95,357	7.4
Total exports from Africa	1,288,918	



2.2. Which deforestation products/countries may be most affected by EUDR?

The Regulatory Impact Assessment (RIA) methodology developed by the AGRINFO programme (see Annex I) identifies those countries and sectors that may potentially be most affected by changes to EU regulations, in this instance the EUDR. It moves the focus away from the quantity of trade, highlighted in Section 2.1, towards the significance of that trade in the local context, considering each country's reliance on the EU market and overall development needs. As noted in Annex I, the methodology does not take account of the specific structure (e.g. fragmentation of the chain, number of smallholder farmers) of the sectors concerned, or the regulatory context of specific countries, both of which are likely to be highly significant in terms of managing the traceability and legal requirements of the EUDR. Nevertheless, the map in Figure 2 provides a snapshot of those sectors and origins that may be most sensitive to the transition required by the EUDR. Further detail is provided in Table 3.

Four of the five agri-food deforestation products (all but cattle) feature in the list, indicating that while attention may focus on the largest agri-food deforestation exports – cocoa and coffee – smaller sectors may be highly economically and socially significant for the countries concerned. Further details of the countries expected to be most affected in each sector are included in Annex IV.

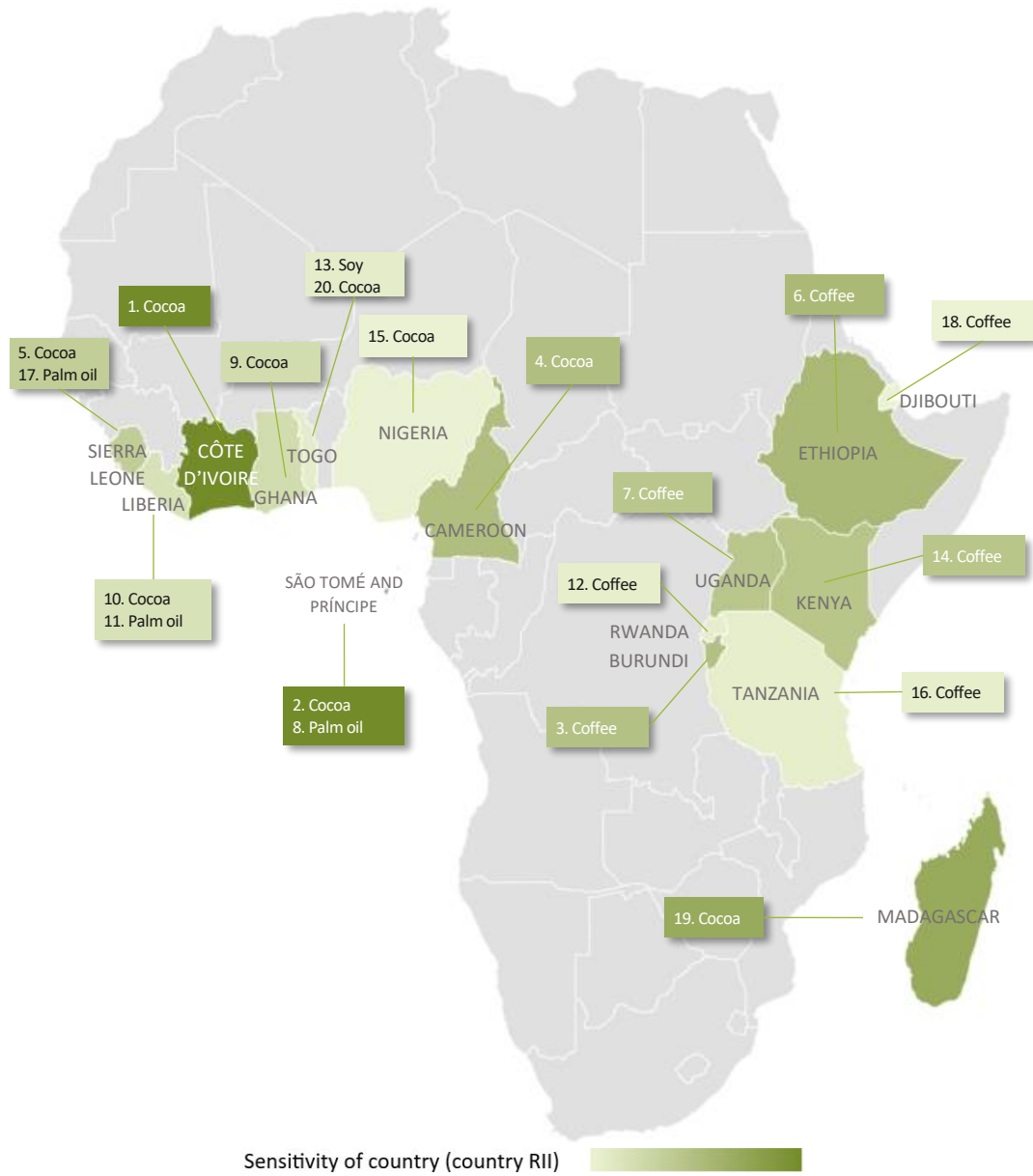
Table 3: 20 agri-food deforestation products across Africa potentially most affected by the EUDR. Source: COLEAD based on CEPII BACI, IFPRI, Eurostat, and UK Trade Info.

Country	Sector	Product Regulatory Impact Indicator (RII)	Volume exported to EU27 in 2022 (tonnes)	Value exported to EU27 in 2022 (thousand Euros)	Share of global exports destined for the EU market (%) ¹
Côte d'Ivoire	Cocoa	692	1,166,079	2,972,365	50.6
São Tomé and Príncipe	Cocoa	506	3,509	11,371	95.6
Burundi	Coffee	406	4,756	22,649	50.3
Cameroon	Cocoa	322	235,294	518,395	69.5
Sierra Leone	Cocoa	276	15,505	40,656	99.4
Ethiopia	Coffee	263	92,744	461,091	25.6
Uganda	Coffee	260	214,653	545,018	56.0
São Tomé and Príncipe	Palm oil	253	4,050	6,070	75.9
Ghana	Cocoa	173	392,390	1,068,802	45.8
Liberia	Cocoa	92	13,085	28,676	64.5
Liberia	Palm oil	83	37,457	46,927	31.8
Rwanda	Coffee	59	7,789	40,668	34.1
Togo	Soy	57	120,578	102,357	28.9
Kenya	Coffee	39	21,360	137,040	37.2
Nigeria	Cocoa	36	162,236	378,819	56.0
Tanzania	Coffee	31	35,497	106,150	37.0
Sierra Leone	Palm oil	30	9,355	8,580	23.8
Djibouti	Coffee	24	672	3,708	18.7
Madagascar	Cocoa	23	6,920	20,652	49.4
Togo	Cocoa	16	4,618	10,501	62.8

¹ This share of EU trade based on prices may be overestimated as EU trade statistics include international transport and insurance costs within prices, while this is not reflected in prices to other world destinations. The potential overstatement of trade through these factors has been estimated at 9%. See UNCTAD (2022) [Developing a global transport costs dataset for international trade](#). UNCTAD Research Paper No. 85.



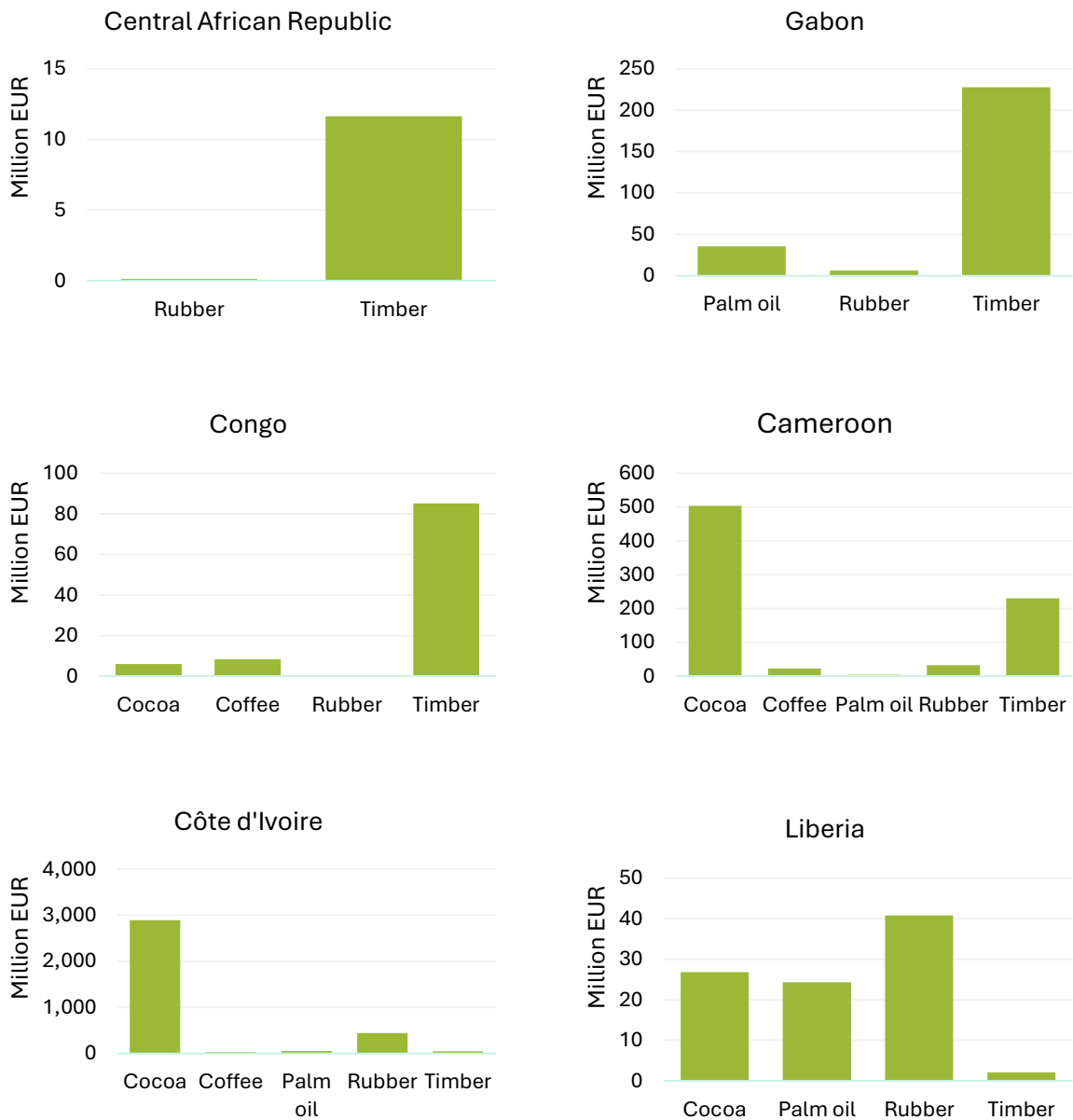
Figure 2 : 20 agri-food deforestation products across Africa potentially most affected by the EUDR. Colour reflects country Regulatory Impact Indicator (RII), i.e. overall sensitivity to EU regulatory change (see Annex II). Source: COLEAD based on CEPII BACI, IFPRI, Eurostat and UK Trade Info.





The AGRINFO RIA methodology is designed for the analysis of agri-food sectors (the scope of the AGRINFO programme), and therefore cannot be applied directly to non-food **deforestation products**. Nevertheless, to provide some perspective on the significance of timber and rubber, a comparison with agri-food products is instructive. Particular attention should be paid to six countries whose exports of timber and rubber represent a significant portion of their overall goods trade. For timber, these are the Central African Republic (constituting 34% of all goods exports to the EU), Gabon (20%), Congo (10%), and Cameroon (9%); for rubber, they are Côte d'Ivoire (11%) and Liberia (6%). The relative value of these exports when compared to agri-food exports is provided in Figure 3. In the case of the Central African Republic, only non-agri-food deforestation products are exported.

Figure 3 : Countries with the largest exports to the EU27 of rubber and timber; comparison of the value of agri-food and non-agri-food exports. Source: COLEAD based on Eurostat.



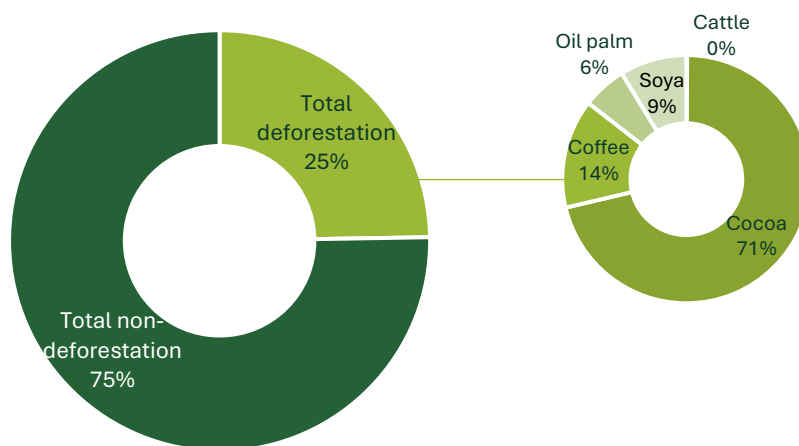


2.3. The significance of the EU market for African deforestation products

The EUDR's ambition of demonstrating that products have not contributed to deforestation will require the introduction of traceability and product segregation, a significant adjustment in many contexts worldwide. Ensuring that these requirements are met, and that trade to the EU can continue, could be particularly challenging in Africa due to both the EU's heavy reliance on the African continent as a source of certain raw materials, and the EU market's significance for African exporters compared to other trade destinations.

Combined, agri-food deforestation products constitute 25% of all agri-food exports from Africa to the EU market (see Figure 4).

Figure 4: Deforestation products as a share of Africa's agri-food trade with the EU27 (2020–2022 average volume). Source: COLEAD based on Eurostat.



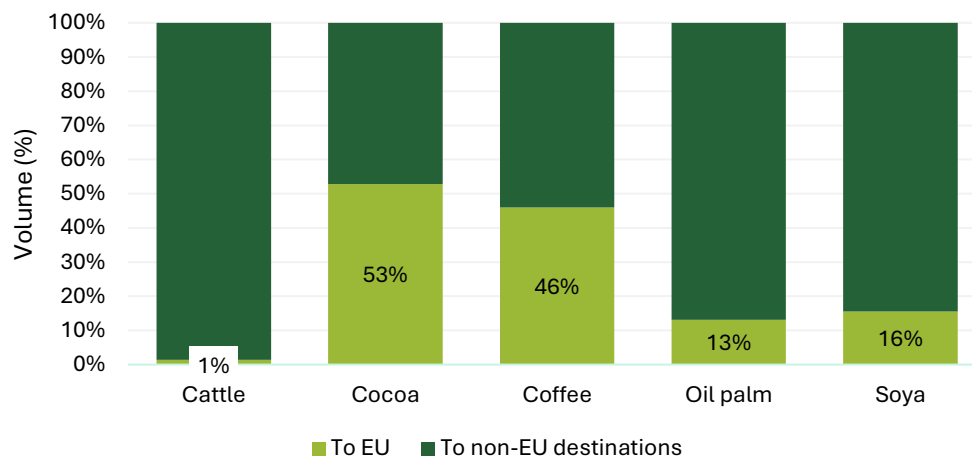
For cocoa, the EU and Africa are in a relationship of mutual dependence. The EU depends on Africa for 79% of its cocoa product supply (see Table 4), and 53% of African exports are destined for the EU. In other sectors, the EU is considerably less dependent on Africa: coffee, the second largest sector, meets just 13% of the EU's coffee demands. However, Africa is almost as reliant on the EU coffee market as for cocoa, with 46% of African's current global coffee exports being traded with the EU. A similar asymmetrical relationship faces the palm oil and soy sectors. EU imports from Africa represent less than 2% of total EU imports, but these constitute a significant share of Africa's global trade in both palm oil (13%) and soybeans (16%). The EU's limited reliance on Africa in these sectors feeds fears that expansion of trade with other existing non-African origins may be more viable than the investment required to meet EUDR requirements and maintain existing EU–Africa trade in these products.



Table 4 : Share of EU imports of deforestation products originating in Africa (2020–2022 average volume).
Source: COLEAD based on Eurostat.

Deforestation product	From Africa (%)	From non-African origins (%)
Cattle	3.4	96.6
Cocoa	78.6	21.4
Coffee	13.6	86.4
Palm oil	1.9	98.1
Rubber	9.5	90.5
Soya	0.8	99.2
Timber	2.3	97.7

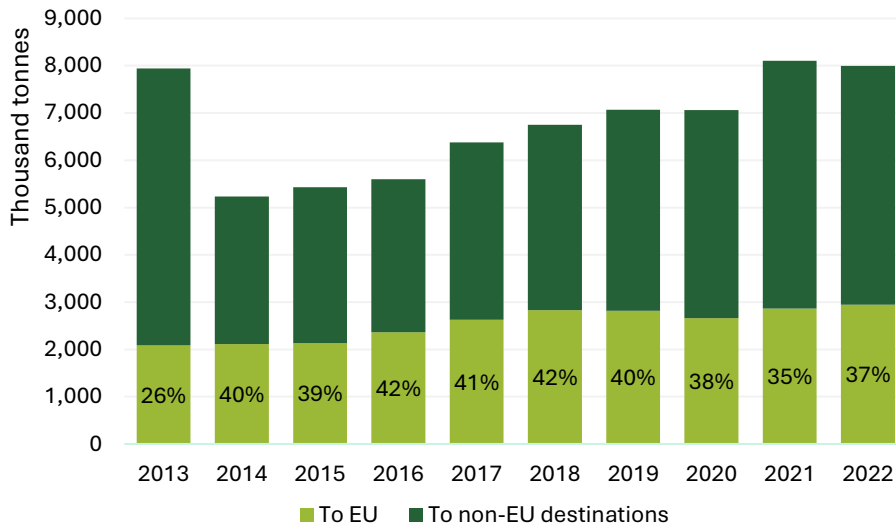
Figure 5: Share of African exports of agri-food deforestation products to EU and non-EU markets (2020–2022 average volume). Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and UN.



Trade in deforestation products between Africa and the EU fluctuates over time due to variations in both supply (reflecting seasonal variations in environmental conditions) and demand (new emerging non-EU markets, volatile market prices). The share of trade destined for the EU has slightly reduced in recent years as demand in emerging export markets (such as India and China) has expanded, but this has not significantly disrupted longer-term patterns of trade with the EU (see Figure 6).



Figure 6: Dependence of African exports of agri-food deforestation products on the EU as destination market compared to other destinations, 2020–2022 average in volume. Source: COLEAD based on Eurostat.



Trade diversification to other non-EU markets remains a strategy for those countries that cannot meet the new EUDR requirements in the short or longer term. The expected orientation of EU trade in deforestation products towards those origins where the new requirements can most easily be met is likely to stimulate demand in other markets. However, for certain sectors and countries, dependence on the EU market is considerably more significant than may be apparent from the overall picture provided by Figures 5 and 6. Among the 20 most vulnerable sectors identified by the RIA methodology (Table 3), 10 send more than 50% of their exports to the EU, with some almost entirely dependent on the EU market. Most notably, 96% of São Tomé and Príncipe’s cocoa exports and 76% of its palm oil exports are to the EU market. Sierra Leone (99% of exports) and Cameroon (70%) are similarly dependent on EU cocoa demand. This raises questions about the possibilities and consequences of shifting trade flows, particularly in the short term.

Certain countries may face multiple challenges due to exports of several deforestation products, although for some countries trade in single products may be more significant than cumulated exports in others. To provide a sense of the broader economic significance of this trade, Table 5 indicates the significance of exports in deforestation products combined in terms of each country’s gross domestic product (GDP). For nine countries, trade in deforestation products with the EU represents more than 1% of GDP, the largest economic imprint being on Côte d’Ivoire (5.7%). As a point of comparison, France’s total global agricultural products exports (all products and all markets) represent 4.4% of France’s GDP.²

² Source: COLEAD based on World Bank and Eurostat.



Table 5 : Countries with trade value in deforestation products $\geq 0.01\%$ GDP (2020–2022 average). Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and World Bank.

Country	Deforestation products exports Value USD	GDP USD	Exports of deforestation products as share of GDP (%)
Côte d'Ivoire	3,899,687,781	68,270,853,114	5.71
Liberia	104,526,983	3,516,676,550	2.97
São Tomé and Príncipe	14,875,280	515,295,052	2.89
Cameroon	889,826,889	43,484,391,036	2.05
Ghana	1,312,939,354	74,012,767,900	1.77
Gabon	300,616,694	18,868,087,772	1.59
Sierra Leone	52,362,147	4,094,161,597	1.28
Uganda	459,602,291	41,224,957,876	1.11
Togo	82,254,508	7,949,938,786	1.03
Burundi	25,411,655	2,832,964,545	0.90
Congo	111,683,433	12,821,638,042	0.87
Central African Republic	13,015,570	2,408,612,643	0.54
Namibia	59,218,501	11,879,158,863	0.50
Tunisia	220,311,493	45,296,903,446	0.49
Guinea	63,972,747	17,165,801,024	0.37
Morocco	480,904,586	132,798,568,181	0.36
Ethiopia	361,056,246	115,234,363,269	0.31
Rwanda	34,114,908	11,513,667,969	0.30
Madagascar	26,264,493	14,187,054,308	0.19
Tanzania	101,348,233	70,811,218,318	0.14
Nigeria	622,843,168	450,139,546,877	0.14
Congo (Dem. Rep.)	68,254,802	54,044,628,010	0.13
Kenya	121,095,566	107,927,057,697	0.11
Saint Helena	52,316	50,230,133	0.10
Mauritius	8,304,768	11,925,260,563	0.07
South Africa	249,866,524	387,501,641,366	0.06
Equatorial Guinea	7,018,193	11,394,153,279	0.06
Djibouti	1,774,601	3,356,155,897	0.05
Mozambique	7,947,573	15,928,371,255	0.05
Benin	7,985,360	16,914,458,346	0.05
Egypt	165,591,583	428,412,442,456	0.04
Burkina Faso	5,170,123	18,851,947,276	0.03
Zambia	6,106,184	23,347,580,748	0.03
Botswana	2,881,990	18,016,560,002	0.02
Guinea-Bissau	216,159	1,567,944,977	0.01
Malawi	1,671,074	12,607,703,510	0.01
Algeria	20,800,747	167,042,948,498	0.01
Seychelles	142,588	1,352,869,917	0.01
Angola	6,474,622	74,213,474,027	0.01
Comoros	66,202	1,254,549,361	0.01



3. CONCLUDING REMARKS

This report provides a snapshot of trade in deforestation products between Africa and the EU. Using a methodology combining trade and development indicators, it points to those countries and sectors that may be most affected by changes to regulations in general, including new requirements set out by the EUDR.

The significance of certain sectors and countries such as the cocoa trade from Côte d'Ivoire, Ghana and Cameroon are widely recognised and have been targeted for specific EU support and assistance ([EU Sustainable Cocoa Initiative](#)). This report complements this knowledge by identifying other countries whose trade in deforestation products is less significant in terms of quantity of trade, but nevertheless may be highly affected by the EUDR due to dependence on the export revenue from the products concerned and overall development needs. In particular, this report highlights that:

- while cocoa and coffee dominate Africa-EU trade in agrifood deforestation products, exports of palm oil (Liberia, Sierra Leone, São Tomé and Príncipe) and soy (Togo) are also extremely sensitive for the countries concerned;
- countries whose exports may be relatively insignificant from the perspective of overall EU trade in these products, may nevertheless be highly dependent upon such trade. This includes Burundi (coffee), Liberia (cocoa, palm oil), Sierra Leone (cocoa, palm oil), São Tomé and Príncipe (cocoa, palm oil), Togo (soy), Uganda (coffee).



4. ANNEXES

4.1. Annex I: Regulatory Impact Assessment Methodology

How to identify agricultural sectors particularly sensitive to EU regulatory change?

The simplest way to identify regulatory impact is to focus on those countries with the greatest trade with the EU. If an EU regulatory change has an impact on, for example, bananas, it is likely that the overall implications in terms of trade and number of operators affected (producers, processors, exporters) would be greatest in those countries exporting the highest volume of bananas to the EU. However, such an analysis gives only a limited picture as it does not take into account the relative importance of that trade for an individual country. In many cases, exports of a given product may be comparatively small in volume, but can be of crucial social and economic significance for the country concerned.

To identify trading partners that are most vulnerable to regulatory change, an approach is needed that focuses on the significance of agri-food trade from the perspective of the exporting country.

With this goal in mind, the AGRINFO programme has developed a Regulatory Impact Assessment (RIA) methodology based on two premises.

- **Limited trade diversification indicates economic vulnerability:** Where a country is reliant on a small number of export destination markets, its export revenue is vulnerable to sudden changes in demand and price volatility. Diversifying trade helps to reduce a country's exposure to shocks that can have a negative impact throughout the national economy.³ Two elements of trade diversification are captured in the RIA methodology:
 - *product export diversification (PED):* the extent to which a country is dependent on its agri-food trade with the EU (ratio of agri-food exports to the EU/total goods exports to the EU)
 - *geographical export diversification (GED):* the extent to which a country is dependent on its trade *with the EU* compared to other export destinations (goods exports to the EU/global exports in goods).

The trade data used in this analysis are drawn from multiple sources, including CEPII BACI, IFPRI, Eurostat, UK Trade Info, and country-level National Statistics Offices.⁴ The products considered as “agri-food” are those included in the Harmonised System (HS) 1–23.⁵ The products are considered at six-digit level.⁶

³ WTO, [World Trade Report 2021 – Economic Resilience and Trade](#).

⁴ The [COLEAD Market Insights](#) data warehouse has been built over the years across multiple programmes managed by COLEAD. Data are continually cross-checked and updated, and have been compiled and triangulated using these various data sources.

⁵ These HS chapters also include certain non-food products, e.g. plants and flowers. For simplicity, these are included in the definition of agri-food products, for example when considering a product's share of overall agri-food trade. However, these products are not highlighted in the maps or tables as they are not affected by food policy.

⁶ The six-digit classifications evolve over time. In this database, the 2002 HS system is used as a fixed reference point to ensure continuity in the data to allow analysis over time. The conversion table used to convert emerging HS classifications back to the 2002 reference point comes from the United Nations Statistics Division: <https://unstats.un.org/unsd/classifications/Econ>. For example, the conversion from 2022 to 2002 can be found [here](#) [direct download].



The trade data in this report are based on average exports over a period of 3 years (2020–2022) unless specified otherwise.

- **Countries that are socially and economically vulnerable are less well-equipped to adjust to changing EU rules:** Low- and middle-income countries, and particularly least developed countries, may face difficulties in implementing policy and legal changes due to limited economic and human resources. The World Trade Organization reflects this by allowing longer transition periods for treaty implementation for least developed countries as part of special and differential treatment. The United Nations has developed social and economic indices to reflect these characteristics, which are commonly used by the European Commission in setting its development priorities (e.g. the European Development Fund):
 - the *UN Economic and Environmental Vulnerability Index (EVI)*⁷ is a single figure derived from eight indicators⁸ that capture the overall economic profile of the country
 - the *UN Human Assets Index (HAI)*⁹ is a measure of a country's human capital, compiling six indicators¹⁰ that reflect a country's potential for sustainable development.

The RIA methodology used in this report combines these trade and socio-economic indicators to derive an overall measure of the potential impact of changing rules on a given country. Assuming that the countries most dependent on trade and with the greatest development needs will be the most sensitive to regulatory change, this methodology establishes a Regulatory Impact Indicator (RII) for each country as follows:

$$\begin{aligned}\text{Country RII} &= \text{socio-economic indicator} \times \text{dependence on trade indicator} \\ &= [\text{EVI} + (1 - \text{HAI})]/2 \times (\text{PED} \times \text{GED} \times 100)\end{aligned}$$

High development needs are indicated by a high EVI, but by a low HAI. The HAI is inverted in order to be able to combine these two indicators. The dependence on trade indicator is multiplied by 100 to bring that indicator into the same order of magnitude as the socio-economic indicator, to provide comparable weighting between the two.

An example of this calculation is set out in Annex II.

For individual products, a product RII is constructed by applying the percentage of that product's portion of a country's overall exports – a further indicator of export diversification – to the country RII. So, for example, if a country's banana exports represent 50% of its total agricultural exports:

$$\text{banana RII} = \text{country RII} \times 50\%$$

The tables in Annex IV list the products that were found to be most sensitive (most vulnerable to regulatory change) for each region. These show the country; product; product RII; compound annual

⁷ <https://www.un.org/development/desa/dpad/least-developed-country-category/evi-indicators-ldc.html>

⁸ Share of agricultural, forestry and fishing GDP, share of population in low elevated coastal zones, remoteness and whether landlocked, stability of agricultural production, instability of exports of goods and services, victims of disasters.

⁹ <https://www.un.org/development/desa/dpad/least-developed-country-category/ldc-data-retrieval.html>

¹⁰ The six indicators are: under-five mortality rate, prevalence of stunting, maternal mortality ratio, secondary school enrolment ratio, adult literacy rate, and gender parity rate index for secondary school enrolment.



growth rate (CAGR)¹¹ in volume from 2013 to 2022 (unless otherwise specified); and indices relating to product and geographical export diversification.

Limits of the methodology

Some limitations to this methodological approach are recognised. The evaluation of trade diversification only takes into account existing trade. There may be emerging markets in particular products that have considerable growth potential, but whose recent trade is not yet large enough to be captured in the analysis. This approach treats all product sectors within a country equally, while in practice some agri-food sectors are likely to have been targeted for specific public and private investment that leaves them better at adjusting to changing regulatory demands. Finally, the data do not take into account the specific organisational structure of the value chains analysed; for example, the number of smallholders involved in the chain. Such factors may be significant in terms of a value chain's ability to adapt to changing EU regulatory requirements.

Nevertheless, this methodology provides a clear snapshot of the relevant importance (and vulnerability) of agricultural exports to the EU from specific countries and sectors.

¹¹ CAGR accounts for compounding effect, offering a more accurate reflection of evolution over time, and smoothing out fluctuations. It provides a nuanced understanding of growth trends ([Investopedia](#), 2023).



4.2. Annex II: Example of Regulatory Impact Indicator Calculation

Country RII = socio-economic indicator x dependence on trade indicator

$$= [EVI + (1 - HAI)]/2 \times (PED \times GED \times 100)$$

Algeria

UN Economic Vulnerability Index	UN Human Assets Index adjusted (1-HAI)	Product export diversification (Agri-food exports to EU27 / Total exports to EU27)	Geographic export diversification (Total exports to EU27 / Total exports to the world)
EVI = 30.8	1 - HAI = 9.8	PED = 0.061	GED = 0.25

$$= (30.8 + 9.8)/2 \times (0.0061 \times 0.86 \times 100) = 20.3 \times 0.52$$

$$= 11$$



4.3. Annex III : Regulatory Impact Indicators per country

Country	Agri-trade RII	Agri-food exports to EU27 / Total exports to EU27 (%)	Total exports to EU27 / Total exports to the world (%)	UN Economic Vulnerability Index (EVI)	UN Human Assets Index adjusted (1-HAI)
Algeria	11	1	86	30.8	9.8
Angola	5	1	18	45.6	48.0
Benin	36	65	1	33.0	50.6
Botswana	2	0	17	50.9	16.9
Burkina Faso	32	53	1	48.6	44.0
Burundi	412	87	11	38.7	46.1
Cabo Verde	1453	79	76	39.9	8.8
Cameroon	436	28	51	23.4	38.8
Central African Republic	17	2	22	27.7	72.6
Chad	36	1	54	51.8	81.7
Comoros	339	35	27	37.7	32.8
Congo	6	2	11	24.9	31.3
Congo (Dem. Rep.)	10	4	7	28.3	52.1
Côte D'ivoire	823	83	30	19.9	47.0
Djibouti	46	44	2	53.9	38.1
Egypt	46	11	25	16.1	16.7
Equatorial Guinea	1	0	41	18.7	32.9
Eritrea	1	2	1	50.2	42.8
Eswatini	63	84	2	37.3	22.9
Ethiopia	474	83	14	34.3	44.7
Gabon	14	3	19	25.5	21.5
Gambia	230	91	6	51.3	36.2
Ghana	219	68	13	27.9	21.5
Guinea	15	7	5	28.8	60.2
Guinea-Bissau	72	75	2	41.0	56.0
Kenya	384	90	14	33.4	26.8
Lesotho	12	1	24	43.4	37.4
Liberia	176	8	47	40.2	54.8
Libya	2	0	81	37.3	16.4
Madagascar	593	52	31	34.8	39.3
Malawi	144	15	22	44.5	44.5
Mali	10	51	0	49.3	54.4
Mauritania	359	54	15	45.2	45.9
Mauritius	186	55	24	22.4	5.9
Morocco	296	24	54	29.8	16.9
Mozambique	43	4	25	41.4	46.1
Namibia	185	31	21	39.2	16.5
Niger	4	2	3	48.5	64.4
Nigeria	53	3	36	36.6	56.5
Rwanda	87	61	4	32.3	32.4
Saint Helena	33	24	8	30.3	3.9
São Tomé and Príncipe	802	95	46	25.8	10.6
Senegal	223	66	9	43.0	33.6
Sierra Leone	323	19	34	40.3	58.3
Somalia	294	89	5	51.9	75.7
South Africa	44	12	16	33.2	13.8
South Sudan	1	0	10	54.6	78.0
Sudan	69	29	6	37.9	38.1
Tanzania	87	36	6	34.7	38.9
Togo	95	65	5	23.3	41.2
Tunisia	100	8	69	27.9	9.2
Uganda	377	96	11	29.1	42.2
Zambia	7	8	3	41.7	32.9
Zimbabwe	39	15	7	49.3	29.6



4.4. Annex IV : Relative Regulatory Impact of EUDR per sector in Africa

The tables below provide further data on each deforestation product, ranking countries according to the RIA methodology in the case of agri-food products, and according to volume of trade for non-agri-food products. An average annual trade value of €100,000 is used as a cut-off criterion for inclusion of a sector in the tables, with the exception of non-agri-food palm oil (for which all trade is below this figure).

4.4.1. Cattle

Table 6: Countries exporting cattle-related deforestation products (agri-food) most sensitive to regulatory change (including countries whose exports' value exceeds €100,000).

Country	Product Regulatory Impact Indicator (RII)	Compound annual growth rate (CAGR ¹²) 2013–2022, volume (%)	Share of product in agri-food exports to EU27, 2020–2022 average value (%)	Volume exported to EU27 in 2022 (tonnes)	Value exported to EU27 in 2022 (thousand Euros)	Share of global cattle exports destined for EU market ¹³ (%)
Namibia	6	5.6	3.2	3,974	24,536	11.0
Botswana	1.3	1.6	83.6	714	3,405	2.2
Algeria	0.04	– ¹⁴	0.4	462	1,822	60.7

Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and UN.

Table 7: Countries exporting cattle-related deforestation products (non-agri-food) (including countries whose exports' value exceeds €100,000).

Country	Compound annual growth rate (CAGR) 2013–2022, volume (%)	Share of product in total exports to EU27, 2020–2022 average value (%)	Volume exported to EU27 in 2022 (tonnes)	Value exported to EU27 in 2022 (thousand Euros)	Share of global cattle product exports destined for EU market ¹⁵ (%)
South Africa	1.1	0.2	10,509	53,710	36.5
Kenya	+7.5	0.6	6,217	9,628	42.9
Morocco	3.6	0.1	2,755	23,664	91.8
Egypt	+9.1	0.3	2,450	32,314	34.4
Algeria	+3.6	0.0	1,585	3,020	60.6
Tunisia	+8.3	0.0	1,157	2,874	54.6
Namibia	–13.9	0.1	587	1,009	9.9
Uganda	+4.6	0.1	476	758	11.6

Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and UN.

¹² CAGR, compound annual growth rate = $\left(\frac{\text{Volume 2022}}{\text{Volume 2013}}\right)^{\frac{1}{2022-2013}} - 1$

¹³ See footnote 10.

¹⁴ Not enough trade recorded to calculate growth.

¹⁵ See footnote 10.



4.4.2. Cocoa

Table 8: Cocoa-exporting countries most sensitive to regulatory change (including countries whose exports' value exceeds €100,000).

Country	Product Regulatory Impact Indicator (RII)	Compound annual growth rate (CAGR) 2013–2022, volume (%)	Share of product in agri-food exports to EU27, 2020–2022 average value (%)	Volume exported to EU27 in 2022 (tonnes)	Value exported to EU27 in 2022 (thousand Euros)	Share of global cocoa exports destined for EU market ¹⁶ (%)
Côte d'Ivoire	692	4.0	84.1	1,166,079	2,972,365	50.6
São Tomé and Príncipe	506	6.2	63.1	3,509	11,371	95.6
Cameroon	322	3.5	73.8	235,294	518,395	69.5
Sierra Leone	276	6.0	85.4	15,505	40,656	99.4
Ghana	173	−0.4	78.7	392,390	1,068,802	45.8
Liberia	92	7.7	52.3	13,085	28,676	64.5
Nigeria	36	−0.8	68.5	162,236	378,819	56.0
Madagascar	23	3.8	3.9	6,920	20,652	49.4
Togo	16	−7.8	17.3	4,618	10,501	62.8
Uganda	16	−2.6	4.3	9,245	24,690	24.3
Guinea	13	17.2	86.6	19,119	40,183	57.3
Congo (Dem. Rep.)	5.5	30.8	54.8	12,748	32,297	27.1
Tanzania	3.4	−6.2	3.9	2,023	5,561	23.1
Congo	2.1	−8.1	37.6	2,160	3,887	15.5
Equatorial Guinea	0.9	4.5	95.9	883	1,851	87.2
Algeria	0.4	−2.2	3.3	862	3,563	81.2
Kenya	0.3	−0.9	0.1	211	481	4.6
Egypt	0.0	27.0	0.1	237	1,192	0.4
Libya	0.0	54.5	1.1	249	518	66.1
Morocco	0.0	30.6	0.0	168	616	6.5
Tunisia	0.0	65.1	0.0	32	153	2.0
South Africa	0.0	3.7	0.0	127	792	0.9

Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and UN.

¹⁶ See footnote 10.



4.4.3. Coffee

Table 9: Coffee-exporting countries most sensitive to regulatory change (including countries whose exports' value exceeds €100,000).

Country	Product Regulatory Impact Indicator (RII)	Compound annual growth rate (CAGR) 2013–2022, volume (%)	Share of product in agri-food exports to EU27, 2020–2022 average value (%)	Volume exported to EU27 in 2022 (tonnes)	Value exported to EU27 in 2022 (thousand Euros)	Share of global coffee exports destined for EU market ¹⁷ (%)
Burundi	406	–8.5	98.6	4,756	22,649	50.3
Ethiopia	263	1.1	55.5	92,744	461,091	25.6
Uganda	260	5.5	68.9	214,653	545,018	56.0
Rwanda	59	–1.4	68.0	7,789	40,668	34.1
Kenya	39	–2.8	10.2	21,360	137,040	37.2
Tanzania	31	0.3	35.4	35,497	106,150	37.0
Djibouti	24	1.9	52.8	672	3,708	18.7
Sierra Leone	15	–6.3	4.5	1,328	2,760	46.7
Cameroon	14	–7.6	3.3	9,748	22,861	69.1
Côte d'Ivoire	6.6	–5.1	0.8	13,165	29,687	29.3
Malawi	6.2	–7.2	4.3	369	1,991	44.0
Congo (Dem. Rep.)	3.4	8.4	33.7	6,519	27,946	63.7
Congo	2.9	–4.7	51.7	2,585	8,636	68.2
Togo	2.3	–13.3	2.4	2,051	4,325	30.1
Zambia	1.45	11.9	19.7	1,418	7,951	37.2
Guinea	0.90	9.4	6.1	3,160	6,675	15.8
Angola	0.18	9.2	3.4	526	1,153	69.0
Senegal	0.14	12.2	0.1	40	163	64.3
Zimbabwe	0.12	0.3	0.3	53	303	8.8

Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and UN.

¹⁷ See footnote 10.



4.4.4. Palm oil

Table 10: Palm oil-exporting countries (agri-food) most sensitive to regulatory change (including countries whose exports' value exceeds €100,000). *CAGR calculated for 2014–2022.

Country	Product Regulatory Impact Indicator (RII)	Compound annual growth rate (CAGR) 2013–2022, volume (%)	Share of product in agri-food exports to EU27, 2020–2022 average value (%)	Volume exported to EU27 in 2022 (tonnes)	Value exported to EU27 in 2022 (thousand Euros)	Share of global palm oil exports destined for EU market ¹⁸ (%)
São Tomé and Príncipe	253	– ¹⁹	31.5	4,050	6,070	75.9
Liberia	83	85.2	47.4	37,457	46,927	31.8
Sierra Leone	30	*19.0	9.2	9,355	8,580	23.8
Gabon	14	57.0	98.7	43,423	56,782	56.9
Côte d'Ivoire	14	5.9	1.7	83,463	91,525	13.7
Guinea–Bissau	4.5	43.4	6.3	351	533	95.7
Cameroon	2.4	16.3	0.5	2,397	4,773	40.9
Ghana	1.8	3.2	0.8	16,102	17,746	10.5
Guinea	0.52	11.0	3.5	1,459	2,285	13.8
Nigeria	0.35	–11.3	0.7	6,608	12,149	27.3
Egypt	0.05	–8.2	0.1	1,170	1,902	5.3
Tunisia	0.02	*19.3	0.0	1,378	250	91.2
Algeria	0.00	– ²⁰	0.0	157	197	7.5
South Africa	0.00	37.3	0.0	5	161	0.3

Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and UN.

Table 11: Palm oil-exporting countries (non-agri-food) most sensitive to regulatory change.

Country	Compound annual growth rate (CAGR) 2013–2022, volume (%)	Share of product in total exports to EU27, 2020–2022 average value (%)	Volume exported to EU27 in 2022 (tonnes)	Value exported to EU27 in 2022 (thousand Euros)	Share of global palm oil exports destined for EU market ²¹ (%)
São Tomé and Príncipe	– ²²	0.1	254	60	100.0
Egypt	29.2	0.0	2	6	2.6
South Africa	–19.3	0.0	3	3	0.1
Mauritius	–2.0	0.0	0	1	0.8

Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and UN.

¹⁸ See footnote 10.

¹⁹ Not enough trade recorded to calculate growth.

²⁰ See footnote 18.

²¹ See footnote 10.

²² See footnote 18.



4.4.5. Rubber

Table 12: Rubber-exporting countries (non-agri-food) most sensitive to regulatory change (including countries whose exports' value exceeds €100,000).

Country	Compound annual growth rate (CAGR) 2013–2022, volume (%)	Share of product in total exports to EU27, 2020–2022 average value (%)	Volume exported to EU27 in 2022 (tonnes)	Value exported to EU27 in 2022 (thousand Euros)	Share of global rubber exports destined for EU market ²³ (%)
Côte d'Ivoire	8.7	10.6	332,524	590,812	26.4
South Africa	7.2	0.3	15,115	83,598	14.0
Egypt	12.1	0.5	23,658	73,903	35.8
Ghana	10.9	1.9	33,089	62,534	25.1
Morocco	5.6	0.3	6,434	57,207	85.5
Liberia	9.0	6.3	32,132	56,726	22.0
Nigeria	0.2	0.2	29,077	55,362	64.3
Cameroon	−0.6	1.3	30,072	52,106	50.6
Guinea	3.1	3.0	13,632	25,576	74.1
Tunisia	−6.5	0.1	626	7,387	36.3
Gabon	−14.0	0.6	3,385	6,416	29.8
Algeria	42.0	0.0	814	2,719	16.2
Mauritius	−2.9	0.2	38	1,175	18.1
Congo (Dem. Rep.)	9.5	0.0	440	661	5.1
Senegal	112.4	0.0	65	348	2.4
Congo	−30.2	0.0	76	256	7.5
Seychelles	46.9	0.0	42	144	11.4
Angola	58.3	0.0	14	125	6.2

Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and UN.

²³ See footnote 10.



4.4.6. Soy

Table 13: Soy-exporting countries most sensitive to regulatory change (including countries whose exports' value exceeds €100,000). *CAGR calculated for 2015–2022. ** CAGR calculated for 2016–2022.

Country	Product Regulatory Impact Indicator (RII)	Compound annual growth rate (CAGR) 2013–2022, volume (%)	Share of product in agri-food exports to EU27, 2020–2022 average value (%)	Volume exported to EU27 in 2022 (tonnes)	Value exported to EU27 in 2022 (thousand Euros)	Share of soy exports destined for EU market ²⁴ (%)
Togo	57	29.7	60.1	120,578	102,357	28.9
Benin	12	421.7	32.5	14,941	11,795	5.8
Nigeria	5.8	**62.1	10.9	106,347	75,149	81.5
Ethiopia	4.5	**28.5	0.9	5,840	6,298	7.1
Uganda	2.8	272.3	0.7	2,561	2,315	13.7
Burkina Faso	2.1	*16.9	6.5	8,588	7,434	20.0
Egypt	0.26	*13.7	0.6	5,845	7,953	3.0
Ghana	0.04	38.7	0.0	989	661	1.0
Morocco	0.03	11.9	0.0	519	868	0.7

Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and UN.

²⁴ See footnote 10.



4.4.7. Timber

Table 14: Timber-exporting countries (non-agri-food) most sensitive to regulatory change (including countries whose exports' value exceeds €100,000).

Country	Compound annual growth rate (CAGR) 2013–2022, volume (%)	Share of product in total exports to EU27, 2020–2022 average value (%)	Volume exported to EU27 in 2022 (tonnes)	Value exported to EU27 in 2022 (thousand Euros)	Share of global timber exports destined for EU market ²⁵ (%)
Cameroon	1.4	9.3	295,653	276,027	30.3
Côte d'Ivoire	-5.5	1.3	49,437	62,374	21.7
Central African Republic	8.0	34.1	26,259	17,344	18.6
Namibia	25.3	3.2	116,999	57,193	37.9
Morocco	9.5	1.9	49,845	417,512	63.9
Ghana	-12.1	1.5	28,309	37,338	12.4
Gabon	5.4	20.3	278,465	297,526	27.9
Mauritius	1.4	1.1	1,901	7,340	13.0
Madagascar	6.4	0.3	5,117	3,518	13.7
Tunisia	11.4	1.8	39,765	256,573	46.0
Benin	14.0	4.0	2,182	1,516	2.2
Cabo Verde	5.4	0.1	34	105	1.4
Liberia	-17.5	0.3	6,125	2,602	10.8
Congo	-3.5	9.6	112,991	100,892	19.3
Senegal	-4.5	0.1	180	670	1.5
Egypt	5.6	0.6	100,562	86,603	5.4
South Africa	2.1	0.5	237,378	133,619	3.5
Mozambique	66.2	0.4	75,698	14,128	3.4
Tanzania	24.6	0.2	1,696	1,906	0.6
Kenya	-7.8	0.0	95	571	0.3
Sierra Leone	0.6	0.0	276	256	0.1
Ethiopia	7.9	0.0	23	137	2.5
Togo	-14.6	0.1	36	190	0.8
Congo (Dem. Rep.)	-9.3	1.1	26,724	24,126	9.0
Malawi	33.8	0.0	31	158	0.7
Nigeria	-6.7	0.1	63,614	20,748	16.0
Uganda	55.8	0.0	93	117	0.1
Burkina Faso	0.0	0.1	37	156	6.3
Mali	12.0	0.3	29	179	0.2
Zimbabwe	-4.6	0.0	11	247	0.2
Angola	10.0	0.1	5,548	4,697	5.3
Algeria	45.7	0.0	7,956	10,758	25.2
Niger	19.1	0.1	963	132	8.4
Equatorial Guinea	-9.8	0.3	4,134	5,072	4.0

Source: COLEAD based on Eurostat, CEPII BACI, IFPRI, UK Trade Info, and UN.

²⁵ See footnote 10.