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TRADE FACILITATION IN PERISHABLE AGRO-FOOD PRODUCTS

A FEASIBILITY STUDY FOR ADDRESSING AT-THE-BORDER CHALLENGES

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Trade Facilitation in Perishable Agro-Food Products: A Feasibility Study for Addressing At-The-Border Challenges

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Border processes for perishable agro-food products involve multiple agencies and raise complex compliance and enforcement issues. At the same time, the speed of border processes is of particular importance for exporters as delays at the border can have great negative impacts on the quality of perishable agro-food products and hence their value. This calls for a more detailed and nuanced look at the impact of trade facilitation reforms on agro-food trade. This report examines how a sub-set of OECD Trade Facilitation Indicators (TFIs) could be used to provide a more complete picture of the current performance of border processes for perishable agro-food goods. It highlights specific TFIs of relevance to agro-food, including: documentation requirements or border controls related to sanitary and phytosanitary measures and technical barriers to trade, and automation and streamlining of border formalities, and explores differentiated impacts across agro-food product groups. Practical approaches are identified to enrich the scope of the existing OECD TFIs with a view to deepening the information base on the performance of trade facilitation policies for perishable agro-food goods.

Keywords: Trade costs; agro-food trade; automation; simplification; COVID-19

JEL Codes: F13, F68, Q17

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Key insights

The “why” of the feasibility study: Unique challenges exist in clearing perishable agro-food products at the border

- When compared to manufacturing goods, border processes for agro-food products add a complex array of compliance and enforcement issues, which may differ from country to country.
- The fact that multiple agencies play a role in conducting border processes complicates the analytical base. Specific trade facilitation indicators would help reach meaningful and relevant policy insights.
- Experience during the COVID-19 pandemic shows the benefits of streamlining border controls and documentation requirements, including through digital tools. How these apply uniquely to agro-food is an open question.
- Devising a sub-set of indices to augment the existing OECD Trade Facilitation Indicators could offer a more complete picture of the specific challenges at the border for perishable agro-food goods. This information could then be used to assess impacts on agro-food trade costs.

The “what” of the feasibility study: A review of areas that can inform where specific agro-food trade facilitation indicators are relevant

- The feasibility assessment in this report provides a review of areas where agro-food trade facilitation indicators could be relevant, covering:
 - challenges at the border stemming from documentation requirements or border controls associated with specific components of SPS and TBT measures,
 - ongoing challenges in automating and streamlining formalities at the border, and
 - potential differentiated impacts across agro-food product groups.

The “how” of a feasibility study: What are the elements needed for specific agro-food trade facilitation indicators

- The feasibility study highlights that the scope of specific agro-food trade facilitation indicators could incorporate three building blocks: (i) simplification and harmonisation of documentary requirements; (ii) streamlining of processes at the border; (iii) co-operation between Customs and other border agencies responsible for perishable agro-food goods trade.
- The specificities of agro-food products warrant an expert survey of top agro-food exporting and importing countries. The survey would aim to identify which trade facilitation measures potentially matter more across agro-food product groups with different ‘degrees of perishability’ (i.e. animal-based products, plant-based products, oils and fats, and processed food) and would provide the basis for calculating specific agro-food trade facilitation indicators. The feasibility assessment proposes that relevant agencies in 26 main agro-food exporting and importing countries be asked for information on specific variables within the three building blocks identified.

1. Introduction

Despite continued progress in the trade facilitation environment across economies at all levels of development, trade costs for perishable agro-food products¹ remain higher than for manufactured goods (OECD, 2020^[1]). Although trade costs have been falling in all country income groups, the decrease for agro-food products has been slower than in manufacturing (OECD/WTO, 2015^[2]) (UNESCAP, 2019^[3]). Analysis of the economy-wide impacts of trade facilitation, undertaken using the OECD METRO CGE model and the OECD Trade Facilitation Indicators (TFIs), showed that comprehensive trade facilitation reform has the potential to increase agro-food trade through overall gains arising from both reduced shipping losses and increasing the speed of product delivery to markets (OECD, 2018^[4]). However, to date, it has not been possible to sufficiently capture and address the sector-specific challenges perishable agro-food goods face in the context of border processes.

At the same time, recent OECD work also shows that while in many cases sanitary and phytosanitary (SPS) and technical barriers to trade (TBT) measures raise trade costs for agro-food products, they can also expand trade volumes by increasing demand for imported products. This is particularly the case for SPS measures, where compliance with regulations, by providing a positive signal to consumers, can increase consumer confidence in imported products (Cadot, Gourdon and van Tongeren, 2018^[5]) (Gourdon, Stone and van Tongeren, 2020^[6]). There is therefore considerable interest in better understanding how trade facilitation policies at the border can reduce costs and enhance perishable agro-food products trade.

The most important consideration in border controls generally applied to manufactured goods is fiscal: defining and collecting the applicable duties payable on the goods. In the case of agro-food products, a complex array of additional policy objectives are equally important, including ensuring that sanitary and phytosanitary risks are identified and dealt with, or establishing whether required traceability or consumer protection information is available and reliable. The compliance and enforcement requirements for these activities often differ from one country to another, making the analysis of those requirements more complicated. Multiple agencies are also often in charge of enforcing these requirements, which can make it difficult to streamline and reconcile the entire procedure in practice. The involvement of multiple agencies can make it more difficult to create an analytical basis upon which to reach meaningful and relevant policy insights. Moreover, while the momentum produced by the negotiation of the WTO Trade Facilitation Agreement (TFA) has helped increase documentation of Customs practices and raise awareness among Customs officials, exploration of the process and practices of other border agencies is less advanced, complicating the collection of relevant data and information on the implementation of trade facilitation policies.

Over the years, the structure of agro-food supply chains has evolved towards increased complexity across multiple firms, countries and regions (OECD, 2020^[7]). The perishable nature of food and the large number of public and private actors involved in supply chains has heightened the need to ensure the quality, safety and traceability of agro-food products and their compliance with food safety measures. Effective traceability

¹ In order to define the scope of this feasibility assessment on perishable products (understood as “goods that rapidly decay due to their natural characteristics, in particular in the absence of appropriate storage conditions”, according to the WTO TFA definition), the scoping paper for this work proposed to address trade facilitation aspects relating specifically to agro-food products. However, other perishable goods such as medical goods (e.g. pharmaceuticals) could be subject to similar challenges at the border. While the present paper focuses on agro-food products, many of the challenges faced by agro-food products (e.g. in terms of inspections, storage, clearance times etc.) will become increasingly relevant also for medical goods (including COVID-19 vaccines). Section 2 of the feasibility assessment explores the challenges of determining a ‘degree’ of perishability at a Harmonised System (HS) 2-digit level for agro-food products.

through visibility of relevant information along the supply chain enables both border agencies and agro-food businesses to better manage risks and allows for quick reaction to emergencies, recalls, and withdrawals.

While supply chains held up reasonably well during COVID-19, some disruptions were experienced in transport, logistics, and border controls. Experience since the COVID-19 pandemic shows the importance of specific policies that streamline border controls (e.g. the set-up of “green lanes” for essential goods) and documentation requirements and promote the use of digital tools for addressing these challenges (OECD, 2020^[8]) (OECD, 2021^[9]). It also raises the question of how these may apply to the unique characteristics of the agro-food sector.

This feasibility study explores and documents where challenges lie in terms of facilitating border clearance of perishable agro-food products. It then also tries to identify practical approaches to enriching the scope of the existing OECD TFIs in ways that could overcome the lack of structured information on trade facilitation policies for perishable agro-food goods. The next section identifies the characteristics of the perishable agro-food goods supply chain that impact the border process. Section 3 provides an overview of key trade facilitation policy areas that matter for the smooth and efficient border clearance of perishable agro-food products, focusing on the linkages between the WTO TFA and other agreements applicable to agro-food trade. Section 4 goes on to explore the challenges stemming from regulations and procedural aspects of non-tariff measures (NTMs) applied at the border to perishable agro-food goods. Based on the aspects identified in Sections 3 and 4, Section 5 proposes specific variables to expand the scope of the OECD TFIs for perishable agro-food goods and assesses the feasibility of compiling information. Section 6 concludes.

2. Issues for border processes arising from the complexity of the perishable goods supply chain

2.1. The challenges in determining a “degree” of perishability

The “degree” of perishability of agro-food products traded determines the importance of an uninterrupted cold chain². Definitions of agro-food perishable goods usually highlight their sensitivity to temperature, humidity, post-harvest handling and processing, as well as their vulnerability to pests and diseases. (Albrecht, 2007^[10]) distinguishes between perishable, non-perishable, and semi-perishable commodities, while (Barrett, Somogyi and Ramaswamy, 2004^[11]) identify products of very low, low, moderate, high and very high perishability. Meat, dairy, fish and seafood, fresh fruit and vegetables, as well as their derived products, are dependent on a cold chain for their storage for any length of time,³ as opposed to grains and their related products (such as flour), sugar-derived products, dried pulses, spices or canned goods, among others. The former group of products will thus have a higher degree of perishability than the latter. For products with a higher degree of perishability, all steps involved in their production, transformation and distribution until their final consumption will share the vulnerabilities linked to their limited shelf life.

With these considerations in mind, products covered by Harmonised System (HS) codes 09 to 15 (including cereals and products of the milling industry), as well as some processed food and beverages (HS codes 17 to 19 and HS 22 to 24) are considered for the purposes of this feasibility assessment to

² Understood as a temperature-controlled series of production, storage and distribution activities and their associated equipment and logistics meant to maintain perishable products within a specified low-temperature range from harvest/production to consumption, in order to preserve and extend their shelf life.

³ FAO (2019^[24]) highlights how such goods particularly depend on cold storage, good physical infrastructure and efficient logistics during their transportation to prevent food losses.

present a low risk of spoilage (Table 1). For products such as meat (HS code 02), dairy (HS code 04), fish and related products (HS codes 03 and 16), as well as fruit and vegetables (HS codes 06 to 08), the risk of spoilage is considered to be high. Other products such as oil and fats (HS code 15) present lower risks of spoilage than meat and dairy, but their transportation still requires specific handling.

Table 1. Agro-food sub-sectors in the Harmonised System classification and associated degrees of perishability

HS code	HS description	Degree of perishability
SECTION I. Live animals; Animal product		
01	Live animals	Not applicable
02	Meat and edible meat offal	High
03	Fish and crustaceans, molluscs and other aquatic invertebrates	High
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	High
05	Products of animal origin, not elsewhere specified or included	High
SECTION II. Vegetable products		
06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage	High
07	Edible vegetables and certain roots and tubers	High
08	Edible fruit and nuts; peel of citrus fruit or melons	High
09	Coffee, tea, maté and spices	Low
10	Cereals	Low
11	Products of the milling industry; malt; starches; inulin; wheat gluten	Low
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder	Low
13	Lac; gums, resins and other vegetable saps and extracts	Low
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	Low
SECTION III. Animal or Vegetable fats and oils and their cleavage products; Prepared edible fats; Animal or vegetable waxes		
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	Medium
SECTION IV. Prepared foodstuffs; Beverages, spirits and vinegar; Tobacco and manufactured tobacco substitutes		
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	High
17	Sugars and sugar confectionery	Low
18	Cocoa and cocoa preparations	Low
19	Preparations of cereals, flour, starch or milk; pastry cooks' products	Low
20	Preparations of vegetables, fruit, nuts or other parts of plants	Medium
21	Miscellaneous edible preparations	Medium
22	Beverages, spirits and vinegar	Low
23	Residues and waste from the food industries; prepared animal fodder	Low
24	Tobacco and manufactured tobacco substitutes	Low

Source: HS 2017 sector classification based on (WCO, 2020^[12]). The table refers to authors' mapping of 'degrees of perishability' based on the literature reviewed in this section.

To maintain an intact cold chain, government authorities, port operators, warehouses, and freight transport providers (including trucking firms, and air, rail, and shipping lines), all play a key role in ensuring such goods are kept at the right temperature and humidity as they make their way from origin to destination (Albrecht, 2007^[10]). As perishable goods cross borders, not only are logistics, distribution or warehousing services essential, but also Customs and other border agencies, who play a critical role in preserving the cold chain through streamlined handling, testing, and inspection (OECD, 2018^[4]).

2.2. Institutional architecture

The institutional framework can play a key role in streamlining border processes for perishable agro-food goods. Customs authorities are not the only agency involved in the border process affecting perishable goods. Other agencies can include ministries or agencies that draft, implement and/or enforce SPS measures, health agencies, and domestic conformity assessment bodies, etc. The regulatory environment and low co-ordination among border agencies can create inefficiencies and costs for traders. The institutional framework can differ from country to country⁴, while the operational architecture determining how these agencies work and co-ordinate can also be influenced by different factors, including the point of entry/exit directly linked to the mode of transport used (i.e. air cargo, maritime transport, or road transport) as well as the availability of specific facilities (e.g. laboratories) (OECD, 2018^[4]). During the COVID-19 pandemic, agencies have increasingly needed to rely on their interconnected or shared computer systems and real-time data availability to make up for the lower availability of personnel due to physical distancing measures (OECD, 2020^[8]).

Challenges can be encountered in day-to-day co-operation among border agencies, which can lead to additional delays in border clearance (OECD, 2018^[4]). For perishable goods in particular, there can be significant duplication in border agencies' data requirements – both for export and import processes – including the provision of data already held by other border agencies (USAID, 2019^[13]).

When border inspections are not formally co-ordinated among the agencies involved in the management of cross-border trade, local staff co-ordinate in an informal and *ad hoc* manner in order to address contingencies emerging in day-to-day operations (OECD, 2020^[8]).

There has been limited analysis so far of the processes and practices of border agencies, outside of Customs, relating to perishable agro-food products. Understanding the roles of different border agencies and their interaction with Customs authorities would be critical for mapping the procedural requirements applied to perishable goods.

3. Linkages between the WTO TFA and other agreements applicable to agro-food perishable products

This section discusses the policy elements across agreements applicable to agro-food perishable goods trade in order to identify potential areas that could be further explored in relation to making their cross-border trade more efficient. These focus on the WTO Trade Facilitation Agreement (TFA) and the WTO SPS and TBT Agreements. The linkages to GATT provisions on quantitative restrictions are also noted, as such regulations can imply specific documentary requirements and specific controls at the border to verify compliance.

⁴ Specific institutional and operational arrangements can be in place where different economies belong to a Customs Union.

3.1. Provisions in the WTO Trade Facilitation Agreement

The WTO TFA includes a specific provision pertaining to perishable goods. TFA Article 7.9 acknowledges the potential of perishables to deteriorate rapidly, and requires countries to ensure those goods face the shortest possible release time, to give them appropriate priority when scheduling inspections and, to the extent practicable, to communicate the reasons for any significant delay in their release. The provision further encourages arrangements that would allow release of these goods outside the business hours of Customs and other relevant authorities, where appropriate. It also highlights the importance of appropriate storage conditions for perishable goods pending their release, and requests countries to arrange proper storage facilities, or allow importers to do so, and to allow, under certain conditions, for the release to take place at those storage facilities.

Beyond this provision, which explicitly targets perishables, the Agreement contains several other provisions that have a direct or indirect impact on the expedited clearance of perishable goods. Of critical importance are the provisions to improve the impartiality, non-discrimination and transparency of procedures applied to foods, beverages and feedstuffs, in particular of enhanced controls and inspections meant to protect human, animal or plant life and health in case of particular sanitary and phytosanitary conditions.⁵ Such enhanced controls should be transparent both in their application and termination, enforced in a uniform manner⁶, and be removed when they are no longer relevant. General TFA provisions that improve the access to information (Internet publication⁷) are also relevant for the additional documentation requirements imposed on food and agriculture products.

Provisions that enhance the impartiality and proportionality of conformity assessment to applicable standards, applied both to agro-food and to manufactured products are also particularly important. For example, a WTO member may provide the opportunity of a second test when there is an adverse finding between the first test of a sample taken from goods and the declaration of the goods at the time of import⁸. Certain provisions require countries to allow importers to return to the exporter goods rejected on account of their failure to meet prescribed SPS and TBT measures, consistent with their laws.⁹

Perishables also benefit from provisions that generally improve the efficiency of border practices and expedite the movement of all types of goods, allowing time-sensitive products to spend less time at the border. These include the disciplines on publication and enquiry points, advance rulings, appeals procedures, fees and charges, risk management, inland clearance, use of international standards, pre-arrival processing of documentation, simplified procedures, electronic payments, separation of release from duty determination, and Single Windows¹⁰. Provisions enhancing the co-operation of various agencies¹¹ responsible for sanitary, phytosanitary, quality, or standards' conformity controls on perishable goods (border agency co-operation¹²) are essential, as they help minimise duplications and loss of time. The critical aspects in the provisions generally facilitating trade are the same as in the provisions

⁵ TFA Art.5.1 and 5.2.

⁶ And where a Member adopts or maintains a system of issuing notifications or guidance to its concerned authorities for enhancing the level of controls or inspections at the border in respect of foods, beverages, or feedstuffs covered under the notification or guidance for protecting human, animal, or plant life or health within its territory, the Member may issue the notification or guidance so that it applies uniformly only to those points of entry where the sanitary and phytosanitary conditions on which the notification or guidance are based apply.

⁷ TFA Art.1.2.

⁸ TFA Art.5.3.

⁹ TFA Art.10.8.

¹⁰ TFA Art.1.1 and 1.3, 3, 4, 6.1 and 6.2, 7.1, 7.2, 7.3, 7.4, 9, 10.1, 10.3, 10.4.

¹¹ Physically present at the border or co-operating remotely via IT systems.

¹² TFA Art.8.

specifically targeting agro-food products and, more particularly, perishables: the time for crossing the border and the conditions under which this time is spent, the transparency, predictability and impartiality of applicable requirements and controls, and the co-operation of involved agencies.

3.2. Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) measures from a perspective of trade facilitation at the border

The WTO SPS and TBT Agreements provide additional important elements relating to the cross-border movement of perishable goods. The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (WTO SPS Agreement) is a multilateral agreement aiming to avoid unnecessary obstacles to trade through the use of science and risk-based measures, while respecting the rights of countries to take appropriate measures for the protection of plant, animal, and human health.¹³ The Technical Barriers to Trade Agreement (WTO TBT Agreement) aims to ensure that technical regulations, standards, and conformity assessment procedures are non-discriminatory and do not create unnecessary obstacles to trade.¹⁴ At the same time, it recognises WTO members' right to implement measures to achieve legitimate policy objectives, such as the protection of human health and safety, or protection of the environment.¹⁵

The transparency, predictability and impartiality of applicable requirements and controls are at the centre of the obligations established by the SPS and TBT Agreements to ensure that measures necessary to protect human, animal or plant life and health or that technical regulations, standards and conformity assessment procedures do not create unnecessary obstacles to international trade.

Several SPS and TBT provisions promote the transparency of applicable regulations, requirements and changes thereof.¹⁶ WTO Members commit to minimising trade effects to the extent practicable when elaborating policies and regulations, placing risk considerations at the centre of their regulations and protection measures,¹⁷ and removing the latter if the reason for the measure no longer exists.¹⁸ The SPS and TBT Agreements encourage harmonisation with international standards as a trade-facilitating approach.¹⁹ Transparency and harmonisation can help reduce the burden of documentation requirements for proving conformity assessment, as well as for how these documents are exchanged cross-border. But they do not necessarily prevent duplication in documentation requirements by different agencies; hence, it is important to periodically review their requirements to prevent redundancies.

On the other hand, time considerations in the SPS and TBT Agreements mainly concern the requirement to undertake and complete control, inspection, approval and conformity assessment procedures without undue delay (SPS) or as expeditiously as possible (TBT).²⁰

¹³ Understanding the WTO Agreement on Sanitary and Phytosanitary Measures: https://www.wto.org/english/tratop_e/sps_e/spsund_e.htm.

¹⁴ The Agreement is not specific to perishable agro-food products, but these measures can also apply to such goods.

¹⁵ https://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm.

¹⁶ SPS Art.7 and Annex B, TBT Art. 2.5, 2.11, 2.12, 5.6 to 5.9, 10.

¹⁷ SPS Art.5, TBT Art.2.2.

¹⁸ SPS Art.5.4, TBT Art. 2.2, 2.3.

¹⁹ SPS Art.3.1, TBT Art.2.4, 5.4. This concerns the development of international standards by Codex Alimentarius (providing a wide range of standards and guidelines for food safety issues); the International Plant Protection Convention (IPPC) (establishing standards for plant health); and the World Organisation for Animal Health (OIE) (setting standards for animal health and diseases that are transmissible to humans).

²⁰ SPS Annex C1 (a) and (b), TBT Art.5.2.1, 5.2.2.

Annex Table A1.1 provides an illustrative mapping of how the WTO TFA policy areas covered by the OECD Trade Facilitation Indicators (TFIs)²¹ relate to key provisions of the SPS and TBT Agreements linked to trade in perishable agro-food goods.

3.3. Other areas potentially leading to procedural challenges

With respect to quantitative restrictions that can be applied to foodstuffs and other agricultural or fisheries commodities, such as quotas, import and export restrictions and tariff quotas, GATT Articles XI and XIII also impose transparency and predictability disciplines. These include the requirement to provide public notice of the total quantity and value of the product permitted to be imported during a specified period and any changes thereof; and all relevant information concerning the administration of the restrictions and the distribution of related licences. The existence of quantitative restrictions will imply specific documentary requirements and controls at border in order to assess compliance²².

4. Challenges in assessing the facilitation of trade in perishable agro-food products

4.1. The complexity of NTMs versus procedural aspects: A review of areas that can inform what agro-food trade facilitation indicators are relevant

SPS and TBT policy areas relevant to perishable agro-food trade translate not only into regulations and technical measures affecting traders, but also into procedural aspects, as traders take the necessary steps behind- and at-the-border to comply with such requirements. To assess where bottlenecks occur in the border clearance of different agro-food products, this section explores existing qualitative and empirical evidence, which highlights the complexities related to documentation requirements, inspections and other controls at the border. These complexities can be categorised under the following themes:

- challenges at the border stemming from documentation requirements or border controls associated to specific components of SPS and TBT measures,
- ongoing challenges in the automating and streamlining of formalities at the border, and
- potential differentiated impacts across agro-food product groups.

(i) Challenges at the border stemming from documentation requirements or border controls associated to specific components of SPS and TBT regulations

Regulations can increase the cost of importing, particularly if they differ significantly from those applied in the exporting country. Foreign suppliers wishing to export generally face NTMs relating to identifying and processing information on relevant requirements in the target market (information costs), adjusting the product or production process to the requirements of the importing country (specification costs), or verifying and proving that these requirements are actually met (conformity assessment costs) (Matoo, Rocha and Ruta, 2020^[14]). However, research also shows that by increasing consumer confidence in imported products, many such measures actually enhance trade in these goods (Cadot, Gourdon and van Tongeren,

²¹ The TFIs mirror the substantive provisions of the TFA. The families of measures covered in the WTO TFA have been re-organised, in order to take into account similarities between measures, underlying shared components, as well as areas where further distinctions were warranted. An additional OECD indicator going beyond the scope of the TFA was added to capture elements of good governance and impartiality of border administrations.

²² Different documentation requirements and controls can arise from the existence of procedures relating to the administration of tariff quotas through trade agreements.

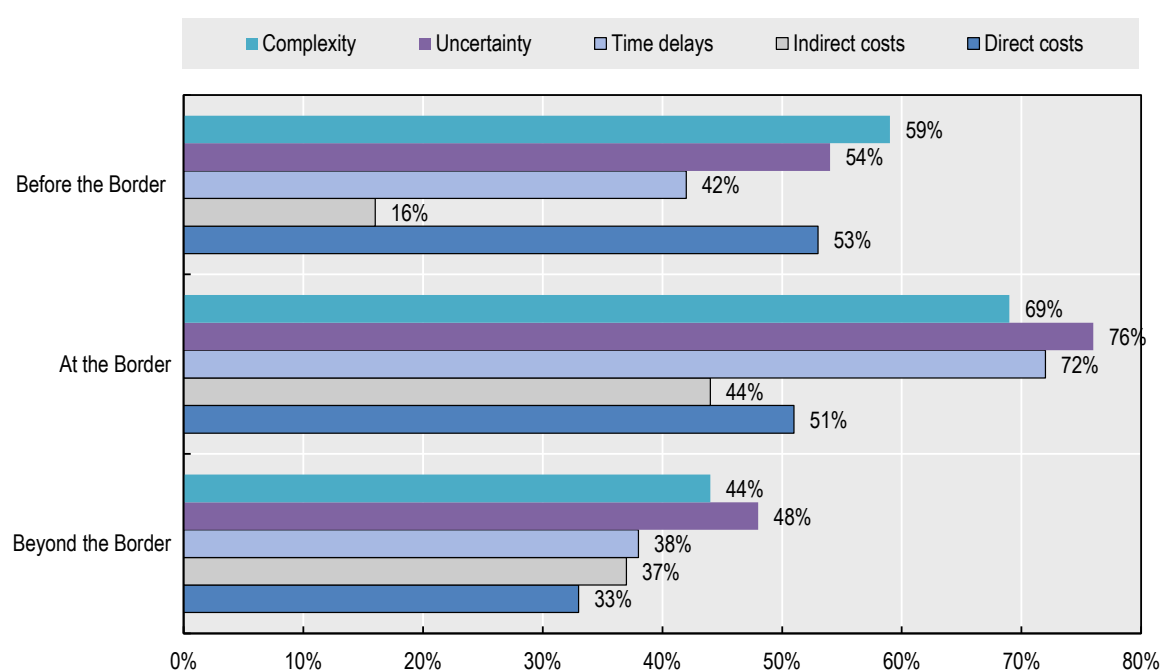
2018⁽⁵⁾), and thus getting the balance right matters. Specific trade facilitation indicators for agro-food sectors can help highlight this balance.

Many such NTMs can translate into specific documentary controls or physical inspections at the border. For instance, even if the procedures for obtaining documents such as import licenses, or the origin, product testing, health, phytosanitary, or fumigation certificates occur before the border, controls on the existence and conformity of documents are performed at the border. Existing business surveys help shed light on whether the challenges are related to complying with a regulation imposed by an importing or exporting country or whether challenges arise as an indirect consequence of how the regulation is implemented, for example, in terms of the time it takes to procure a compulsory certificate of import or export.

Business surveys conducted across APEC economies²³ highlight that the greatest levels of complexity and uncertainty are encountered at the border rather than before or beyond the border when exporting and importing. More than two-thirds of stakeholders surveyed mentioned that border clearance created the longest time delays, noting that regulations are only as effective as implementation on the ground (Figure 1). Businesses highlighted in this sense the challenges around inconsistent enforcement across modes of transportation and different border posts (i.e. points of entry / exit within the same country, including sea ports, airports and land border posts). Businesses also highlighted the heterogeneity in the availability of testing facilities across different points of entry / exit within the same country, adding risk and uncertainty in business operations (APEC Business Advisory Council, 2016⁽¹⁵⁾).

Figure 1. Business views on challenges relating to complexity and uncertainty of processes at- and behind-the-border

Share of responses (%)



Source: APEC Business Advisory Council (2016⁽¹⁵⁾).

²³ APEC economies surveyed include: Australia; Brunei Darussalam; Canada; Chile; China; Hong Kong, China; Indonesia; Japan; Korea; Malaysia; Mexico; New Zealand; Papua New Guinea; Peru; Philippines; Russian Federation; Singapore; Chinese Taipei; United States; Viet Nam.

An additional survey conducted by the International Trade Centre (ITC) of approximately 20 000 exporting firms in more than 20 developing countries²⁴ (ITC, 2015_[16]) points to the significance of procedural challenges as a barrier, with 65% of agricultural exporters surveyed identifying these as the main bottleneck in sending goods across borders. More specifically, businesses highlighted time constraints and costs related to border clearance processes at Customs, as well as to processes in the ministry in charge of international trade (e.g. the issuance of certificates of origin), other relevant ministries (e.g. health certification in the ministry of health), and standards bodies (e.g. product testing and certification).

In terms of specific regulations, the APEC surveys also highlighted that the most challenging SPS measures (identified by 57% of surveyed stakeholders) relate to conformity assessments, followed by certification and tolerance limits on chemical residues. In addition, the most challenging TBT measures (identified by 76% of APEC businesses surveyed) relate to labelling marking and packaging, followed by conformity assessment, such as product identity and product performance and quality control. This underscores that particular challenges can be experienced at the border in terms of documentation and controls relating to compliance with conformity assessment regulations (APEC Business Advisory Council, 2016_[15]).

(ii) Ongoing challenges in automating and streamlining formalities at the border

The OECD Trade Facilitation Indicators (TFIs)²⁵ highlight that economies across most regions have made significant progress in the regulatory environment for trade facilitation, but that greater efforts are needed, particularly in the implementation on the ground of reforms in areas such as domestic and cross-border co-operation, streamlining of procedures, automation and simplification of documents (OECD, 2020_[11]).

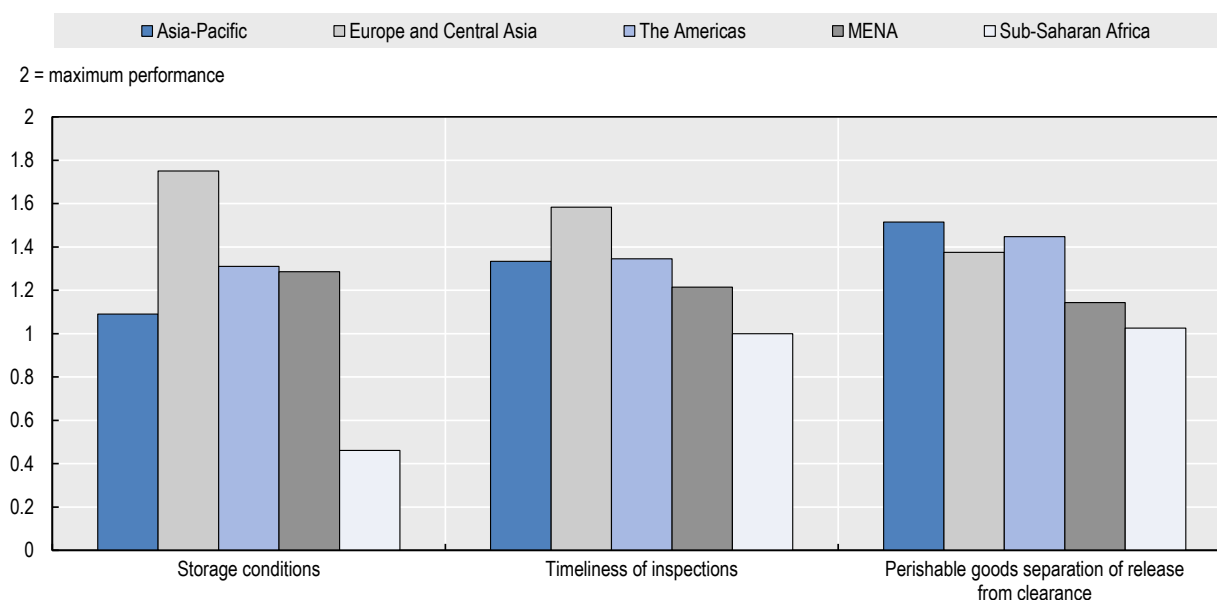
Several specific components within the indicator TFI (h) on Procedures capture aspects that are directly relevant for agro-food trade products. For instance, timeliness and storage conditions for inspections of perishable goods remain challenging across many economies, including across the Asia-Pacific, Middle East and North Africa (MENA) and Sub-Saharan Africa. Particular treatment for perishable goods in providing separation of release from payment of duties and taxes is increasingly advanced in Asia-Pacific, Europe and Central Asia, and the Americas, but challenging in MENA and Sub-Saharan Africa (Figure 2) (OECD, 2020_[11]).

²⁴ Economies surveyed are located in Sub-Saharan Africa (Burkina Faso, Côte d'Ivoire, Guinea, Kenya, Madagascar, Malawi, Mauritius, Rwanda, Senegal, Tanzania), Middle East and North Africa (Egypt, Morocco, Tunisia), Asia (Cambodia, Indonesia, Kazakhstan, Sri Lanka), Latin America (Jamaica, Paraguay, Peru, Trinidad and Tobago, Uruguay).

²⁵ The eleven TFIs take values from 0 to 2, where 2 designates the best performance that can be achieved. The TFIs mirror the substantive provisions of the TFA. The families of measures covered in the WTO TFA have been re-organised, in order to take into account similarities between measures, underlying shared components, as well as areas where further distinctions were warranted. An additional OECD indicator going beyond the scope of the TFA was added to capture elements of good governance and impartiality of border administrations. The variables in the TFI dataset are coded with 0 ('no implementation'), 1 ('partial or in the process of implementation'), or 2 ('operational'). These seek to reflect not only the regulatory framework in the concerned countries, but delve, to the extent possible, into the state of implementation of various trade facilitation measures. Where variables depend on numerical answers, these are broken down on thresholds to which 0/1/2 scores are applied.

Figure 2. Information based on the 2019 OECD TFIs highlights that challenges remain in the streamlining of inspections and clearance for perishable goods

Information available for 2019 (2 represents the maximum performance that can be achieved)



Note: The averages by region are continuous variables between 0 and 2, based on the variables score by countries within the same geographic group.

Source: OECD (2020^[11]).

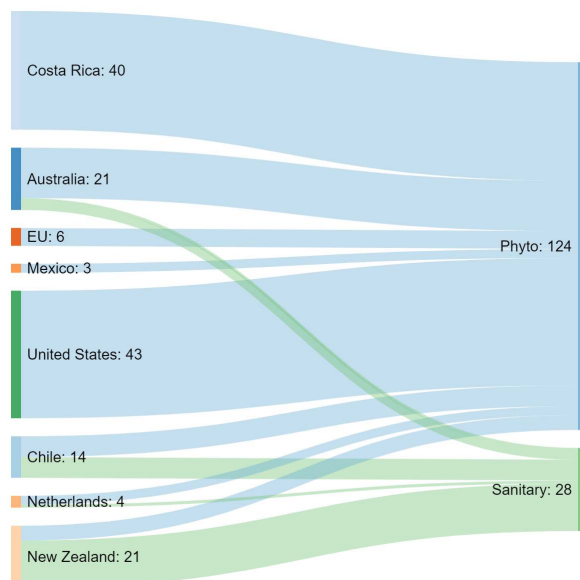
Digital technologies are increasingly used to support the streamlining of formalities behind and at-the-border. A scan of existing country activity in using digital technologies in SPS systems indicates that the most significant area of activity appears to be in the verification of SPS compliance in facilitating the movement of products, specifically the use of bilateral, plurilateral, and multilateral systems for the exchange of SPS electronic certificates (e-certificates) (OECD, 2021^[9]).

Indeed, countries appear to be advancing the exchange of SPS e-certificates through a range of channels, including multilateral work programmes (such as the International Plant Protection Convention (IPPC) ePhyto Hub), regional trade agreements, and as part of work streams under bilateral trade agreements (OECD, 2021^[9]).²⁶ While it is possible to provide a broad picture of how many countries have initiated processes to develop the use of SPS e-certificates (Figure 3), it remains difficult to establish the exact number of operational systems in practice. The adoption of e-certification appears to be more widespread in respect of phytosanitary aspects (covering the trade in plant-based products) than in respect of sanitary (covering the trade in animal-based products).

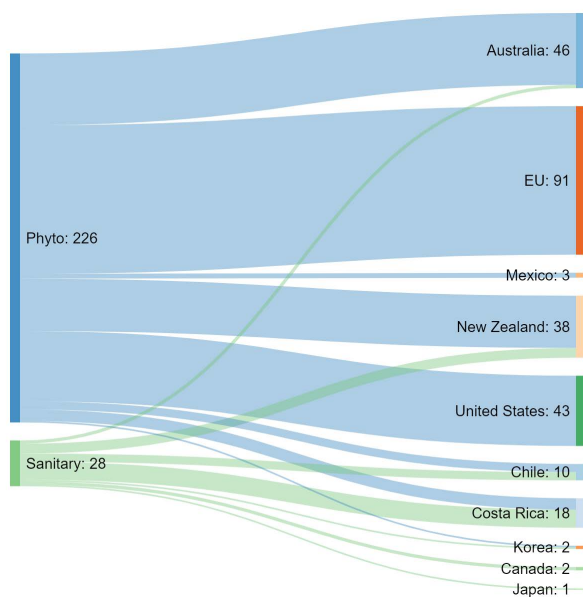
²⁶ OECD (2021^[9]) also notes that a mix of all three approaches is used by some countries. The report documents based on a country survey the economies that are sending and receiving SPS e-certificates and the products covered (as of November 2020).

Figure 3. Selected OECD economies exchanging e-certificates for agro-food products (both plant and animal-based products, November 2020)

a. Jurisdictions sending e-certificates and number of receiving partners



b. Jurisdictions receiving e-certificates and number of sending partners



Note: The figures represent jurisdictions for which it was possible to establish based on the latest available data from the survey in OECD (2021^[9]) the number of trading partners with whom electronic certificates are exchanged (sent in panel (a) and received in panel (b)). For some economies, such measures were put in place temporarily in response to the COVID-19 pandemic. Panel (a) shows that a country such as Australia has 20 trading partners overall accepting phyto and sanitary e-certificates, while there are 124 jurisdictions in total accepting phyto e-certificates and 28 accepting sanitary e-certificates. Panel (b) shows that an economy such as Australia can receive phyto e-certificates from 46 trading partners, while there are 226 jurisdictions able to send phyto e-certificates and 28 sanitary e-certificates.

Source: Own illustration based on information compiled in OECD (2021^[9]) (information made available by November 2020) and SankeyMATIC.

One of the key phases of implementation in the establishment of e-certification systems is the integration of e-certificates into border clearance processes. This shows the important linkages with the legal frameworks needed to support these systems, as well as providing certainty on the use of SPS data and the co-operation required between Customs, SPS and other relevant border agencies (OECD, 2021^[9]).²⁷

(iii) Differentiated impacts across agro-food product groups

SPS and TBT measures can raise costs for traders, but they can also expand trade by providing a positive signal to consumers that enhances confidence in imported products (Gourdon, Stone and van Tongeren, 2020^[6]). Drawing on the Multi-Agency Support Team (MAST) NTMs classification and database on SPS and TBT measures, Gourdon, Stone and van Tongeren (2020^[6]) show there can be differentiated impacts of NTMs across agro-food sectors. For instance, among the different types of SPS and TBT measures, the analysis in Gourdon, Stone and van Tongeren (2020^[6]) identifies quantitative control measures (QCM), TBT and SPS restrictions²⁸ as having the highest price impacts in the case of animal product sectors²⁹ (Figure 4). This can imply that documents and controls relating to various licensing requirements and allocation of quotas, prohibitions for TBT reasons or temporary geographic prohibitions for SPS reasons, special authorisations requirements, or registration requirements for importers can lead to most complexities at the border. Documentation and inspection relating to conformity assessment for both SPS and TBT measures – in terms of product registration, testing, inspection or traceability requirements – can also translate into challenges at the border.

In the case of plant-based products, it is not only prohibitions for TBT reasons, special authorisations requirements, or registration requirements for importers that can lead to challenges for traders, but also regulations on tolerance limits for residues, labelling and packaging requirements, production or post-production requirements, or product identity and quality requirements. Documentary requirements and inspections relating to SPS restrictions, such as temporary geographic prohibitions and special authorisations registration requirements for importers, appear to be challenging as well (Gourdon, Stone and van Tongeren, 2020^[6]).

For products such as oils and fats, complexities relating to QCM and TBT measures – regarding conformity assessments and regulations (labelling and packaging, product identity and quality requirements, etc.) – appear to outweigh the challenges linked to SPS measures. This highlights that some challenges may relate to documentation requirements and controls associated with these areas, as well co-operation issues between Customs and other agencies covering such aspects (Gourdon, Stone and van Tongeren, 2020^[6]).

For processed food products, SPS restrictions can lead to significant documentation requirements and subsequent controls. This can be also the case for TBT measures, thus overall inducing significant requirements in terms of documentation relating to specific authorisations and registrations. In addition, TBT regulations can add a layer of complexity to the documentation compliance. Most processed foods

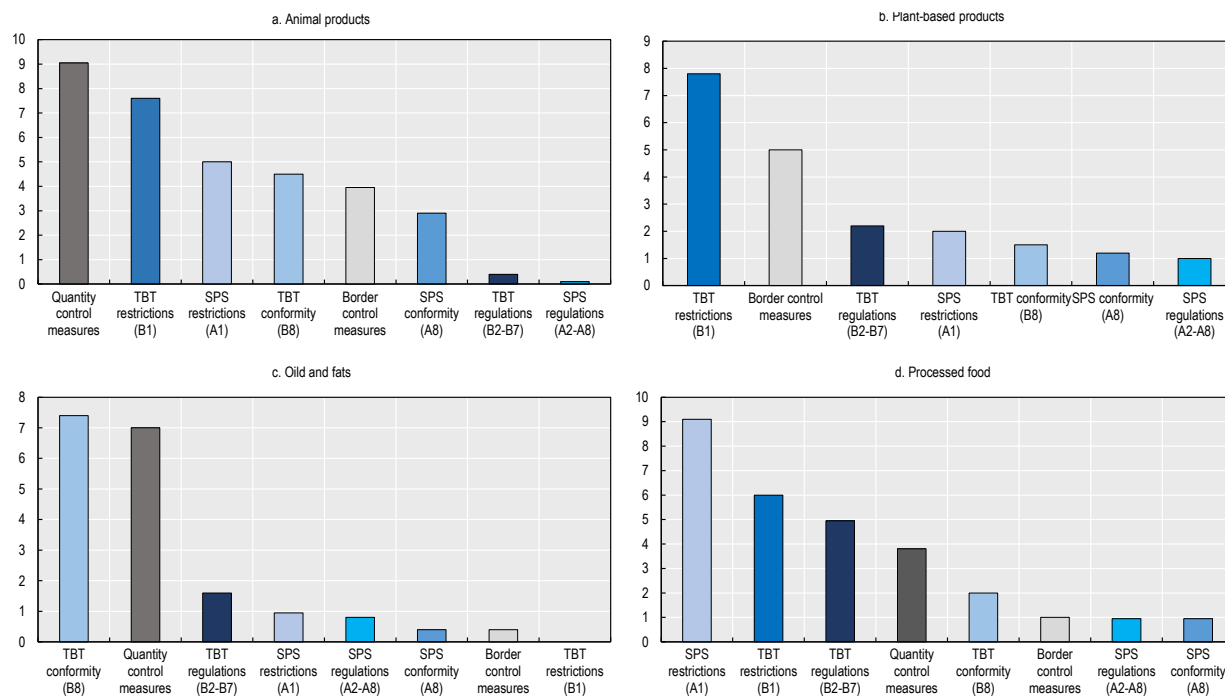
²⁷ Existing assessments of operations at selected border posts also highlight the challenges in automating and streamlining of border processes for agro-food products. For example, an analysis of various border posts between the United States and Mexico highlighted the more specific challenges relating to the preparation of accurate and complete documentation for submission to regulatory authorities, the implementation of risk-based regulatory frameworks, and the use of information technology systems (Zahniser et al., 2016^[23]).

²⁸ Annex A1 provides details on the coverage of these measures as defined in the Multi-Agency Support Team (MAST) classification of non-tariff measures. MAST classifies SPS and TBT measures into three broad categories: restrictions, regulations, and conformity assessment.

²⁹ The trade costs associated with these measures are often estimated as tariff equivalents or *ad valorem* equivalents (AVEs). However, higher AVEs do not necessarily reflect more severe distortions to economic welfare stemming from technical measures (SPS and TBT), as NTMs can have both enhancing and cost raising effects. High AVEs imply rather that producers must incur substantial costs to comply with requirements of the destination market (Gourdon, Stone and van Tongeren, 2020^[6]).

contain more ingredients than other agricultural products, making product identity requirements and labelling more demanding to navigate (Gourdon, Stone and van Tongeren, 2020^[6]).

Figure 4. Uneven price effects of applied non-tariff measures across different agro-food sectors



Note: Animal products include HS Section I (HS 01 to 05), plant-based products HS Section II (HS 06 to 14), oils and fats HS Section III (HS 15), and processed foods HS Section IV (HS 16 to 24).

Source: Gourdon, Stone and van Tongeren (2020^[6]).

Going beyond the specific elements on perishable goods captured by the TFIs described above, bridging trade facilitation gaps more widely has the potential to help address remaining bottlenecks at the border for these products. Drawing on OECD (2020^[17]), further improvements³⁰ in the areas of transparency and predictability, automation and border controls, and border agency co-operation can lead to increases in trade in agro-food sectors of up to 5% (Figure 5).³¹ Border agency co-operation aspects appear to be important mainly for trade in plant-based products and oils and fats, while areas of transparency and streamlining of processes seem to matter particularly for animal-based products and plant-based products.³² Remaining gaps in trade facilitation performance also reinforce the importance of enhancing consistency in the application of documentary controls and inspections at borders.

That said, the fact that only limited variables covered by the OECD TFIs are specific to the agro-food sector makes it difficult to provide more targeted policy recommendations for different product groups. For instance, while border agency co-operation appears to matter across all product groups, information is

³⁰ Performance distance is calculated as the absolute difference between the exporter and importer OECD Trade Facilitation Indicators value. Estimates show that, all other things being equal, countries with more similar trade facilitation profiles can trade more intensively between them. Therefore, economies with lower TFIs scores can increase their trade links with countries having a better performance by improving their own performance.

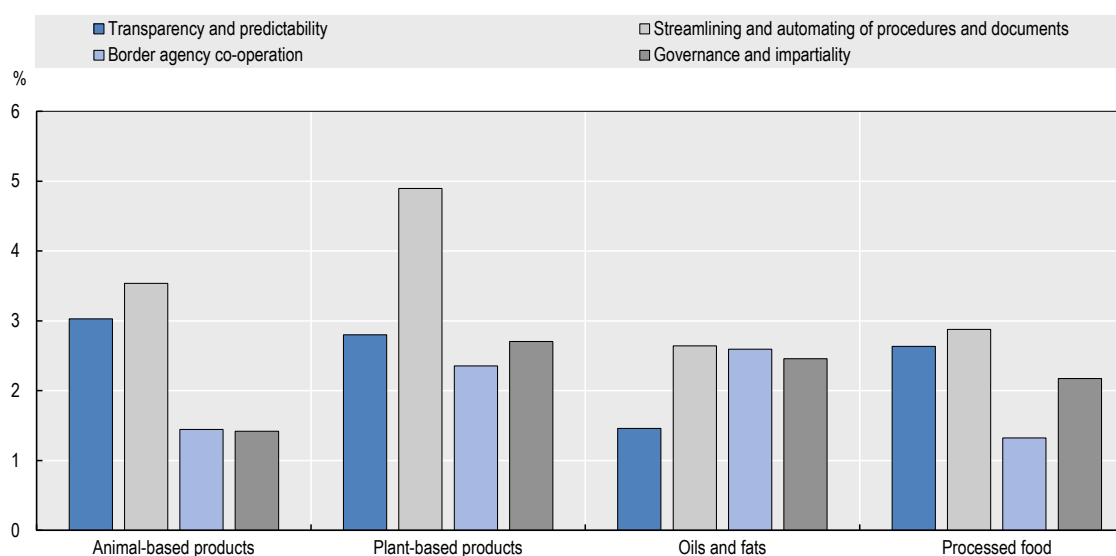
³¹ Details on the estimation approach used are provided in Annex A2.

³² According to the exploratory classification according to a “degree” of perishability described in Section 2, several animal-based products and plant-based products at an HS 2-digit level could be classified as having a high ‘degree’ of perishability.

limited on the mechanisms of co-operation between relevant agencies. This underscores the value of developing more specific variables for agro-food products.

Figure 5. Further bridging gaps in trade facilitation performance can enhance trade across agro-food sectors

Potential trade impact by agro-food product group (%)



Note: Details on the estimations used are provided in Annex A2. Animal products include HS Section I (HS 01 to 05), plant-based products HS Section II (HS 06 to 14), oils and fats HS Section III (HS 15), and processed foods HS Section IV (HS 16 to 24). The percentage increases in sectoral trade are estimated assuming a 0.1 basis points reduction in the trade facilitation performance distance by area (difference between the exporter and importer TFIs values). Details on the estimation approach used are provided in Annex A2, with potential trade increases based on summary Table A2.1.

Source: Authors' estimates based on the framework in OECD (2020^[17]).

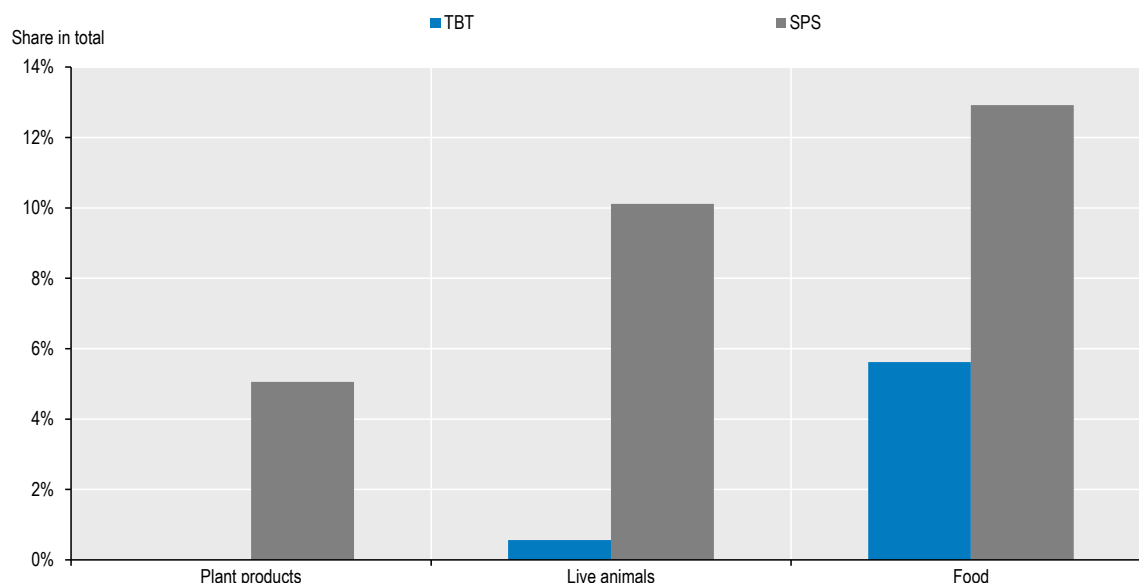
4.2. Challenges experienced during COVID-19

The COVID-19 pandemic appears to have provided impetus in the shift towards accepting SPS e-certificates (OECD, 2021^[9]). Jurisdictions such as Argentina, Australia, Chile, Costa Rica, the European Union, Indonesia, Japan, Mexico, the Philippines, the Russian Federation, South Africa, Chinese Taipei, and the United States have been accepting electronic SPS certificates in the place of paper documentation. These digital tools have added flexibility and adaptability within SPS systems, and allowed countries to mitigate the disruptions to trade flows while maintaining protections for the trade of safe agro-food products (OECD, 2021^[9]).

In addition, information submitted by countries to the WTO about their response to the COVID-19 pandemic shows that several economies have also temporarily relaxed during 2020 certain aspects of technical regulations for selected medical and food products (Figure 6), while still ensuring health protection for inspectors and officials working at the border and for transport and logistics staff. This also helped ease documentary requirements for many agro-food traders during the COVID-19 pandemic (WTO, 2020^[18]).

Figure 6. Relaxation of technical requirements during COVID-19 covers SPS and TBT measures for agro-food products

Share in total (%) SPS and TBT measures notified for medical and agro-food products, February – November 2020



Note: Measures notified to the WTO by Member economies up to November 2020.

Source: WTO (2020^[18]).

5. Identifying the scope of information that would be needed to devise specific agro-food trade facilitation indicators

5.1. Mapping specific indicator blocks for agro-food product groups

The review of available evidence in Section 4 of where some of the complexities appear to lie when exporting and importing perishable agro-food products shows that trade facilitation has the scope to provide support in easing several of the procedural challenges traders may face in complying with specific SPS or TBT requirements. There is insufficient evidence, however, on which specific areas matter more for reducing procedural obstacles at the border and where reforms should be prioritised to facilitate agro-food trade.

In this sense, the linkages between the TFA and the WTO SPS and TBT Agreements and relevant GATT provisions (Section 3) are important. However, these are not specifically covered by the existing TFIs. While information on some of these areas is available in other databases, they currently offer only a partial view of the border process for perishable goods. For instance, the United Nations Regional Economic Commissions Global Survey on Digital and Sustainable Trade Facilitation includes the following dimensions concerning agro-food products: the availability of testing and laboratory facilities to meet SPS measures of main trading partners, as well as of national standards and accreditation bodies, to facilitate compliance with the WTO SPS Agreement; electronic application and issuance of SPS certificates; and special treatment for perishable goods (UN, 2019^[19]). In addition, the World Bank Trading Food dimension of the Enabling the Business of Agriculture indicators provides information for 101 economies on: the total

time required as well as the total cost to obtain mandatory, agriculture-specific documents for each shipment; and on phytosanitary certification procedures (World Bank, 2019_[20]).³³

The exploratory analysis in Sections 4 and 5 of this feasibility assessment highlights that devising a set of indices could thus target the implementation of existing regulations, in line with the TFI methodology, in the areas where challenges appear to be greatest. Bringing together several variables into a sub-set of the TFIs has the potential to offer a more precise picture of the specific challenges in making border processes more efficient for perishable goods. This could provide greater clarity than is currently possible through the more broadly defined scope of the TFIs or through other existing datasets. Also based on the review of issues in Sections 4 and 5, this feasibility assessment considers three building blocks for this potential sub-set of indicators:

- simplification and harmonisation of documentation requirements,
- streamlining of processes at the border, and
- co-operation between Customs and other agencies responsible for perishable goods cross-border trade.

Across each dimension or building block where the TFIs could be used as the basis for adjusting measures to make them agriculture-specific, several variables could be considered. In a similar manner to the TFIs, the variables explored aim to be specific, precise and fact-based, targeting existing trade-related policies and regulations and their implementation into practice. Also as in the case of the TFIs, a multiple binary scheme where a top score (2) corresponds to the best performance could also be followed.³⁴ The lists below outline the scope of potential variables in each of the three blocks explored by this feasibility assessment, taking into account the areas identified in Section 4.1 (i) and (ii) as being challenging in the border clearance for agro-food products:

³³ These include five data points (for which a score of 1 is assigned if the answer is “yes” and a score of 0 is assigned if the answer is “no”): are exporters of agricultural products free from the requirement to obtain trader-level licenses or memberships; can exporters apply for a phytosanitary certificate online; is there an ePhyto system in place to generate, issue and exchange certificates online; can phytosanitary certificates be issued on-site where goods are located; and is the phytosanitary certificate fee publicly available.

³⁴ The variables in the TFI dataset are coded with 0, 1, or 2. These seek to reflect not only the regulatory framework in the concerned countries, but delve, to the extent possible, into the state of implementation of various trade facilitation measures.

*(i) Simplification and harmonisation of documentation requirements for perishable agro-food goods***Scope of potential variables to be considered***What is the number of documents needed to cover specific SPS and TBT requirements?*

SPS and/or TBT special authorisation

SPS-related requirements: product registration; testing; certification; traceability; origin³⁵ of materials and parts; processing history

TBT-related requirements: product registration; testing; certification; traceability; origin of materials and parts; processing history

*Can these documents be accessed and submitted online?³⁶**Can these documents be accessed and submitted through a Single Window?**Are copies of supporting documents required? Where they are required, are electronic documents sufficient?**How often are necessary documentary requirements reviewed to identify potential duplication and to enable simplification?**(ii) Streamlining of procedures for perishable agro-food goods***Scope of potential variables to be considered***What is the percentage of agro-food trade transactions covered by pre-arrival processing?**Is automated risk management applied to agro-food goods?**Does the possibility exist to provide inspection services away from the border (at the importer's premises, whether own or arranged) in order to facilitate release?**Is release, where appropriate, provided outside Customs normal business hours? Is this provided across all border posts?**Is there a requirement for Customs to give a written explanation to the importer, on request, when there is a significant delay in the release of the goods?**Are testing and laboratory facilities able to provide appropriate sampling techniques available at all border posts?**What is the percentage of agro-food sector traders included in existing Authorised Operators programmes?**(iii) Co-operation between Customs and other agencies responsible for perishable agro-food goods cross-border trade*

Single Windows mechanisms, automated risk management, or interconnected government agencies' computer systems are among the tools that can improve co-ordination between agencies on documents,

³⁵ These specific requirements can differ depending on provisions in the free trade agreements to which a specific economy is a party.

³⁶ This variable would need to take into account where specific platforms such as IPPC ePhyto, EU TRACES etc. are used and the extent to which they cover trade transactions.

data requirements, inspections, and mutual assistance for efficient border controls, but there is limited structured information available on how these work in practice to facilitate trade in perishables agro-food goods.

For perishable products, co-operation between border agencies is essential to reduce the complexities of procedures for different points of entry/exit and for different mode of transport, particularly with respect to challenges in the uniformity of application of procedures.

Scope of potential variables to be considered

Domestic co-operation between Customs and other agencies responsible for the management of cross-border trade in agro-food products

Are there coordination / harmonisation of data requirements and documentary controls between Customs and other agencies responsible for the management of cross-border trade in agro-food products?

Are interconnected or shared computer systems and real time availability of pertinent data between Customs and other agencies responsible for the management of cross-border trade in agro-food products?

Is there domestic coordination of inspections between Customs and other agencies responsible for the management of cross-border trade in agro-food products?

Are the results of inspections and controls shared among agencies involved in the management of agro-food cross-border trade, with a view to improving border control efficiency and facilitating trade?

How many agencies responsible for the management of cross-border trade in agro-food products can delegate controls to Customs at border posts? Is this implemented across all border posts?

Is there co-operation on Authorised Operators programs between Customs and other agencies responsible for the management of cross-border trade in agro-food products?

Cross-border co-operation between Customs and other agencies responsible for the management of cross-border trade in agro-food products³⁷

Is there alignment of working days and hours with neighbouring countries at land borders where applicable (covering Customs and other agencies responsible for the management of cross-border trade in agro-food products)?

Is there cross-border coordination / harmonisation of data requirements and documentary controls?

Is there cross-border coordination / harmonisation of the different computer systems?

Is there co-operation on risk management?

Is there a systematic sharing of control results with a view to improving the risk analysis as well as the efficiency of border controls and to facilitating licit trade?³⁸

Is there development and sharing of common facilities such as testing and laboratory facilities with neighbouring countries at border crossings, where applicable?

Are agro-food traders covered by Mutual Recognition Agreements/Arrangements on Authorised Operators (AOs), where applicable?

³⁷ Variables concern co-operation with neighbouring countries and other trading partners.

³⁸ This variable would need to take into account whether the domestic legal framework allows for the sharing of such information cross-border.

5.2. Different weights for variables across different agro-food sectors

Section 4 highlighted that different agro-food sub-sectors could face asymmetrical challenges in terms of procedural bottlenecks. In this context, a weighting system could help balance the relative importance of measures in each sector. The weighting system would rely on expert judgement as basis for deriving these weights, with a survey asking to distribute weights within each of the three building blocks proposed in Section 5.1.

A weighting system and associated expert survey are also needed to identify whether there are particular variables that are more important for products depending on their degree of perishability in Table 1. Given the challenges in defining a 'degree of perishability' for broad product categories – as highlighted in Section 1 – the exploratory classification in Table 1 (based on the literature review in this feasibility assessment) would be considered for delving into a potential weighting. For instance, for products with a higher degree of perishability as defined in Table 1, aspects concerning inspections and storage could be more important than for those with a medium to lower degrees of perishability. Therefore, this could imply higher weights for goods such as meat, dairy or fruit and vegetables for variables focusing on the possibility of inspections away from the border, storage, or release outside working hours within the category *(ii) streamlining procedures*.³⁹

Another example is in the case of SPS and TBT conformity assessment requirements. More restrictive than necessary SPS and TBT conformity assessment requirements or those which do not align with international standards, recommendations, or guidelines create challenges particularly for animal-based products or oils and fats. Therefore, documentary requirements and controls thereof at borders could be given higher weights for these sectors. Expert views could also help assess for differences in the importance of co-operation and harmonisation of data requirements and controls within the *(iii) border agency co-operation category*.

5.3. Potential country coverage

Given the challenges in compiling information for a large number of countries, the feasibility study proposes for data collection to be undertaken via a questionnaire targeting, as starting point, major exporting and importing countries across the four agro-food product groups identified in Table 2. Targeting first major exporting and importing countries would allow identifying the challenges the data collection implies before extending the survey to other regions and country income groups (for example, additional low- and lower-middle income economies not covered by the list of top trading economies in Table 2, but for which the agro-food sector can nevertheless represent an important share of GDP and trade). This would imply compiling information and conducting expert surveys on the weights for 26 economies, including 15 OECD countries (Table 2). These selected 26 economies provide a geographic coverage across Europe, Latin America, North America and Asia-Pacific.⁴⁰

³⁹ i.e. instead of assigning equal weights to each of the proposed variables included under the category *(ii) streamlining procedures*, higher weights could be assigned to these three variables for products such as meat, dairy, fruit and vegetables.

⁴⁰ OECD economies included here: Australia (AUS), Belgium (BEL), Canada (CAN), France (FRA), Germany (DEU), Italy (ITA), Japan (JPN), Mexico (MEX), Netherlands (NLD), Norway (NOR), New Zealand (NZL), South Korea (KOR), Spain (ESP), United Kingdom (GBR), United States (USA). Other economies include: Argentina (ARG), Brazil (BRA), People's Republic of China (CHN, hereafter 'China'), India (IND), Indonesia (IDN), Hong Kong, China (HKG), Malaysia (MYS), Pakistan (PAK), Russian Federation (RUS), Thailand (THA), Ukraine (UKR).

Table 2. Top ten exporting and importing countries by agro-food product group

Economies shares in global trade (%)

	Animal-based products		Plant-based products		Oils and fats		Processed food	
Exports								
1	USA	7.92%	USA	12.73%	IDN	22.27%	USA	7.75%
2	NLD	6.47%	BRA	8.72%	MYS	12.95%	DEU	7.37%
3	DEU	6.13%	NLD	5.02%	ESP	5.56%	FRA	6.60%
4	NZL	4.91%	CHN	4.75%	NLD	5.03%	NLD	5.97%
5	CHN	4.32%	CAN	4.23%	UKR	4.69%	ITA	4.91%
6	BRA	4.06%	ESP	4.13%	ARG	4.08%	CHN	4.55%
7	AUS	3.89%	IND	3.41%	CAN	3.45%	BRA	3.92%
8	FRA	3.72%	FRA	3.30%	USA	3.31%	BEL	3.81%
9	ESP	3.55%	MEX	3.20%	DEU	3.03%	GBR	3.46%
10	NOR	3.29%	RUS	2.79%	RUS	2.78%	THA	3.36%
Imports								
1	USA	8.40%	CHN	11.54%	IND	10.32%	USA	11.47%
2	CHN	8.26%	USA	8.92%	CHN	8.33%	DEU	6.25%
3	JPN	6.62%	DEU	6.59%	USA	7.24%	GBR	5.50%
4	DEU	6.16%	NLD	4.27%	NLD	6.04%	FRA	4.51%
5	FRA	4.51%	JPN	3.76%	ITA	4.32%	NLD	4.43%
6	ITA	4.37%	GBR	3.33%	DEU	4.02%	CHN	3.92%
7	NLD	3.89%	FRA	3.24%	ESP	3.22%	JPN	3.82%
8	GBR	3.78%	ITA	2.58%	FRA	2.49%	BEL	3.15%
9	KOR	3.29%	BEL	2.52%	BEL	2.20%	CAN	3.15%
10	HKG	3.26%	ESP	2.44%	PAK	2.15%	ITA	2.58%

Note: Animal products cover trade in HS 02 to HS 05. Plant-based products cover trade in HS 06 to HS 14. Oils and fats cover trade in HS 15. Processed food products cover trade in HS 16 to HS 24. OECD countries are highlighted in bold.

Source: Calculations based on the CEPII BACI dataset, 2018.

Data collection for each of the 26 economies should aim to cover the different relevant agencies involved in cross-border movement of agro-food products. The biennial TFIs data collection involves Customs agencies and ministries of trade, as well as the private sector (in particular express industry associations and companies operating worldwide). Depending on the institutional architecture in each of the 26 economies identified in Table 2, the proposed agro-food trade facilitation questionnaire would need to target additional agencies to involve all agencies responsible for the movement of cross-border agro-food trade.

An additional issue identified in Section 4.1 as important is the consistent application of formalities across different types of border posts within a country. Given that there could be differences between seaports, airports or land border posts, countries surveyed would need to mark the variables for which these aspects are more relevant.

6. Conclusions and potential scope of a pilot analysis based on this feasibility assessment

This feasibility assessment documents the data challenges in exploring the impact of trade facilitation reforms on perishable agro-food products. Main challenges identified relate to specific documentation requirements or border controls associated with SPS and TBT measures, automating and streamlining formalities at the border, as well as differentiated impacts across agro-food products. The feasibility assessment thus highlights that a new sub-set of the OECD Trade Facilitation Indicators targeting perishable agro-food products could offer a more complete picture of the specific complexities at the border.

The feasibility assessment also explores and identifies some practical approaches to prioritising and addressing data gaps in these areas. First, relevant indicators could cover three building blocks: (i) simplification and harmonisation of documentary requirements; (ii) streamlining of processes at the border; and (iii) co-operation between Customs and other border agencies responsible for perishable agro-food goods trade. Second, collecting information for new indicators could initially target 26 top agro-food exporting and importing countries before expanding to other regions and economies. Within these countries, the data collection exercise also needs to target all relevant border agencies. Third, the specificities of agro-food products with different 'degrees of perishability' (i.e. animal-based products, plant-based products, oils and fats, and processed food) also warrant an expert survey to identify whether specific weights would need to be assigned to trade facilitation measures within the new indices. The indices could then be used in empirical analysis assessing impacts on trade flows and trade costs for different agro-food sectors, subject to data availability of the latter.⁴¹

⁴¹ Correlations could also be tested with indicators of time to trade such as those available from the World Bank Trading Food dimension of the Enabling the Business of Agriculture indicators.

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Annex A1. Linkages between the WTO TFA policy areas covered by the TFIs and the SPS and TBT Agreements

Table A1.1. Illustrative mapping between the WTO TFA policy areas covered by the TFIs and the SPS and TBT Agreements

Spectrum of border procedures covered by the OECD TFIs	Areas in the SPS Agreement	Areas in the TBT Agreement
TFI (a). Information availability	<p>Requirement to publish promptly SPS regulations such as laws, decrees or ordinances (Annex B.1).</p> <p>No requirement to publish fees and charges.</p> <p>No requirement to provide the official places or URLs of websites where SPS-related information is available, but Members encouraged in the recommended procedures on transparency to provide URLs of websites or hyperlinks to documents related to a notification that has been made available online.</p>	<p>Requirement that technical regulations and conformity assessment procedures which have been adopted are published promptly or otherwise made available (Articles 2.11 and 5.8). The Code of Good Practice for the Preparation, Adoption and Application of Standards requires the prompt publication of standards.</p> <p>No requirement to publish fees and charges.</p> <p>Members are required to inform the TBT Committee of the measures they have taken to ensure the implementation and administration of the Agreement. This one-time statement of implementation should among others specify the names of publications where texts of technical regulations, conformity assessment procedures and standards are published and provide the names and addresses of the enquiry point(s).</p>
TFI (b). Consultations with traders	<p>The SPS and TBT Agreements oblige Members to establish SPS and TBT national notification authorities, notify other Members at an early stage about proposed SPS and TBT measures by using pre-set notification formats, and allow “a reasonable time” for comments (SPS Agreement Annex B.5 and TBT Agreement Articles 2.9 and 5.6). As per the recommendations of the SPS and TBT Committees, such reasonable period of time should normally be at least 60 calendar days.</p> <p>There is also a requirement in the SPS and TBT Agreements to grant a “reasonable interval” between the publication of an SPS or TBT measure and its entry into force.</p> <p>The SPS and TBT Agreements do not include an obligation for regular consultations between competent authorities, traders and other stakeholders.</p>	
TFI (c). Advance rulings	<p>The SPS and TBT Agreements do not address the issue of advance rulings.</p>	
TFI (d). Appeal procedures	<p>Annex C, paragraph 1(i) of the SPS Agreement and Article 5.2.8 of the TBT Agreement address the question of appeal and review requiring Members to adopt procedures to review complaints concerning the operation of control, inspection and approval procedures/conformity assessment procedures, and to take corrective action when a complaint is justified.</p>	
TFI (e). Fees, charges and penalties	<p>The SPS Agreement disciplines fees levied for control, inspection and approval procedures in its Annex C, paragraph 1(f). Such fees must be equitable to those charged on ‘like’ domestic products or products originating in any other Member, and should not be higher than the actual cost of the service. Annex C stipulates that control, inspection and approval procedures must not be “inconsistent with the provisions of the Agreement”.</p>	<p>The TBT Agreement requires that any fees imposed for assessing the conformity of products originating in the territories of other Members are equitable in relation to any fees chargeable for assessing the conformity of ‘like’ products of national origin or originating in any other country, taking into account some costs that may vary (Article 5.2.5). Advance notification and publication requirements also apply to conformity assessment procedures (Article 5), but there is no explicit requirement to include information on fees and charges in these.</p>

Spectrum of border procedures covered by the OECD TFIs	Areas in the SPS Agreement	Areas in the TBT Agreement
TFI (f). Formalities - Documents	Paragraph 1 of Annex C includes requirements towards simplifying and expediting approval procedures.	Under the TBT Agreement, conformity assessment procedures, which can involve documentation requirements, shall not be more strict or be applied more strictly than is necessary to give the importing Member adequate confidence that products conform with the applicable technical regulations or standards, taking into account of the risks non-conformity would create (Article 5.1.2). Further requirements regarding the implementation of conformity assessment procedures are provided in Article 5.2, for example that information requirements be limited to what is necessary.
TFI (g). Formalities - Automation	No specific references.	
TFI (h). Formalities - Procedures	Paragraph 1 of Annex C includes requirements towards limiting information requirements to what is necessary for control, inspection and approval, and to carry out such activities without undue delay.	
TFI (i). Internal border agency co-operation	Mechanisms for border agency co-operation not covered.	
TFI (j). External border agency co-operation		

Source: Authors' elaboration.

Annex A2. Multi-Agency Support Team (MAST) classification of non-tariff measures

The Multi-Agency Support Team (MAST) provides a taxonomy of such NTMs to facilitate data collection process and analysis. MAST classifications relevant to agro-food products are found in Chapters A (SPS), B (TBT), C (pre-shipment inspection; direct consignment requirement; requirement to pass through specified port of customs; import monitoring and surveillance requirements), and E (licensing; quotas; and other quantity-control measures, including tariff-rate quotas) (UNCTAD MAST, 2019^[21]).

Chapter A (SPS) outlines SPS measures such as those restricting substances, ensuring food safety and preventing the dissemination of diseases or pests. Chapter A also includes all conformity-assessment measures related to food safety, such as certification, testing and inspection, and quarantine. Chapter B (TBT) covers measures relating to product characteristics such as technical specifications and quality requirements; related processes and production methods; and measures such as labelling and packaging in relation to environmental protection, consumer safety and national security. As in the case of SPS measures, Chapter B includes all conformity-assessment measures related to technical requirements like certification, testing and inspection. Measures classified under Sections A2 to A6 and B2 to B7 are the SPS and TBT regulations, respectively, and generally relate to specification costs, while those under A8 and B8 are their conformity-assessment procedures and associated costs (Gourdon, Stone and van Tongeren, 2020^[6]).

Table A2.1. SPS measures

MAST Code	Sanitary and phytosanitary measure
Import restrictions that result from the enforcement of a SPS measure	
A1. Prohibitions/restrictions of imports for SPS reasons	
A11	Temporary geographic prohibitions for SPS reasons
A12	Geographical restrictions on eligibility
A13	Systems approach
A14	Special authorisation requirement for SPS reasons
A15	Registration requirements for importers
A19	Prohibitions/restrictions of imports for SPS reasons, not elsewhere specified (n.e.s.)
Measures relating to specification costs	
A2. Tolerance limits for residues and restricted use of substances	
A21	Tolerance limits for residues of or contamination by certain (non-microbiological) substances
A22	Restricted use of certain substances in foods and feeds and their contact materials
A3. Labelling, Marking and Packaging requirements	
A31	Labelling requirements
A32	Marking requirements
A33	Packaging requirements
A4. Hygienic requirements	
A41	Microbiological criteria of the Final product
A42	Hygienic practices during production
A49	Hygienic requirements, n.e.s.
A5. Treatment for elimination of plant and animal pests and disease-causing organisms in the final product (e.g. post-harvest treatment)	
A51	Cold/heat treatment
A52	Irradiation
A53	Fumigation
A59	Treatment for elimination of plant and animal pests and disease-causing organisms in the (nal product, n.e.s.)

MAST Code	Sanitary and phytosanitary measure
A6. Other requirements on production or post-production processes	
A61	Plant-growth processes
A62	Animal-raising or -catching processes
A63	Food and feed processing
A64	Storage and transport conditions
A69	Other requirements on production or post-production processes, n.e.s
Conformity-assessment procedures and associated costs	
A8. Conformity assessment related to SPS	
A81	Product registration requirement
A82	Testing requirement
A83	Certification requirement
A84	Inspection requirement
A85	Traceability requirements
A851	Origin of materials and parts
A852	Processing history
A853	Distribution and location of products after delivery
A859	Traceability requirements, n.e.s.
A86	Quarantine requirement
A89	Conformity assessment related to SPS, n.e.s.
A9. SPS measures n.e.s.	

Source: UNCTAD MAST (2019^[21]).

Table A2.2. TBT measures

MAST Code	Technical Barrier to Trade measure
Import restrictions that result from the enforcement of a TBT measure	
B1. Prohibitions/restrictions of imports for objectives set out in the TBT agreement	
B11	Prohibition for TBT reasons
B14	Authorization requirement for TBT reasons
B15	Registration requirement for importers for TBT reasons
B19	Prohibitions/restrictions of imports for objectives set out in the TBT agreement, n.e.s.
Measures relating to specification costs	
B2. Tolerance limits for residues and restricted use of substances	
B21	Tolerance limits for residues of or contamination by certain substances
B22	Restricted use of certain substances
B3. Labelling, Marking and Packaging requirements	
B31	Labelling requirements
B32	Marking requirements
B33	Packaging requirements
B4. Production or Post-Production requirements	
B41	TBT regulations on production processes
B42	TBT regulations on transport and storage
B49	Production or post-production requirements, n.e.s.

MAST Code	Technical Barrier to Trade measure
B6. Product identity requirement	
B7. Product quality or performance requirement	
Conformity-assessment procedures and associated costs	
B8. Conformity assessment related to TBT	
B81	Product registration requirement
B82	Testing requirement
B83	Certification requirement
B84	Inspection requirement
B85	Traceability information requirements
B851	Origin of materials and parts
B852	Processing history
B853	Distribution and location of products after delivery
B859	Traceability requirements, n.e.s.
B89	Conformity assessment related to TBT, n.e.s.
B9. TBT Measures n.e.s.	

Source: UNCTAD MAST (2019_[21]).

Table A2.3. Border control measures

MAST Code	Border control measure
C1	Pre-shipment inspection
C2	Direct consignment requirement
C3	Requirement to pass through specified port of customs
C4	Import monitoring and surveillance requirements

Source: UNCTAD MAST (2019_[21]).

Table A2.4. Quantity restrictions in the MAST Classification

MAST Code	Quantity restriction
E1. Non-automatic import licensing procedures other than authorizations for SPS or TBT reasons	
E11	Licensing for economic reasons
E111	Licensing procedure with no specific ex ante criteria
E112	Licensing for specified use
E113	Licensing linked with local production
E119	Licensing for economic reasons, n.e.s.
E12	Licensing for non-economic reasons
E2. Quotas	
E21	Permanent
E211	Global allocation
E212	Country allocation
E22	Seasonal quotas
E221	Global allocation
E222	Country allocation
E23	Temporary

MAST Code	Quantity restriction
E231	Global allocation
E232	Country allocation
E3. Prohibitions other than for SPS and TBT reasons	
E31	Prohibition for economic reasons
E311	Full prohibition (import ban)
E312	Seasonal prohibition
E313	Temporary prohibition, including suspension of issuance of licences
E314	Prohibition of importation in bulk
E315	Prohibition of products infringing patents or other intellectual property rights
E316	Prohibition of used, repaired or remanufactured goods
E319	Prohibition for economic reasons, n.e.s.
E32	Prohibition for non-economic reasons
E321	Prohibition for religious, moral or cultural reasons
E322	Prohibition for political reasons (embargo)
E329	Prohibition for non-economic reasons, n.e.s.
E5. Export restraint arrangement	
E51	Voluntary export-restraint arrangements (VERs)
E511	Quota agreement
E512	Consultation agreement
E513	Administrative co-operation agreement
E6. Tariff Rate Quotas	
E61	WTO-bound TRQs, included in WTO schedules (concessions and commitments under WTO negotiations)
E62	Other TRQs included in other trade agreements.
E621	Global allocation
E622	Country allocation
E9. Quantity control measures n.e.s.	

Source: UNCTAD MAST (2019_[21]).

Annex A3. Impacts of trade facilitation policy areas on agro-food sectors

Drawing on OECD (2020^[17]), estimations are undertaken using a structural gravity trade model⁴² for a panel dataset (covering the period 2012-18). Poisson-Pseudo Maximum Likelihood (PPML) estimation with high number of fixed effects is employed. PPML minimises heteroscedasticity issues. Robust standard errors clustered by trading pair.

The following model estimated alternatively for 'Animal products' (HS codes 02 to 06), 'Plant based products' (HS codes 07 to 14), 'Oils and fats' (HS code 15), and 'Processed food' (HS codes 16 to 24), covering the period 2012-18:

$$X_{ijkt} = \exp[\beta_1 \ln_dist_{ij} + \beta_2 contig_{ij} + \beta_3 RTA_{ijt} + \beta_4 TF_performance_gap_area_{ijt-1} + \delta_{it} + \delta_{jt} + \delta_k] * u_{ijkt}$$

where:

- X_{ijkt} represents the value of exports at HS 2-digit sector k traded between exporter country i and importer country j in year t. Data are from CEPII BACI.
- \ln_dist_{ij} is the logarithm of the bilateral distance and $contig_{ij}$ is a dummy variable accounting for a common border. Data are from CEPII BACI.
- RTA_{ijt} is a dummy variable equal to 1 if countries i and j belong to the same regional trade agreement. Data are from the Mario Larch's Regional Trade Agreements Database from Egger and Larch (2008) (<https://www.ewf.uni-bayreuth.de/en/research/RTA-data/index.html>).
- $TF_performance_gap_area_{ijt-1}$ is the trade facilitation performance gap, calculated as the absolute difference between the exporter and importer OECD Trade Facilitation Indicators (TFIs) value. The trade facilitation performance gap is thus a continuous variable, with values between 0 and 2. Estimates show that, all other things being equal, countries with more similar trade facilitation profiles can trade more intensively between them. Therefore, economies with lower TFIs scores can increase their trade links with countries having a better performance by improving their own performance.
- The performance distance is one-year lagged in the trade gravity regressions. The percentage increases in sectoral trade are estimated assuming a 0.1 basis points reduction in the performance distance by area.

The following performance gaps are introduced alternatively in the estimation:

- 'Transparency and predictability' includes measures in information availability, fees and charges, advance rulings, and appeal procedures.
- 'Automation and streamlining' of processes includes indicators on documents, automation, and procedures.
- 'Border agency co-operation' covers both domestic and cross-border agency co-operation.
- δ_{it} , δ_{jt} , δ_k represent the exporter-year and importer-year time trends and sector fixed effects. Importer and exporter fixed effects control for inward and outward multilateral resistances that capture the effects of trade with third parties on any given bilateral trade relationship.

⁴² The trade gravity model is the workhorse of applied trade analysis (Yotov et al., 2016^[22]).

Table A3.1. Summary of effects of bilateral performance gaps by trade facilitation area and product groups

TF bilateral performance gap variable / Sector	Animal-based products	Plant-based products	Oils and fats	Processed food
TF performance gap Transparency and predictability	-0.361** (0.177)	-0.436*** (0.179)	-0.156* (0.097)	-0.153** (0.076)
TF performance gap Automating and streamlining processes	-0.329** (0.174)	-0.673*** (0.161)	-0.268* (0.166)	-0.315*** (0.112)
TF performance gap Border agency co-operation	-0.158* (0.129)	-0.307* (0.215)	-0.300*** (0.138)	-0.282*** (0.093)
TF performance gap Governance and impartiality	-0.306*** (0.115)	-0.339*** (0.135)	-0.142*** (0.066)	-0.245*** (0.059)

Note: Clustered standard errors in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.
Source: Authors' estimation.

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