Chapter 1.3
Evolving Trade Instruments in a Fragmented System

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Introduction

The global landscape for agricultural trade is going through deep transformations. In the face of persistent blockage in multilateral negotiations, growing geopolitical tensions, and national security considerations, governments are exploring alternative forms of cooperation. Alongside traditional bilateral and regional trade agreements, new collaborative arrangements are emerging in the form of plurilateral or sectoral approaches, informal coalitions, soft law initiatives, or agreed principles to deepen economic integration or advance specific trade agendas among like-minded partners. While these initiatives provide a space to test new ideas and approaches, which could inform future models of trade cooperation, they also contribute to growing fragmentation in the global agricultural trading system.

Meanwhile, the sector is confronted with major environmental challenges, posing an existential threat to the livelihoods of millions of people and to the global commitment to ending hunger and malnutrition by 2030. Reduced ecological resilience resulting from biodiversity loss and soil degradation, combined with rising temperatures, changing precipitation patterns, and greater frequency of extreme weather events, is affecting production, disrupting food supply chains, and displacing communities, particularly in developing countries (IPCC, 2019). By 2050, 70 million more people could be at risk of hunger because of variability, including more than 28 million in East and Southern Africa (IFPRI, 2022).

Addressing these environmental threats will require a shift to more sustainable agricultural systems that protect ecosystems, restore biodiversity, maintain soil productivity, rationalize water use, and reduce greenhouse gas (GHG) emissions. Between 2000 and 2018, the FAO estimates that agricultural expansion

drove 88% of global deforestation, with cropland expansion and livestock grazing, respectively, responsible for 50% and 38% of deforestation (FAO, 2022). Food systems also contributed nearly a third of global GHG emissions in 2023, placing the sector as both a contributor to global warming and a critical sector for adaptation (FAO, 2025). Faced with the imperative to respond to these challenges, governments and stakeholders are increasingly exploring options to harness trade and trade-related policies as part of the solution. These include establishing sustainability requirements for products entering markets, introducing mandatory due diligence requirements for imports, or banning certain products directly linked to illegal deforestation or environmental degradation. Others focus more on encouraging sustainable production, including through environmental payments. This has resulted in a patchwork of uncoordinated and highly fragmented trade-related measures, creating tensions among trading partners and high adjustment costs for producers having to cope with such regulatory heterogeneity.

All of these trends occur as agricultural supply chains experiment with major technological shifts. Digitalization is increasingly embedded across agricultural value chains, reconfiguring how information is generated, verified, and exchanged to demonstrate compliance or determine market access. Such transformation reflects both technological evolution and the growing regulatory demand for transparency, traceability, and sustainability in agri-food trade. While digitalization offers significant opportunities to enhance trade, many developing countries face a range of structural, institutional, and regulatory constraints affecting their ability to adopt and benefit from emerging digital tools.

New collaborative trade arrangements

Recent years have seen the emergence of new collaborative approaches to trade, often in formats other than traditional, legally binding, comprehensive trade agreements. Such efforts stem largely from the lack of progress in the multilateral arena, geopolitical realignment, sustainability concerns, or evolutions in the organization of cross-border value chains. On the one hand, these novel collaborative arrangements provide a much-needed space to test new ideas and approaches, which could inform future models of trade cooperation. On the other hand, they can also contribute to more fragmentation with implications for agricultural trade governance around the world, including in Africa, LAC.

To illustrate this point, Table 1 maps different approaches to trade cooperation that are emerging outside the multilateral framework, with selected examples of provisions, clauses, or initiatives affecting the agricultural sector where relevant. This mapping exercise is not comprehensive but rather intended to provide a selective snapshot of the increasingly intricate web of formal and informal approaches to international cooperation shaping global trade governance. These different approaches are not mutually exclusive and may overlap.

The first type of cooperation listed in Table 1 includes traditional free trade agreements (FTAs). These are legally binding bilateral, regional, or plurilateral trade agreements primarily focused on market access with embedded enforcement mechanisms. Recent examples include the EU-Mercosur Partnership Agreement (EMPA) and the India-EU Free Trade Agreement. The unpredictability resulting from erratic trade policymaking in the United States and the need to diversify trade relations seem to have incentivized partners to accelerate the conclusion of several of these FTAs, which had been in negotiation for many years.

The second category covers agreements between governments on specific sectors or addressing specific trade challenges. Such agreements can seek to address barriers or enhance cooperation in defined sectors; the digital economy, for instance. They can further be designed to cover emerging issues or trade challenges; for example, green technologies or supply chain resilience, as illustrated by the Indo-Pacific Economic Framework (IPEF) Agreement Relating to Supply Chain Resilience. As such, they can be used as "friendshoring" or diversification strategies for reasons of economic or supply chain security. Another purpose can be to manage more effectively the trade interface with critical issues like climate variability and other sustainability concerns; for example, the Agreement on Climate Change, Trade and Sustainability (ACCTS). The enforcement nature of the agreements in this category ranges from being legally binding to being governed by soft law commitments. They can also involve developing new rules that set a benchmark in emerging issues, as illustrated by the ACCTS discipline son fossil fuel subsidies.

The third cluster in Table 1 groups memorandums of understanding (MoUs), non-binding arrangements, framework arrangements, and soft law initiatives. These arrangements between governments enable greater speed and policy flexibility than negotiating legally binding trade rules, reduce political exposure, and facilitate trade cooperation without binding market access commitments. They tend to be guided by beast endeavour and voluntary commitments and can seek

to set frameworks that act as high-standards in areas ranging from digital economy, critical minerals, and sustainable development to regulatory cooperation. Key objectives can include, for example, increasing diversity of supply of materials in the shift towards green and digital economies and the transition to net zero, as well as economic security factors, such as the nascent EU strategic partnerships on sustainable raw materials and the US critical minerals frameworks.

The fourth approach comprises voluntary arrangements around agreed principles, guidelines, or areas of cooperation. In this instance, countries seeking greater cooperation or integration with like-minded partners can focus on agreed non-binding principles or guidelines that harmonize behaviour, foster consensus, and facilitate the development of new norms in trade. Like-minded countries and/or countries with shared mutual interests can also use this approach to focus on concrete areas of cooperation. The G20 Principles on Trade and Sustainable Development are an example of the former, and the Future of Investment and Trade Partnership illustrates the latter.

The next category groups intergovernmental dialogues, coalitions, and forums. These informal and voluntary collaborative platforms often serve to facilitate dialogue, information sharing, and mutual learning among like-minded countries on specific areas of cooperation; for example, the Inclusive Forum on Carbon Mitigation Approaches, the Forest, Agriculture and Commodity Trade (FACT) Dialogue, and various member-led initiatives at the WTO (which are not part of a multilaterally agreed WTO process). In this category, coalitions such as the Coalition of Trade Ministers on Climate can also serve to provide high-level political direction.

The final category in Table 1 includes South-South and triangular cooperation models. South-South cooperation encompasses a broad range of partnerships among countries from the Global South, with cooperation often built around shared development challenges or experiences. This type of cooperation has grown in recent years with the rapid increase in South-South trade and investment. China's Belt and Road Initiative, for example, comprises large-scale infrastructure projects and the expansion of trade routes across Africa, Asia, and LAC. Triangular models also provide development-oriented frameworks for trade cooperation, often involving collaboration among two or more developing countries (e.g. technical cooperation, knowledge transfer), facilitated or supported (e.g., financially, institutionally) by a multilateral organization and/or developed country. The FAO-facilitated South-South and triangular cooperation framework is an example of this approach. By and large, the mapping

of new collaborative trade arrangements underscores that international trade cooperation is changing form, with a wide range of approaches driven by matters of security, sovereignty, sustainability, and technology in an undercurrent of stalled multilateral discussions and geopolitical realignment. While the shift in international trade governance from traditional free trade agreements towards a multi-layered and often less formal system of cooperation enables governments to act faster, experiment with novel ideas, and address specific issues for trade collaboration—from sustainability and security concerns to supply chain resilience and digital transformation—it is also contributing to greater fragmentation and may not always adequately consider the interests or priorities of developing countries, for instance in the establishment of new norms and standards.

These dynamics have implications for agricultural trade, including in Africa and LAC, where countries can face multiple—and sometimes inconsistent—requirements to access markets and, more broadly, differentiated access to trade and development opportunities. Even though these approaches and initiatives breed momentum into international trade cooperation and can help address emerging and urgent policy challenges, they risk creating overlapping networks and competing regulatory blocs or systems of incentives at the expense of a more harmonized and effective global trading system guided by inclusive cooperation with shared rules and principles. Addressing this fragmentation and its effects should be an important priority going forward for trade diplomacy.

Table 1. Mapping of approaches to new collaborative trade arrangements outside the multilateral framework, with examples

Examples of Approaches to Trade Collaboration	Status	Examples of Agricultural Trade Components
Free trade agreements		
Bilateral Switzerland-Indonesia Comprehensive Economic Partnership Agreement (2020)	Switzerland-Indonesia agreement is in force.	Switzerland-Indonesia includes sustainability criteria for agricultural products (i.e. palm oil). EU-New Zealand FTA includes a Sustainable Food Systems chapter (i.e. cooperation to improve the sustainability of food systems across supply chains; limited enforceable provisions). EU-India FTA protects sensitive agricultural products on both sides. Separate geographical indicators agreement to be negotiated.
EU-New Zealand Free Trade Agreement (2024)	EU-New Zealand FTA is in force	
India-EU Free Trade Agreement (2026)	India-EU FTA is in ratification process.	
Regional African Continental Free Trade Area (AfCFTA) (2018)	AfCFTA is in implementation phase.	AfCFTA contains clauses to promote regional food trade and improve regional food security.
Bi-regional (bilateral) EU-Mercosur Partnership Agreement (EMPA) (2026)	EMPA is in ratification process.	EMPA has safeguards to protect EU producers and maintain EU food standards. It addresses deforestation through a binding Trade and Sustainable Development chapter.
Plurilateral Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) (2018)	CPTPP is looking to broaden membership and modernize the agreement. Entered dialogues with EU / ASEAN to strengthen economic cooperation (2025).	The CPTPP has a dedicated Committee on Agricultural Trade to oversee implementation of the agreement.

Examples of Approaches to Trade Collaboration	Status	Examples of Agricultural Trade Components
Agreements on specific sectors or addressing specific trade challenges		
Addressing sustainability and economic security concerns Agreement on Climate Change, Trade and Sustainability (ACCTS) (2024) IPEF Clean Economy Agreement (2024) IPEF Agreement Relating to Supply Chain Resilience (2024) Green Economy Partnership Agreement (GEPA) (negotiations ongoing)	ACCTS is expected to enter into force in 2026. It is a legally binding, open, and living plurilateral agreement. IPEF agreements are in force. They are soft law commitments. GEPA is under negotiation.	ACCTS provides for improved market access for sustainable agriculture and forestry consultancy services and voluntary eco-labelling guidelines for sustainable agricultural products. IPEF supply chain agreement covers agricultural supply chain resilience (e.g. logistics). IPEF Clean Economy Agreement promotes sustainable agriculture. GEPA covers agriculture and food systems as a key area for collaboration (e.g. development of sustainable practices, decarbonization, interoperability of standards for agricultural goods, adoption of green technologies).
Advancing digital trade rules Digital Economy Partnership Agreement (DEPA) (2020) Australia-Singapore Digital Economy Agreement (2020) ASEAN Digital Economy Framework Agreement (DEFA) (negotiations ongoing)	DEPA and Australia-Singapore DEA are in force. ASEAN DEFA in advanced negotiations and expected to be signed in 2026.	DEPA contains rules directly affecting agricultural and food trade (e.g. certification, traceability, ag-tech services, logistics). DEFA recognizes agriculture as an important economic sector benefitting from digital economy integration (e.g. productivity, MSME and agritech support, smart agriculture adoption).

Examples of Approaches to Trade Collaboration	Status	Examples of Agricultural Trade Components
Memorandum of understanding (MoU), non-binding arrangements, framework arrangements, soft law initiatives		
Memorandum of Understanding EU strategic partnerships on sustainable raw materials (Chile, Canada, Ukraine, Kazakhstan, Namibia, Argentina) (2021–2026)	EU strategic partnerships are formalized through MoUs under the Global Gateway.	EU strategic partnerships on sustainable raw materials do not cover agricultural commodities.
Framework Arrangements EU Clean Trade and Investment Partnerships (CTIPs) (2025)	First CTIP signed with South Africa.	The EU-Chile AFA includes a Sustainable Food Systems chapter (see EU-NZ FTA above). IPEF Pillar I (Trade) covers agriculture (e.g. non-tariff barriers, SPS measures, regulatory standards). IPEF Pillar II (Supply Chain Resilience) and Pillar III (Clean Economy) include agriculture (see IPEF agreements above). AZEC acknowledges the need for emissions reduction measures within the agriculture and forestry sectors.
EU-Chile Advanced Framework Agreement (AFA) (2025) Indo-Pacific Framework for Prosperity (IPEF) (2022)	EU-Chile AFA, IPEF, and AZEC are in force.	
US-Japan and US-Australia Framework for Securing the Supply of Critical Minerals (both 2025) Asia Zero Emissions Community (AZEC) (2023)	US critical minerals frameworks are in force. They are non-binding and promote public-private dialogue to facilitate investment.	

Examples of Approaches to Trade Collaboration	Status	Examples of Agricultural Trade Components
Agreed principles, guidelines, or areas of cooperation		
Agreed principles and guidelines G20 Principles on Trade and Sustainable Development (2024) ACCTS Guidelines for Voluntary Ecolabelling Programmes (2024) UNCITRAL Model Laws for Digital (1996–2024)	The G2O principles were formally adopted by G20 trade and investment ministers. Ratification of the ACCTS guidelines is underway (expected 2026). UNCITRAL has developed a suite of five core model laws and one binding convention.	The ACCTS guidelines are intended for general voluntary ecolabelling of products and services, including improving the credibility of labelling schemes in the agricultural sector. The guidelines aim to ensure that ecolabels for products provide reliable, transparent, and scientifically based information, thereby reducing unnecessary barriers to trade.
Agreed areas of cooperation Future of Investment and Trade Partnership (FIT-P) (2025)	FIT-P is a plurilateral non-binding initiative committed to rules-based global trade and addressing emerging trade issues.	A focus area of FIT-P is supply chain resilience. A first initiative is a 2025 declaration on "Best Practices in Response to Major Supply Chain Disruptions."

Examples of Approaches to Trade Collaboration	Status	Examples of Agricultural Trade Components
Intergovernmental dialogues, coalitions, forums		
Coalition of Trade Ministers on Climate (2023) Integrated Forum on Climate Change and Trade (IFCCT) (2025) Inclusive Forum on Carbon Mitigation Approaches (IFCMA) (2023) Forest, Agriculture and Commodity Trade (FACT) Dialogue (2021) Member-led initiatives at the WTO (e.g. TESSD, DPP, FFSR, investment facilitation, e-commerce) (2018–2020)	The Coalition of Trade Ministers on Climate will hold its third ministerial meeting at MC14. The IFCCT is in consultative phase. The OECD-coordinated IFCMA is fully operational. The FACT Dialogue is in implementation phase working on the 2021 roadmap. The member-led initiatives at the WTO are at various stages of advancement.	The FACT Dialogue promotes sustainable land use and trade. The platform fosters cooperation between major producer and consumer countries. FACT targets commodities and supply chains linked to deforestation, promotes traceability, supports smallholders (e.g. capacity building), and encourages trade facilitation for sustainable products (e.g. regulatory cooperation) among other key components. The TESSD informal working group on subsidies includes discussions on environmentally harmful agricultural subsidies. The informal working group on environmental goods and services includes discussions on sustainable agriculture (e.g. climate mitigation and adaptation goods and services).

Examples of Approaches to Trade Collaboration	Status	Examples of Agricultural Trade Components
South-South and triangular cooperation models		
BRICS Framework Declaration for Leaders on Climate Finance (2025) China Belt and Road Initiative (BRI) (2013–present) FAO-facilitated South-South and triangular cooperation (SSTC) framework and initiatives (1996–present)	The BRICS framework declaration was formally adopted at the 17th BRICS Summit. The BRI utilizes MoUs as the primary, non- binding mechanism for countries to join the initiative, followed by binding secondary agreements that operationalize the MoUs. FAO SSTC framework covers 100+ countries.	The BRICS framework declaration formally supports the Brazil-led Tropical Forest Forever Facility. There is an important agricultural commodities trade dimension to BRI investments and infrastructure development. The FAO SSTC framework aims to strengthen agricultural productivity, food security, and sustainable rural development. A core component is trade and value chains.

Note: In the examples column, the years in brackets indicate when an arrangement was signed or launched, not when it was ratified or entered into force.
Source: Authors' elaboration based on Synergies (2025).

New environmental requirements affecting agricultural trade

Besides new forms of international cooperation, the global agricultural trade landscape is increasingly shaped by autonomous trade and trade-related measures designed to address pressing environmental crises.

Measures implemented by governments

Governments attempting to protect the environment have a range of trade and trade-related policy instruments at their disposal. These can take several forms, including (i) price and market-based measures, (ii) support measures and other economic incentives, and (iii) regulatory measures. Price and market-based measures include a range of border measures such as import or export quotas, tariffs, trade remedies against imports such as safeguard measures or anti-dumping duties, and also internal taxes applicable to both imported and domestically produced goods. Support measures and other economic incentives include different types of agricultural subsidies as well as government procurement, intellectual property, and investment measures. Finally, regulatory requirements include bans and prohibitions, import or export licences, technical regulations, or conformity assessment procedures.

Using this typology originally developed by the WTO (https://edb.wto.org/), Table 2 shows examples under each category based on measures notified to the WTO. These notifications, compiled in the WTO environmental database, provide a good indicator of the frequency and evolution of environment-related trade measures implemented by members over the years. A search focusing on agriculture shows that between 2009 and 2024, members notified 6,034 agricultural trade measures with the environment as their stated objective. It should be noted that this does not provide an exhaustive picture of existing measures in the sense that the database only contains those measures that need to be notified to the WTO. Nor does it provide any indication of the stringency or effectiveness of the measures at hand or the extent to which they affect production and trade. The significant number of measures notified over the last 15 years indicates, however, a widespread use among WTO members of trade-related tools to address sustainability concerns.

These measures pursued a wide range of different stated environmental objectives (see Figure 1). The majority of them aimed at promoting sustainable ag-

riculture management, water and soil conservation, or biodiversity and ecosystem preservation. However, several also targeted animal and plant protection, climate variability mitigation and adaptation, or chemical, toxic, and hazardous substance management. As illustrated in Figure 1, they were applied widely across a variety of countries. Among them, Asian countries accounted for the largest share with 1,638 measures notified since 2009, including 674 by Australia alone, followed by European countries with 1,390 notifications (mostly from the EU), and LAC with 1,371 notifications (including 355 by Brazil). This illustrates the fact that environmental measures are not confined to developed countries but are widely implemented across different regions.

Table 2: Examples of trade-related environmental measures in agriculture

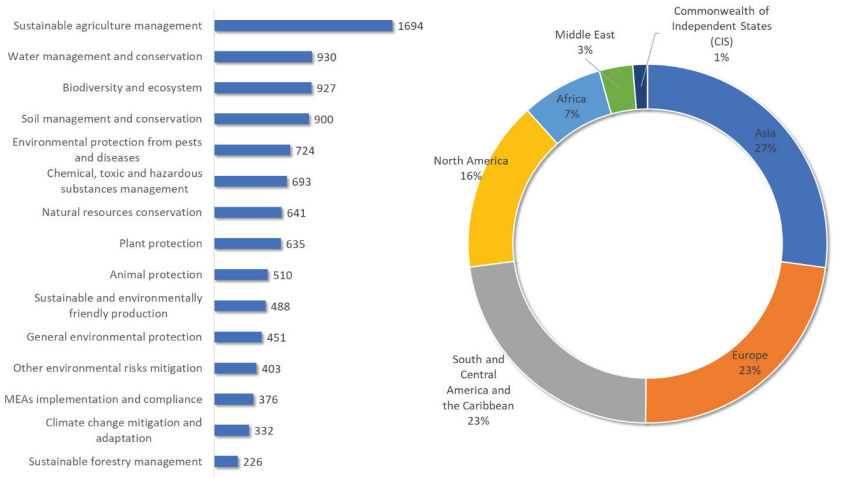
Type of Trade Measure		Example	Country	WTO Agreement	Source
Price & market-based measures	Import/export quotas, duties & tariffs	Import tariff quota partly reserved for organic sugar and other specialty sugars	United States	Agriculture	G/AG/N/USA/114
	Internal taxes	Fees and charges regulating the use of living modified organisms (LMOs)	Japan	Trade Facilitation	G/TFA/N/JPN/2/REV.2
	Other price & market-based measures	State trading enterprise for wheat fostering environmental and social sustainability	Chile	State Trading	G/STR/N/19/CHL

Type of Trade Measure			Example	Country	WTO Agreement	Source
Support measures & other economic incentives	Subsidies:	Grants & direct payments	Organic farming payments	Switzerland	Agriculture	G/AG/N/CHE/128
		Income or price support	Program of acquisition of agricultural products from family farming promoting biodiversity and organic/agroecological production	Brazil	Agriculture	G/AG/N/BRA/68
		Loans & financing support	Subsidies for climate insurance and technical assistance to foster climate risk management	Uruguay	Agriculture	G/AG/N/URY/84
		Tax concessions	Preferential tax treatment on environmental protection in agricultural production	China	Agriculture	G/SCM/N/401/CHN
		Non-monetary support	Extension and advisory services to promote organic agriculture	Dominican Rep.	Agriculture	G/AG/N/DOM/55
		Other support measures	Non-Product-Specific support for rainwater harvesting	Mauritius	Agriculture	G/AG/N/MUS/19
	Government procurements		Procurement of agricultural inputs for sustainable management of natural resources	Paraguay	Agriculture	G/AG/N/PRY/21
	Intellectual property rights		Non-patentability of plant varieties, animal breeds or essentially biological process other than microorganisms and non-biological and microbiological processes	Philippines	TRIPS	IP/N/1/PHL/I/10
	Investment measures		Investment promotion in solar greenhouse dryer in agricultural products	Thailand	SCM	G/SCM/N/315/THA

Type of Trade Measure		Example	Country	WTO Agreement	Source
Regulatory requirements	Bans/prohibitions	Import prohibition of certain pesticides under the Stockholm and Rotterdam Conventions	Nicaragua	Quantitative Restrictions	G/MA/QR/N/NIC/6
	Import/export licences	Import permits for plants and some plant products, to protect against the introduction of pests and diseases	United States	Import Licensing	G/LIC/N/3/USA/20
	Technical regulations	Regulation of production and certification of organic agricultural products	Mozambique	TBT	G/TBT/N/MOZ/23
	Conformity assessment procedures	Electronic certificate of inspection for imported organic products	European Union	TBT	G/TBT/N/EU/386
Other	Other environmental requirements	Regulation adopting a list of invasive alien species of concern	European Union	SPS	G/SPS/N/EU/143
	Not specified	Measures financed by the European Agricultural Fund for Rural Development	European Union	SCM	G/SCM/N/343/EU

Source: Authors' elaboration based on the WTO environmental database.
Note: TRIPS stands for Trade-Related Aspects of Intellectual Property Rights; SCM stands for Subsidies and Countervailing Measures; TBT stands for Technical Barriers to Trade.

Figure 1: Trade-related environmental measures on agriculture notified to the WTO by origin and top 15 stated environmental objective (2009–2024)

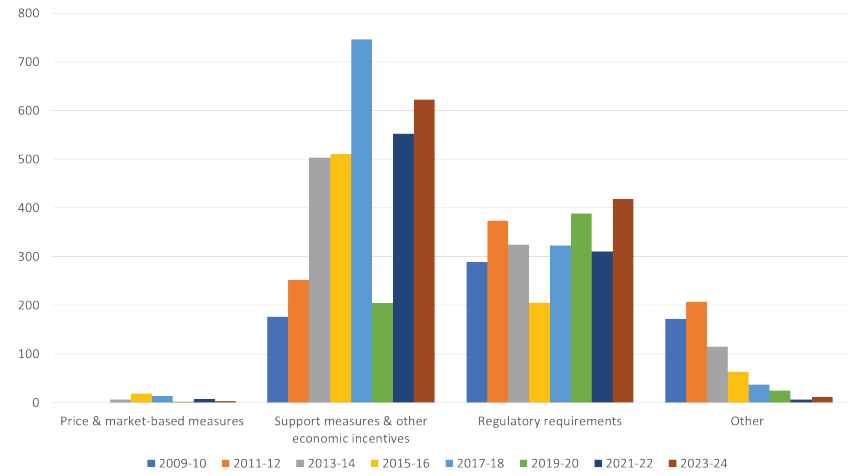


Source: Authors' elaboration based on the WTO environmental database.

Figure 2 provides an overview of the evolution of notified measures by broad categories of policy instruments between 2009 and 2024. While the notifications themselves tend to fluctuate from one year to the next, not least given different legal notification requirements,[10] the figure shows a constant predominance and slight increase over time in the use of subsidies and regulatory requirements as the main tools to address environmental considerations compared to price and market-based measures.

10 For example, under the WTO Agreement on Subsidies and Countervailing Measures, the notification of subsidies happens every two years but on an annual basis under the Agreement on Agriculture.

Figure 2: Number of trade-related environmental measures in agriculture by category (2009–2024)



Source: Authors' elaboration based on the WTO environmental database.

These figures highlight the major significance of domestic support, such as payments for ecosystem services or direct payments to maintain a diversified set of crops, conserve permanent grassland, or devote a share of arable land to ecological practices in efforts to promote more sustainable practices in agriculture. According to Gautam et al. (2022), repurposing a portion of government spending on agriculture each year from subsidies to investment in developing and disseminating green innovations or technologies for crops and livestock that are both productivity-enhancing and emissions-efficient could reduce overall emissions from agriculture by more than 40%. In practice, however, the notion of repurposing remains subject to many interpretations, and as production and trade-distorting forms of support are progressively replaced by environmental payments, there are growing calls for stronger guidance on how to design and implement such schemes in a non-trade-distorting manner.

Besides subsidies, regulatory requirements are increasingly used to address environmental concerns. These include both product-related requirements, such as food safety standards (e.g., maximum pesticide residue limits), and production-related requirements (e.g., on the use of nutrients or airborne pollutants, wildlife and habitat protection, or animal welfare prescriptions). Other forms of regulatory requirements may also include due diligence requirements, as illustrated by the European Union Deforestation Regulation (see Box 1).

While these measures may play a critical role in fostering more sustainable practices, they can have direct impacts on trade. Differences in approaches and methodologies are also adding compliance costs and generating competitiveness tensions, sometimes exacerbated by geopolitical frictions.

Since many of these initiatives require compliance with specific environmental requirements, they are sometimes perceived as protectionist, extra-territorial, discriminatory, or unfairly putting the burden of adjustment on produc-

Box 2: The European Union Deforestation Regulation (EUDR)

The EUDR aims to ensure that certain products sold in, or exported from, the EU do not cause deforestation. The regulation applies to seven products (i.e. cattle, cocoa, coffee, palm oil, rubber, soya, and wood) and certain derived products (e.g. leather, chocolate, tyres, beef, and wooden furniture). The EUDR requires a company placing a covered product on the EU market, or exporting it from the EU, to exercise due diligence involving three steps: (1) collecting all relevant information, including geographic information on the plot of land where the product was produced; (2) assessing the risk that the product caused deforestation (or, in the case of wood, forest degradation); and, if such a risk is present, (3) adopting risk mitigating procedures and measures to achieve no or, at most, a negligible risk. If the risk of deforestation has not been reduced to a negligible level, the product could not be placed on the EU market or exported from the EU.

If covered products are sourced from a "low-risk" country (currently 140 countries, including all EU member states), a company is only required to conduct simplified due diligence, which is in principle limited to collecting the relevant information (step 1), without risk assessment or mitigation. Based on the EU methodology, four countries are classified as "high-risk" (Belarus, Myanmar, North Korea, and Russia). The remaining countries are classified as "standard-risk". Products sourced from "high-risk" and "standard-risk" countries are subject to full due diligence (steps 1, 2, and 3), with increased scrutiny for products originating from high-risk countries.

The EU has recently postponed the application of the EUDR and simplified some of its aspects. Companies must now comply by 30 December 2026, while most micro and small companies have until 30 June 2027. The European Commission is tasked with conducting a further simplification review by 30 April 2026 to assess the EUDR's administrative burden, particularly for micro and small companies.

ers in developing countries. Concerns are especially high in countries that face difficulties in meeting new environment-related requirements or lack affordable access to relevant technologies. In other cases, there are concerns that methodologies and approaches adopted in developing countries are not recognized as equivalent in more advanced economies.

While harmonizing existing trade-related environmental measures at the global level is widely considered unlikely to occur, there is mounting recognition that international cooperation in this area is needed to enhance coherence, foster transparency, reflect development considerations, and support interoperability and equivalences of existing and future measures. The multilateral trading system already provides a forum for transparency and policy dialogue where members notify their environmental measures with potential trade effects. It also provides a multilateral space to raise specific trade concerns and share experiences and good practices regarding such measures, for example, in the TBT and Sanitary and Phytosanitary (SPS) committees. Beyond transparency and policy dialogue, more advanced cooperative approaches could include developing non-binding voluntary guidance or best practices for the design and implementation of trade-related environmental measures to minimize unintended trade consequences while achieving legitimate public policy objectives. Cooperation in this area could focus on (i) establishing good regulatory processes and practices for the development and implementation of such measures; (ii) design features associated with specific measures; or (iii) technical aspects such as measuring, reporting, and verification procedures (Bellmann et al., 2025).

Voluntary sustainability standards

Besides government measures, there has been a proliferation of voluntary sustainability standards (VSS). These tools essentially "prescribe a set of social, economic and/or environmental requirements that economic actors can voluntarily comply with to make their production and processing practices more sustainable" (UNCTAD, 2022). They include a range of measures, such as sustainability production requirements through standards or codes of conduct, mechanisms to ensure compliance, or capacity building and supporting services to producers, such as training or impact monitoring. The ITC standards map identifies more than 371 VSS, including 191 applying specifically to agriculture.[11] While some are developed by governments or international organizations, the majority have emerged from the private sector and civil society. In

11 See https://www.standardsmap.org/en/identify.

the context of highly fragmented production networks, VSS help firms meet their social and environmental goals, either to avoid reputational damage or gain marketing advantages. They also increasingly fill a regulatory vacuum left by the inability of governmental initiatives to regulate on sustainability issues.

Although voluntary in nature, these schemes can sometimes become *de facto* conditions to access certain market segments. They are also increasingly integrated into various government policy instruments, including due diligence regulations, FTAs, public procurement policies, or export promotion strategies as way to demonstrate compliance with government requirements (Sarmiento et al., 2025). For example, Mexico and Ecuador recognize VSS within their national public procurement strategies to verify the sustainability of forest products (One Planet Network, 2025). Recognizing VSS, such as Fairtrade or Rainforest Alliance, is also becoming embedded in agricultural export strategies, and countries like Chile, Colombia, and Tunisia have begun leveraging sustainability as a market asset (Cox, 2025).

While VSS can enable producers to receive higher prices, administrative costs associated with certification, compliance, or conformity assessment procedures can also be prohibitive and exclude many producers in developing countries, especially smallholders. Compared to regulatory measures by the state that apply to all producers, VSS help raise the ceiling for certain segments of the sector—usually the best performers—but tend to ignore less efficient producers, which often generate the largest environmental impacts. There is also a shortage of accredited auditors or conformity assessment facilities in most developing countries, which increases the costs of audits and certification (Bermúdez & Sarmiento, 2023). Furthermore, there is often insufficient demand or uncertainty regarding the potential price premium to justify certification compliance costs. Finally, it is often difficult for both producers and consumers to distinguish reliable, credible, or effective VSS from ineffective ones (*Ibid*).

Some initiatives are underway to help reduce private standards fragmentation, ensure that they are based on sound science, and are non-discriminatory and interoperable. For example, the International Organization for Standardization (ISO) has developed "meta-standards" in areas such as transparency and accountability. The non-governmental International Social and Environmental Accreditation and Labelling (ISEAL) Alliance also codifies best practice for the design and implementation of social and environmental standards initiatives and provides a globally recognized framework, defining practices for effective and credible sustainability systems.

Challenges of digitalization and agricultural trade

In a global context of growing regulatory demand for transparency, traceability, and sustainability in agri-food trade, digitalization is increasingly embedded across agricultural value chains as a way to comply with new requirements and expedite trade procedures. Digital transformation also plays a growing role in facilitating trade and the cross-border movement of goods. A set of digital public and private systems, platforms, and tools now form an evolving ecosystem that governs compliance, certification, logistics, and financial and transaction flows. Table 3 provides an illustrative and non-exhaustive mapping of digital tools (documents and processes) across the agricultural value chain and describes how they contribute to facilitating trade and traceability.

Table 3: Illustrative mapping of digital tools by agriculture value chain step and their trade facilitation value

Value Chain Steps	Examples of Digital Tools (documents and processes)	Trade Facilitation Value
On-farm production and input use	Farm management applications, Internet of Things (IoT) sensors, digital identities (IDs) for farmers and farms, and input verification logs.	Generate verifiable data on inputs, practices, and yields; lower information search and verification costs and time; enable early compliance with sustainability and due diligence requirements; and reduce information asymmetries.
Aggregation, storage and processing	Digital weighbridges, digital warehouse receipts, quality inspection applications, automated sorting and grading systems, and digital inspection records.	Generate verifiable first-mile data; improve lot integrity; reduce disputes over quantities and quality; reduce disputes at aggregation; and enable later traceability linkages. Digital warehouse receipts enable access to loans and finance for MSMEs.

Value Chain Steps	Examples of Digital Tools (documents and processes)	Trade Facilitation Value
Certification and border procedures	Electronic Sanitary and Phytosanitary (e-SPS) certificates, e-certificates of origin, e-customs management systems,[12] e-declarations and pre-arrival processing, e-payment solutions of duties and fees, digital release and clearance modules and national and regional digital single windows.	Reduce clearance times; lower administrative burdens; minimize document loss risk, corruption, and fraud; improve predictability; and allow for targeted inspections to reduce delays for compliant traders.
Downstream buyer traceability, compliance and due diligence	Blockchain end to end traceability, QR-code systems, digital product passports, and compliance dashboards	Support compliance with deforestation-free regulations, organic certification, and private sustainability schemes.
Market access, logistics, and payments	B2B e-commerce platforms, e-invoicing, e-payment solutions, and mobile money.	Expand market reach and reduce transaction and payment delays.

Source: Authors' elaboration based on OECD (2025), Charlebois et al. (2024), and Tripoli (2021).

An empirical study by De Castro and Kornher (2022) confirms that moving to paperless trading and electronic procedures for customs and non-tariff measures compliance has trade-enhancing effects in agriculture. For instance, the study finds that improvements in export-level paperless trading have resulted in an increase of agri-food trade of 9.7% across the entire sample of 125 countries, with a majority of developing countries, and 11.2% across 25 sub-Saharan African countries. The authors explain that digitalization of customs and SPS procedures reduces the time, uncertainty, and administrative burden required for clearing goods, makes it easier and cheaper for firms to trade, dilutes risks of trade diversion, and leads to increased competitiveness. Beyond the reduction

12 The UNCTAD Automated System for Customs Data (ASYCUDA) covers most of foreign trade today and enables electronic data interchange between traders and customs authorities.

in trade costs and competitiveness-boosting effects, digitalization is increasingly helping with meeting other policy objectives, such as enhancing supply chain resilience and improving compliance with sustainability requirements (OECD, 2025).

While digitalization offers significant opportunities in agricultural trade, many developing countries, including in Africa and LAC, face a set of challenges that shape their ability to adopt and benefit from emerging digital tools. These challenges encompass structural, institutional, and regulatory constraints and affect both public and private actors across the value chain.

A first and persistent constraint is the digital divide, particularly in rural areas. According to the UNDP (2024), in LAC only 35.8% of rural households were connected to the internet in 2022, compared to 74.8% of their urban counterparts. In Africa, the ITU (2025) reports only 21% of individuals were using the internet in rural areas in 2025 compared to 55% of urban individuals. In some countries in LAC and many in Africa, connectivity gaps are compounded by unreliable electricity supply and high broadband costs, affecting private and public entities alike (Rodriguez et al., 2023; ITU & UNESCO, 2025). As a result, digitalization initiatives tend to be concentrated in major urban cities and primary trade corridors, while rural producers and secondary border posts continue to rely on paper-based procedures offering them unequal access to trade opportunities.

A second challenge is regulatory and institutional readiness. An enabling regulatory landscape is needed to advance the adoption of paperless trading and the digitalization of trade procedures. This landscape spans frameworks and policies for: (i) electronic transactions, such as electronic transferable records, e-signatures, e-contracts, e-authentication, and e-invoicing; (ii) automated border processes, such as pre-arrival processing, electronic single windows, and shared risk management; and (iii) cross-border data exchange, such as cross-border data flows, data storage and retention, data protection, and cybersecurity (OECD, 2025). While countries are progressively adopting these frameworks domestically and capturing them in their trade and digital economy agreements, implementation and alignment with international standards remain uneven across regions, with lower implementation rates, particularly in automated border measures and paperless trading among developing countries (OECD, 2025; ESCAP, 2023). Affordability and digital skills gaps are among the factors that explain lower implementation rates and slower adoption in developing countries.

A third constraint relates to fragmentation and limited interoperability of regulations and systems. While many countries have introduced various digital systems and tools, it remains difficult to reap the benefits of enhanced cross-border trade if these operate in silos, using incompatible data formats and reporting standards. This challenge is becoming increasingly apparent as sustainability standards proliferate, with varying requirements for reporting and information exchange across jurisdictions (OECD, 2025). In recent years, reports have been marking the progress in interoperability of single windows, e-SPS, digital IDs, and e-payment systems in Latin American countries, highlighting their positive impact on foreign trade, digital transactions, and SMEs inclusion (Azevedo et al., 2025; STDF, 2025).

A fourth challenge is related to data governance and power asymmetries. Digital traceability systems, due diligence platforms, and sustainability reporting tools increasingly require granular and verifiable farm-level data. Without clear rules on data ownership, access, and benefit sharing, smallholders risk becoming data providers without opportunities for capturing value (Ogunyiola, 2025). In fact, many agri-tech companies claim proprietary rights over on-farm and off-farm data through contractual terms or consent requirements for platform use, particularly in countries with weak data protection and consent frameworks (*Ibid*). When producers lack clarity, legal protections, and meaningful control over their data, their ability to negotiate terms, contest decisions, and influence digital systems is undermined, reinforcing structural power asymmetries and risks of exclusion.

Taken together, these structural and regulatory challenges show that digitalization in agriculture, as in other sectors, is far from being a straightforward upgrade. It requires a broad ecosystem shift that takes into account stark existing digital inequalities in rural areas and among countries. Closing these gaps requires coordinated efforts in enhanced connectivity and internet access, enabling legal and regulatory frameworks, affordability and enhanced institutional capacities, interoperable digital public infrastructure, and data frameworks that limit opaque data practices and promote benefit sharing. Without such efforts, digitalization risks widening existing inequalities and limiting the ability of developing countries to participate competitively in agricultural trade. Hence, these elements are being increasingly reflected in new trade arrangements such as digital economy agreements, which adopt this broader ecosystem approach to digitalization, extending well beyond traditional trade provisions.

Conclusion

New forms of international cooperation and the evolving nature of domestic trade-related instruments and policy measures are reshaping agricultural trade governance. These shifts respond to emerging global trends, such as geopolitical tensions affecting multilateral cooperation, as well as the imperative to address urgent environmental crises and adapt to rapid technological change.

While the shift in international trade governance from traditional free trade agreements towards a multi-layered and often less formal system of bilateral, regional, and plurilateral cooperation enables governments to act faster, experiment with new ideas, and address specific issues for collaboration with like-minded countries—e.g. sustainability and security concerns, supply chain resilience, digital transformation—it is also contributing to greater fragmentation and may not always adequately consider the interests of developing countries. These trends have implications for agricultural trade in Africa and Latin America, where countries can face differentiated access to trade and development opportunities, contributing to a less effective and inclusive global trading system.

Besides new forms of international cooperation, the global agricultural trade landscape is increasingly shaped by autonomous trade and trade-related measures designed to address environmental concerns. These include measures implemented by governments and VSS developed by non-state actors.

Since many of the measures implemented by governments require compliance with specific environmental requirements, they are sometimes perceived as protectionist, extra-territorial, discriminatory, or unfairly putting the burden of adjustment on producers in developing countries. While harmonizing existing trade-related environmental measures at the global level is widely considered unlikely to occur, there is mounting recognition that cooperation in this area is needed to enhance coherence, foster transparency, reflect development considerations, and support interoperability and equivalences of existing and future measures.

Alongside government measures, there has been a proliferation of VSS. Although voluntary in nature, these schemes can sometimes become *de facto* conditions to access certain market segments, and are also increasingly integrated into various government policy instruments. A number of initiatives are under-

way to help reduce private standards fragmentation, ensure they are based on sound science, and are non-discriminatory and interoperable.

Finally, in a global context of growing demand for transparency, traceability, and sustainability in agri-food trade, digitalization is increasingly embedded across agricultural value chains as a way to comply with new requirements and expedite trade procedures. Digital transformation also plays a growing role in facilitating trade and the cross-border movement of goods. While digitalization offers significant opportunities in agricultural trade, many developing countries, including those in Latin America and Africa, face a set of challenges that shape their ability to adopt and benefit from emerging digital tools. These challenges encompass structural, institutional, and regulatory constraints and affect both public and private actors across the value chain.

Taken together, these challenges show that digitalization in agriculture, as in other sectors, requires a broad ecosystem shift that takes into account stark existing digital inequalities, among other constraints. These elements are increasingly reflected in new trade arrangements such as digital economy agreements, which adopt a broader ecosystem approach to digitalization.

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