Asia-Pacific
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Advancing Free Trade
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APEC Workshop to Identify Future Work on Non-Tariff Measures (NTMs) Affecting Grain Trade

APEC Sub-Committee on Standards and Conformance

April 2023

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Economic Cooperation

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APEC Project: SCSC 04 2019S

Produced by
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APEC#223-CT-01.3

CONTENTS

EXECUTIVE SUMMARY

The Asia Pacific Economic Cooperation (APEC) project *Workshop to identify future work on non-tariff measures (NTMs) affecting grain trade* brings together government and industry experts to identify the NTMs impeding the export and importation of grain within the APEC region. The intent is to identify the NTMs of most significance and recommend future activities to develop principles, guidance and/or frameworks to support APEC economies in advancing regulatory cooperation and convergence.

Previous project activities identified two NTMs of particular significance to trade in grain in the APEC region, namely Maximum Residue Levels (MRLs) and the documentation required to support trade. This report outlines the impact of these two NTMs on trade in three grains through case studies – wheat, quinoa and soybeans. The impact of MRLs on rice was explored in other projects and relevant information is included in this report.

The analysis reaffirmed the importance of trade in these three grains in the APEC region, with regional trade for all three grains continuing to grow steadily with significant trade amongst APEC economies. Analysis of the trade impact of MRLs confirmed the significant regulatory burden and impediment to grain trade arising from the varied regulatory regimes for pesticide residues within the APEC region, including approaches that address missing MRLs, and application of low or zero default values. The results are MRLs that deviate from interdomestic standards and differ between APEC economies.

The three case studies highlighted the variable, and sometimes extensive, documentation requirements amongst APEC economies and the associated cost and regulatory burden. A key documentation requirement is a phytosanitary certificate that generally accompanies the export of the three commodities examined, and the studies all supported the interdomestic initiative to enable electronic transfer of phytosanitary certificates (e-Phyto).

APEC economies considered potential future work with the goal of achieving greater regulatory convergence in the requirements for MRLs and documentation for traded grain. The views of economies were elicited through a workshop (held virtually) and written comments. In determining the priorities for future work on these NTMs within APEC, economies recognised the related work of other interdomestic bodies and the important role of the Codex Alimentarius Commission in establishing interdomestic MRLs for food safety and to foster interdomestic trade.

Economies prioritised future work on operational initiatives in three areas:

- Harmonising the process for establishing default MRL values and measurement of default values, if part of the regulatory system;
- Improving the transparency of MRL regulatory policies and approaches in establishing MRLs and changes in regulatory settings; and
- Implementation of electronic certification for the grain trade.

ANALYSIS OF KEY NON-TARIFF MEASURES

1 Overview

The Australian led project *Workshop to identify future work on non-tariff measures (NTMs) affecting grain trade* aims to identify NTMs affecting grain trade in the Asia Pacific Economic Cooperation (APEC) region and recommend approaches to APEC to facilitate action on key NTMs. The intent is to ensure a more consistent regional approach, which will create sustained and long-term benefits for all economies engaged in the grain trade.

The first workshop (Workshop 1) under the project was held from 31 October – 1 November 2019 in Beijing, China. Workshop participants expressed a broad range of views about the significant NTMs, their impacts and the possible role for APEC in addressing the NTMs. The workshop therefore agreed to undertake several case studies examining certain commodities along the global value chain and the impact of the more significant NTMs. A summary of the Workshop 1 outcomes and further background to the overall project is at Appendix 1.[1]

Workshop 1 endorsed undertaking case studies examining two NTMs along the global value chain of four commodities. The NTMs to be addressed were identified as Maximum Residue Limits (MRLs) and documentation, including the transparency of the requirements for these measures. Workshop 1 agreed to examine the commodities wheat, quinoa, soybeans and rice (including examining the FAO study of MRLs using rice as a case study[2]). The workshop also agreed that the case studies should encompass the global value chain, including the production, export, import, processing and re-export for economies involved in the value chain.

As agreed at Workshop 1, an electronic (e)-working group was established to progress development of the case studies. At Workshop 1 several economies and organisations agreed to participate in the e-working group and subsequently the project secretariat requested participation in the e-working group through electronic communication. Membership of the e-working group is at Appendix 2.

1.1 *Case Studies*

APEC member economies agreed to prepare three of the agreed case studies: Australia - wheat, Peru – quinoa, USA - soybean. An APEC economy to lead the preparation of the rice case study could not be identified, so the findings of the FAO study on rice MRLs have been included. The e-working group determined the format of the case studies, the key issues to be addressed and a common template to facilitate consistency across the studies.

The authors of the case studies and members of the e-working group were predominantly from exporting economies and the case studies are written primarily from the exporting

[1] The 'Official Report of the APEC Workshop to Identify Future Work on NTMs Affecting Grain Trade' finalised in 2020 can be obtained from the Australian project secretariat by emailing MultilateralEconomic@awe.gov.au.

[2] FAO, Understanding international harmonization of pesticide maximum residue limits with Codex standards: A case study on rice, Rome, 2020. https://doi.org/10.4060/cb0463en

perspective, although if information further along the value chain was available it has been included. The wheat case study drew on previous work that examined NTMs along the wheat value chain in one APEC economy, illustrating the impact of MRLs and documentation at the processing stage.

The case studies have been subject to several phases of consultation. The e-working group was consulted on the drafts of the case studies for wheat, quinoa and soybeans and subsequently the case studies were provided to APEC member economies and attendees of Workshop 1 for comment. The comments were considered, and the case studies revised, as appropriate (Attachments 1, 2 and 3).

2 Key Findings from the Case Studies

2.1 *Global Value Chain*

The three case studies reaffirmed the importance of trade in grain in the APEC region, particularly trade in the three grains examined, all of which are experiencing growth in trade in the region. The studies also revealed the significant trade in grain occurring between APEC economies. Similarly, rice is an important traded grain amongst APEC economies with significant levels both imported and exported.

APEC economies account for over 20% of global wheat exports and 42% of wheat exports (data from 2016-2020). Furthermore 75% of imports of wheat by member economies are supplied by other APEC economies with USA, Australia and Canada being the major exporters (data from 2016-2020). Wheat imported into APEC economies is milled to flour for domestic consumption and further processing into a broad range of food products. Approximately 75% of transformed wheat products are then exported to APEC economies.

Exports of quinoa continue to grow, with APEC economies representing approximately 48% of the world exports of quinoa (data from 2011-2019). While Peru is still the major worldwide exporter, other APEC economies are expanding production of quinoa and the range of importing countries is also expanding although the USA remains the major importer of quinoa from Peru (data from 2012-2020). Approximately 75% of Peruvian quinoa exports are in bulk, with the remainder being processed food products.

The APEC region is one of the most important areas in global soybean trade. APEC members comprise approximately 41% of global soybean production with the USA producing about 80% of the APEC region's total production (data from 2020-21). Over 75% of global soybean imports were consumed by APEC economies in 2020-21. Most soybeans are exported as whole unprocessed beans and are crushed into soybean meal or oil in the importing economy. The consequent products are processed for human or animal consumption.

Trade in rice is also very important in the APEC region with data from 2017-19 indicating that five APEC economies (China, Indonesia, Vietnam, Thailand, and Philippines) are within the global top ten producers of rice, and three APEC economies (China, Indonesia, and Vietnam) are within the top five. Three APEC economies (Thailand, Vietnam, and the United States) are within the top five global exporters of rice and seven (China, Philippines, Japan, Indonesia, Malaysia, Mexico, and Canada) are in the top twenty global importers.

2.2 *Non-Tariff Measure - Maximum Residue Limits*

The three case studies and the FAO study on rice confirmed the significant burden and impediments to grain trade arising from the varied regulatory regimes for managing risks from pesticide residues within the APEC region. These studies particularly highlighted the regulatory burden arising from MRL policies and regulation that diverge from the interdomestic standards within the Codex Alimentarius (Codex), as well as the diversity of policies and regulations in the region. Each case study illustrated the significant differences across APEC economies for the pesticide MRLs particularly relevant to the grain under study. Interestingly, the FAO study on rice concluded that many Codex MRLs do not have

corresponding MRLs at the domestic level, and conversely many domesticly registered MRLs do not have corresponding Codex MRLs.

The three case studies and the FAO study on rice highlighted the trading difficulties if an MRL for a particular grain/pesticide combination has not been established in the importing economy. APEC economies use different approaches if domestic MRLs have not been established – economies may refer to a Codex MRL if available; apply a default MRLs at a low detectable level or level of quantification; or require the pesticide to be absent (i.e., zero tolerance). The impact of the variations in approach is further compounded by the lack of a global or APEC standard or guidance for establishing low level or default MRLs values in the absence of an established MRL.

The case studies proposed establishing import tolerances, or import MRLs, and noted that this approach is preferable to applying low level default values. The case studies and the FAO study on rice observed that some economies have already established import tolerances/MRL systems, although there is considerable variation in the policies and application of these systems. The studies also noted the recent work on import tolerances/MRLs undertaken by APEC through development of the *Import MRL Guideline for Pesticides - A guideline on possible approaches to achieve alignment of interdomestic MRLs*[3] (the Guideline). The Guideline states that it aims to minimise diversity in regulatory policies and approaches in setting MRLs and facilitate trade, while continuing to protect human health from potential pesticide risks.

Several other issues were raised to varying extents by the studies. The quinoa case study noted that MRLs were established for quinoa in some importing economies by extrapolating data from accepted residue studies on other cereal grains. The FAO study on rice identified that differences in rice classification (or level of processing of rice) have a significant impact on the level of harmonisation with Codex MRLs, with food classifications being heterogeneous among the countries/regions analysed. The study noted that similar food classification issues apply to other commodities, including cereal grains.

The studies also noted the lack of transparency in policies for setting MRLs in some importing economies. The studies particularly called for greater clarity on MRL setting procedures in APEC economies and transparency if MRLs or MRL setting policies and approaches are modified, noting that such changes should be notified to the World Trade Organisation (WTO). The FAO study on rice identified that little transparency was evident in the country positions during the development and adoption of new Codex MRLs and called for countries to actively advise whenever they have a reservation and are not in the position to adopt a newly established Codex MRL, and to provide a science-based reason for those positions.

The case studies and FAO report on rice highlighted the need for greater harmonisation with the interdomesticly established Codex MRLs. The studies also noted the value of greater harmonisation through recognition that imported products may legitimately have different MRLs to those established for domestic use and implementation of policies and procedures

[3] APEC, Import MRL Guideline for Pesticides A guideline on possible approaches to achieve alignment of international MRLs, 2016.

that take account of the difference. The studies, as well as other major reviews of the trade impact of MRLs,[4] particularly noted the value of the guideline on import MRLs developed by APEC and supported its implementation with respect to grains, as well as other initiatives to support harmonisation of trade facilitating approaches.

2.3 *Non-Tariff Measure - Documentation*

The analysis of the documentation requirements in the three case studies highlighted the regulatory burden arising from the variable documentation requirements of different trading partners. The quinoa case study noted that documentation is one of the major causes of increased logistics costs.

Export of the three commodities examined generally require a phytosanitary certificate to be provided, although the information required on the phytosanitary certificate is variable amongst economies. APEC economies may require information about regulated pest status and treatments, labelling requirements, container number and/or information about the packing plant. Other government documents may also be required such as import permits and additional declarations. As well as meeting requirements from government authorities, documentation for commercial purposes also must be provided, which could include the certificates of origin, laboratory analysis and/or fumigation.

The wheat case study identified a broad range of documents that could be required for export of processed products. These could include import permits or licences and certificates of free sale, analysis, health, quality and/or religious requirements.

The case studies discussed the transition to electronic documentation currently in progress and noted that the rate of transition from paper based to electronic documentation is variable between economies, documentation type and between commercial and government entities. The studies highlighted the improvements in business system efficiency and effectiveness arising from the implementation of electronic documentation both by government and commercial entities and provided supportive examples.

The three case studies noted the importance of implementation of the electronic phytosanitary certification process (e-Phyto) being developed through the Interdomestic Plant Protection Convention (IPPC). To date 16 APEC economies have registered to participate in the initiative although the extent of readiness to exchange electronic certificates is variable. The three case studies supported further initiatives to assist in the consistent implementation of e-Phyto in APEC member economies and noted the usefulness of activities to facilitate use of electronic documentation by the grains industry.

Several of the case studies noted initiatives of some commercial entities to implement electronic documentation and highlighted that adoption of digital processes and improved data security could assist streamlining the certification processes. APEC is actively progressing such processes under the Action Agenda for the Digital Economy, the Internet

[4] Eg United States International Trade Commission, Global Economic Impact of Missing and Low Pesticide Maximum Residue Levels, Vol. 1, 2020.

and Digital Economy Roadmap and the Workplan to Implement the Roadmap[5]. This initiative includes issues such as interoperability, developing digital infrastructure, enhancing trust and security in the use of ICTs and other matters that may assist in progressing the use of e-documentation for grain trade amongst APEC members.

2.4 *Other NTMs*

The wheat and quinoa case studies briefly commented on NTMs other than MRLs and documentation that impact on trade for these two commodities. The quinoa case study noted the discussion at Codex on the levels of cadmium and lead in cereals. The wheat case study summarised previous work that analysed the NTMs for the grains industry in the APEC region. The analysis demonstrated that over 60% of the NTMs relate to sanitary and phytosanitary measures, with the majority of these being MRL measures.

[5] http://mddb.apec.org/Documents/2020/SOM/CSOM/20_csom_019.pdf.

3 Potential Recommendations for Future Work – Consultation

3.1 *Potential recommendations*

The issues raised in the case studies highlighted the value of further work by APEC to address the impediments to trade in grain amongst APEC economies arising from the two NTMs, namely MRLs and documentation. Potential recommendations and specific activities for further work within APEC were developed based on the discussion and issues raised in the three case studies and the FAO study on rice. These potential recommendations had the goal of achieving greater regional convergence in the regulatory requirements for MRLs and documentation.

The potential recommendations and activities addressed three broad areas (see Appendix 3 for detailed recommendations):

- The grain value chain – to gain the perspectives from importing, processing, and re-exporting economies within the APEC region. This will assist in completing the analysis of the impact of the MRLs and documentation NTMs on the value chain for wheat, quinoa and soybean;
- NTM – MRL – to achieve greater harmonisation in the implementation of import MRL/tolerance systems and the setting and measurement of default MRL values if used as a regulatory tool; encourage active engagement with the Codex Committee on Pesticide Residues (CCPR); and share effective tools that enhance the transparency of regulatory approaches and changes to regulatory settings; and
- NTM – documentation – to facilitate implementation of the exchange of electronic phytosanitary certificates through e-Phyto and harmonise e-documentation requirements and processes.

These potential recommendations and activities for future work were considered by APEC member economies through electronic consultation and project Workshop 2, which was hosted by Australia and held virtually on 24 and 25 August 2021. The workshop, entitled *Identifying Future Work on Non-Tariff Measures Affecting the Grain Trade, case studies in three grains traded in the APEC region*, aimed to review the three case studies; consider the relevance of the key issues for traded grains throughout the value chain, and discuss, revise and prioritise recommendations for future work.[6]

Workshop 2 was attended by nine economies which included those that import and/or export grains. The workshop participants included representatives from government, industry and academia. Workshop participants were presented with information from the three case studies and the FAO study on rice and further background information through presentations on key initiatives: APEC work on developing import MRLs,[7] the e-Phyto initiative being progressed by the IPPC,[8] and digitisation and cyber security considerations with the introduction of e-documentation.

[6] Report of the workshop will be available from the Australian project secretariat by emailing MultilateralEconomic@awe.gov.au.
[7] See footnote 3
[8] https://www.ephytoexchange.org/landing/

The views from member economies, expressed both at Workshop 2 and provided in written comments were considered in further refining the recommendations and actions for future work. Economies continued to support work on the MRL and documentation NTMs, recognised relevant activities being undertaken by other interdomestic bodies, reaffirmed the importance of the Codex Alimentarius Commission (CAC) in setting interdomestic MRLs and noted the importance of further development of e-documentation within grains industries (for further detail see section 3.2). The recommendations and actions that economies prioritised for future work are outlined in section 4.

3.2 *General considerations*

Although the case studies focussed primarily on the impact of the NTMs on export of grain, the impacts on other parts of the value chain were included if available. A key question was whether the NTM impacts identified in the case studies were applicable to other aspects of the value chain, i.e., importation, processing and re-export of grain commodities and products. Economies generally agreed that the impacts from MRLs and documentation outlined in the three case studies and the FAO study of rice were applicable to other stages of the value chain and no further analysis is required at this time, although noting that further work may be required in the future.

Economies expressed strong support for the standards, guidelines and codes of practice established by the CAC, and particularly those set through the subsidiary body, the CCPR. The MRLs established through the standard setting procedures of CCPR and the CAC, with advice from its expert body, were recognised as developing interdomestic standards for food safety and to foster interdomestic trade. The CCPR has been undertaking initiatives to accelerate, and in some cases simplify the MRL setting process (e.g., establishment of crop groupings, exploration of parallel processes) which provide opportunities to streamline the development of MRLs. However, economies also recognised that the establishment of MRLs by CCPR and CAC was an ongoing and long-term activity and noted that the extensive number of MRLs in the Codex Alimentarius does not reflect the comprehensive set of MRLs in currently traded products.

Aspects of both the MRL setting process and implementation of electronic documentation are being progressed in other interdomestic forums and economies noted that further work within APEC should not duplicate these efforts. The IPPC, within the FAO, has primary carriage of developing and working with economies to implement electronic exchange of phytosanitary certificates (e-Phyto). The World Trade Organisation's Committee on Sanitary and Phytosanitary Measures is considering work on MRLs to promote the adoption and safe use of plant protection products[9] and the APEC Food Safety Cooperation Forum has previously undertaken work on establishing import MRLs/tolerances and is currently undertaking work on the effective enforcement of MRLs at the border (Project number SCSC 04 2021S).[10]

Economies recognised the extensive work to strengthen the interdomestic system for establishing MRLs and to promote their adoption, including the initiatives noted above.

[9] https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/G/SPS/GEN1758R7.pdf&Open=True
[10] https://aimp2.apec.org/sites/PDB/Lists/Proposals/DispForm.aspx?ID=2782

Some economies considered that it would be valuable to prepare a document that consolidates these activities, providing a useful information base as further initiatives on MRL harmonisation are developed. Some economies also supported communication initiatives to ensure a common understanding of the risk-based mechanisms for establishing MRLs in interdomestic standards that are supported by robust scientific evidence.

Some economies noted that the grains industry had not adopted e-documentation as quickly or comprehensively as some other industries. Economies recognised that replacing manual processes with e-documentation would improve the efficiency, cost effectiveness and security of required documents and that further initiatives to promote implementation of e-documentation in the grains industry would be beneficial. Application of e-documentation to grains may be able to build on work already undertaken in within APEC,[11] including model export certificates,[12] and by the Interdomestic Organisation for Standardisation (ISO).[13]

[11] For example, https://aimp2.apec.org/sites/PDB/Lists/Proposals/DispForm.aspx?ID=2577' and footnote 5
[12] APEC, Streamlining Export Certificate Requirements for Food Products in the APEC Region: Facilitating Trade and Improving Food Safety by Advancing Science-based International Standards, 2017.
[13] For example, https://www.iso.org/isoiec-27001-information-security.html

4 Priority Recommendations and Activities

APEC economies recognised that the conduct of several specific and more operationally focussed initiatives will facilitate trade in grain in the APEC region by further addressing key NTMs that disrupt trade. While most economies prioritised activities to address trade disruptions arising from variations in MRLs, some economies also prioritised activities to facilitate the effective implementation of e-Phyto in the APEC region.

These recommendations and actions are intended to complement activities undertaken by other interdomestic bodies. The recommendations and actions for further work provide a suite of activities that APEC economies may choose to progress in the future, although to date APEC member economies have not assigned a priority order. If APEC economies consider that all the recommendations and actions should be progressed, it may be useful to develop a multi-year workplan.

i. <u>Harmonise the process for establishing default MRL values and measurement of default MRLs, if part of the regulatory system.</u>

The principles and processes for setting default MRLs are not harmonised internationally, nor across the APEC region, resulting in significant differences between economies. APEC economies also differ in the sampling and testing procedures for the default MRLs which can result in variable outcomes between the points of export and import. As laboratories use increasingly sensitive detection methodologies, increasingly lower levels of residues can be detected. This has the potential to cause trade disruptions.

Proposed actions:

- Develop a framework, including principles and practices, for the establishment of default values if such values are used as part of an economy's regulatory system.
- Conduct a 'best practices' workshop to explore procedures/practices being used for sampling of grain and laboratory testing and develop protocols for representative sampling and of pesticide residues in grains, if required.

ii. <u>Improve the transparency of MRL policies and regulatory approaches and changes to the regulatory settings.</u>

There continues to be difficulties in determining the policy and regulatory approaches in establishing MRLs in some APEC economies, as well as accessing information about changes in these settings and changes in the established MRLs.

Proposed action:

- Conduct a 'best practices' workshop on sharing information on regulatory policies, approaches and settings, with particular reference to setting MRLs, and draw on relevant resources from other organisations (e.g. WTO resources on transparency).

iii. <u>Enhance understanding and implementation of the IPPC e-Phyto tool to trade in grain</u>

While a significant number of APEC economies have registered to use the certificate exchange mechanism within e-Phyto, a more limited number are exchanging certificates. This tool is still in the early stages of implementation and a focus on implementation in the APEC region would streamline business processes. Initiatives could be developed in collaboration with the IPPC.

Proposed actions:

- Develop grain trade case studies to identify issues associated with adopting and implementing the IPPC e-Phyto Solution.
- Conduct a workshop on 'best practices' in developing implementation plans for e-Phyto.
- Consider the development of guidelines/protocols to facilitate harmonised implementation of e-Phyto, complementary to material developed by IPPC.

4.1 *Other recommendations and activities*

Economies also identified other activities to address trade disruptions arising from regional variations in MRLs and documentation requirements, although these recommendations and activities were considered a lower priority.

i. <u>Build on the MRL harmonisation work already undertaken in APEC and other international fora.</u>

The *Import MRL Guideline for Pesticides* and two implementation tools (Compendium of legislation/regulation, application template) have been developed by the APEC Sub Committee on Standards and Conformance (SCSC). The guideline outlines approaches and assessment methodologies that economies could adopt in considering requests for import MRLs. Limited capacity building has been undertaken in the application of the Guideline. Work is also progressing on compliance and enforcement of pesticide MRLs through the project *Pesticide MRL Harmonization: A Trade Facilitative Approach to MRL Compliance,* also under the oversight of the SCSC.

Proposed actions:

- Prepare a complementary document to the MRL Guideline for development of import tolerances/MRLs for grains. This process may also identify if additional implementation tools are required.
- Undertake capacity building on implementation of the MRL Guideline for trade in grain, including using case studies and a simulation exercise. The capacity building should be explicitly applicable to the exporter, importer, and re-exporter.
- Collate already existing training tools/resources that economies can use for further training and conduct a needs assessment to determine if additional tools are required.

ii. <u>Harmonise e-documentation requirements and processes.</u>

The benefits of e-documentation replacing the current manual processes will improve cost effectiveness and data security. Some work on e-documentation, digitisation and cyber security has progressed in various subgroups within APEC. The application of e-documentation appears to be in the early stages and there would be benefits in exploring and encouraging the use of these technologies in grain trade.

Proposed action:

- Undertake a pilot study to test the interoperability between industry and government-led digital platforms

APPENDIX 1 - BACKGROUND[14]

The aim of this project is to identify Non-Tariff Measures (NTMs) affecting the trade in grain in the Asia Pacific Economic Cooperation (APEC) region and recommend approaches to APEC to facilitate action on key NTMs. The intent is to ensure a more consistent approach to NTMs, which will create sustained and long-term benefits for all economies engaged in the grain trade.

The first stage of the project was a survey of economies and industry to understand the technical NTMs that currently impede trade. The survey sought to capture views of the whole supply chain and consider requirements that impact economies at all stages of the value chain by considering NTMs prior to export, impacting on exporters at the border, impacting on importers and on re-exporters of process grain products.

The survey identified six NTM themes impacting on exporters of grain, with consequent impacts on other parts of the value chain. These are:

- Pesticides – no maximum residue level (MRL) or the MRL too low
- Contaminants/biosecurity requirements
    - Differences in sampling methodology
    - Foreign material/weed seeds/pests
    - Fumigation/treatment methods and rates
- Biotechnology products
    - Approval processes of importing country
    - Management of low-level presence

The second stage of the project was a workshop held in Beijing, China on 31 October/1 November 2019 (Workshop 1). The workshop was attended by government and industry representatives from a broad range of APEC member economies to consider the outcomes from the survey and determine the most significant of the NTMs that warrant further action. The workshop format used both presentations from governments and industry and panel and small group discussions to further explore NTMs of most significance. The NTM themes of most interest to APEC economies were:

- MRLs (including Road map policy decision making, Risk management communication, Development of an APEC statement, Case study simulation, Capacity building)
- Transparency (including Science based processes, E-documentation for submission of data, APEC resource hub)
- Certification and documentation (E-certification, Alignment/harmonisation of documentation, Greater adoption of Codex)
- Use of technology (including E-certification, Single window, Systems to modernise trade flows)

[14] As reported in the *Official Report of the APEC Workshop to Identify Future Work on NTMs Affecting Grain Trade, 31 October – 1 November 2019, Beijing, China.*

- Biotechnology (including Synchronous and asynchronous approvals, Greater transparency, Risk communication)
- Food safety and quarantine (including greater sharing of information and Alignment of practices/standards)
- Sampling and testing methodology (Consistency of point of export versus receival sampling, Standardisation of methodologies).

As there were a broad range of views about the significant NTMs, their impacts and the possible role of APEC in addressing the NTM, the workshop agreed to undertake several case studies examining certain commodities along the global value chain and the impact of the more significant NTMs. The workshop also agreed to develop an APEC Statement on MRLs, for endorsement by Ministers.

The agreed next steps were:

- Undertake four case studies looking at two NTMs along the Global Value Chain of certain commodities
- NTMs to be addressed: MRLs and documentation, and consider transparency
- Commodities to be examined: wheat, soybean, quinoa, and rice (including examining the FAO report)
- The Global Value Chain should include the various stages of production, export, import and processing for all economies involved in the value chain
- Establish an e-Working group to progress the case studies, including scope, and commence development of an APEC Statement on MRLs
- Second workshop to consider the case studies and recommended APEC action, and APEC Statement on MRLs.

APPENDIX 2 - E-WORKING GROUP MEMBERSHIP

Dr Marion Healy **(Chair)**
Ms Alice Blichfeldt (Australian Department of Agriculture, Water and the Environment (DAWE))
Ms Jamie Nykiel (DAWE)
Mr Ray Elson (DAWE)
Mr Peter Creaser (DAWE)
Mr Joshua Hawkey (DAWE)
A D Russell (Australia)
Mr Pat O'Shannassy (Grains Trade Australia)
Ms Rosemary Richards (Grains Trade Australia)
Ms Laurie Goodwin (Croplife Australia)
Ms Nancy Wei (Croplife Australia)
David Yeh (Croplife Australia)
Mr Tony Russell (Australian Grains Industry Market Access Forum)
Dr Barakat Mahmoud (United States Department of Agriculture)
Ms Erica Summe (United States Department of Agriculture)
Ms Sarah Fasano (United States Department of Agriculture)
Ms Catherine Fulton (United States Department of Agriculture)
Ms Anna Gore (United States Department of Agriculture)
Ms Lori Tortora (United States Department of Agriculture)
Dr Samuel Crowell (United States Trade Representative)
Ms Rosalind Leeck (United States Soybean Export Council)
Mr Ryan Olsen (United States Soybean Export Council)
Mr Patrick Hayden (North American Export Grain Association)
Mr Gary Martin (North American Export Grains Association)
Mr Hao Chen Xiong (ADM)
Ms Lorraine Hawley (ADM)
Mr Brent Wilson (Agriculture and Agri-Food Canada)
Mr Charles-Etienne Bedard Chateauneuf (Agriculture and Agri-Food Canada)
Mr Gord Kurbis (Canada Grains Council)
Mr Marcelo Alonso Valverde Arevalo (Peruvian Ministry of Foreign Trade and Tourism)
Mr Sergio Ivan Valderas Rodriquez (Russia)
Ms Natthaporn Uthaimongkol (Department of Agriculture Thailand)
Ms Irma Nurliawati (Indonesia Ministry of Agriculture)
Ms Ana Isabel Flores Eslava (Philippines Tariff Commission)
Ms Annie (Beijing Tianyihongda Science and Technology)
Duangdee (AOD)

APPENDIX 3 - POTENTIAL RECOMMENDATIONS FOR FUTURE WORK

Considered at Workshop 2 24/25August 2021

Grain Value Chain

- Review and consolidate information on the impact of the MRL and documentation NTMs on the import, processing and re-export of wheat, quinoa and soybeans

The three case studies have been prepared primarily from the perspective of exporting economies, reflecting the expertise and knowledge of the authors of the case studies and membership of the e-working group. Available information on other aspects of the global value chain (i.e., importation, processing and re-export) has been included in the case studies and further information has been sought through consultation with APEC member economies. However, to complete the analysis for wheat, quinoa and soybeans further activity is needed.

Proposed actions:

- Conduct an information sharing workshop on the impact of the MRL and documentation NTMs on the import, processing, and re-export of wheat, quinoa and soybeans and the transformed products
- Consolidate and review the information from the information sharing workshop and determine activities to improve the consistency of approaches for these NTMs within APEC economies for importation, processing and re-export of grain/grain products.

NTM – MRLs

- Build on the MRL harmonisation work already undertaken in APEC.

The *Import MRL Guideline for Pesticides* and two implementation tools (Compendium of legislation/regulation, application template) have been developed by the APEC Sub Committee on Standards and Conformance. The guideline outlines approaches and assessment methodologies that economies could adopt in considering requests for import MRLs. Limited capacity building has been undertaken in the application of the Guideline.

Proposed actions:

1.1. Prepare a complementary document to the Guideline for development of import tolerances/MRLs for grains. This process may also identify if additional implementation tools are required.
1.2. Undertake capacity building on implementation of the Guideline for trade in grain, including using case studies and a simulation exercise. The capacity building should be explicitly applicable to the exporter, importer, and re-exporter
1.3. Develop training tools that economies can use for further training.

- Harmonise process for setting default MRL values and measurement of default MRLs, if part of the regulatory system.

The principles and processes for setting default MRLs are not harmonised interdomesticly, nor across the APEC region, resulting in significant differences between economies. APEC economies also differ in the sampling and testing procedures for the default MRLs which can result in variable outcomes. As laboratories use increasingly sensitive detection methodologies, increasingly lower levels of residues can be detected. This is a particular problem if low level or level of detection default MRL values are established.

Proposed actions:

  - Develop a framework for the establishment of default values if such values are used as part of an economy's regulatory system. This should include principles and practices.
  - Develop protocols for representative sampling of grain and laboratory testing.

- Engage with the Codex Alimentarius, particularly the Codex Committee on Pesticide Residues (CCPR).

The Codex Alimentarius is a collection of interdomesticly adopted food standards, guidelines and codes of practice that contribute to the safety, quality and fairness of interdomestic food trade, and to the harmonization and facilitation of interdomestic trade. The subsidiary body, the CCPR, establishes maximum limits for pesticide residues in various situations and deals with related matters. The CCPR has been undertaking initiatives to accelerate, and in some cases, simplify the MRL setting process that it undertakes, eg establishment of crop groupings and exploration of parallel processes. These approaches provide opportunities to streamline the development of MRLs.

Proposed actions:

  - Conduct an information sharing workshop to disseminate the information and encourage adoption of streamlined processes being developed by Codex
  - Undertake capacity building activities within APEC, and support such activities at the Codex Alimentarius, to strengthen technical and policy capacity within APEC economies.

- Improve the transparency of policies and regulatory approaches and changes to the regulatory settings.

The studies consistently identified difficulties in determining the policy and regulatory approaches in establishing MRLs in some APEC economies, as well as accessing information about changes in these settings and changes in the established MRLs. The studies noted that the interdomestic opportunities to provide information about these issues through WTO notifications and Codex consultations are not consistently used.

Proposed action:

- Conduct a 'best practices' workshop on sharing information on regulatory policies and approaches, with particular reference to setting MRLs

NTM – Documentation

- Implement electronic certification for trade in grain.

The e-Phyto initiative has been developed through the IPPC and provides a generic mechanism for the exchange of electronic phytosanitary certificates, and the evidence to date indicates that it increases efficiency and effectiveness of the transfer of phytosanitary certificates. While a significant number of APEC economies have registered to use the exchange mechanism, a more limited number are actually exchanging certificates. This tool is still in the early stages of implementation and a focus on implementation in the APEC region would streamline business processes. Initiatives could be developed in collaboration with the IPPC.

Proposed action:

- Enhance understanding and implementation of e-Phyto through development of grain trade case studies to identify issues with implementation and discuss at a 'best practices' workshop. The workshop should have a particular focus on industry and APEC economies developing an implementation plan for e-phyto. This may lead to development of guidelines/protocols to facilitate harmonised implementation, complementary to material developed by IPPC.

- Harmonise e-documentation requirements and processes.

The benefits of e-documentation replacing the current manual processes were raised repeatedly in the case studies to improve cost effectiveness and data security. Some work on e-documentation, digitisation and cyber security has progressed in subgroups within APEC. However the application of e-documentation appears to be in the early stages and there would be benefits in exploring and encouraging the use of these technologies in grain trade.

APEC has already undertaken work to the reduce unnecessary and burdensome requirements on export certificates in general and progressed development of model export certificates for wine and dairy. There is an opportunity to build on this previous APEC work and apply to the grain trade.

Proposed action:

- Undertake a Pilot study to test a "Channel" component to allow for interoperability with industry and government-led digital platforms
- Explore the status of applying e-documentation more generally, through examining current practices, and the opportunities for adoption of digital processes and improved data security.

- Prepare guidelines on the certification/declaration requirements for export certificates required for exported grains within the APEC region and explore the development of a model export certificate for grain.

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ATTACHMENTS

Attachment 1 – APEC Wheat Case Study – NTMs (MRLs and Documentation) | Prepared by Australia

1. Overview

This case study identifies and examines the impact of documentation requirements and maximum residue limits (MRLs) for Australian wheat exports across Asia-Pacific Economic Cooperation (APEC) economies.

APEC is important in the global wheat and wheat products trade, and is a very large trading partner for the Australian wheat industry. APEC economies account for over 20% of global wheat exports, and 42% of APEC member economies wheat exports are to other APEC members. APEC economies account for around 75% of Australia's wheat exports.

Table 1: Wheat exports by APEC member economies to APEC

(tonnes)	2016	2017	2018	2019	2020p
Australia	11,677,269	15,621,788	9,184,465	7,701,007	8,266,771
Canada	8,798,914	10,767,835	12,624,355	11,441,602	13,628,624
Russian Federation	1,203,191	3,214,986	6,723,484	1,647,328	1,623,596
United States of America	14,318,224	16,929,955	13,934,608	15,675,531	17,615,012
Other APEC members	79,793	40,776	22,208	14,449	568
APEC	**36,077,391**	**46,575,340**	**42,489,120**	**36,479,917**	**41,134,571**

Source: https://comtrade.un.org

APEC economies account for around 22% of global wheat imports, with 75% of imports by APEC economies supplied by other APEC member economies. Refer Table 2 for wheat imports by APEC economies.

Table 2: Wheat imports by APEC member economies from APEC member economies

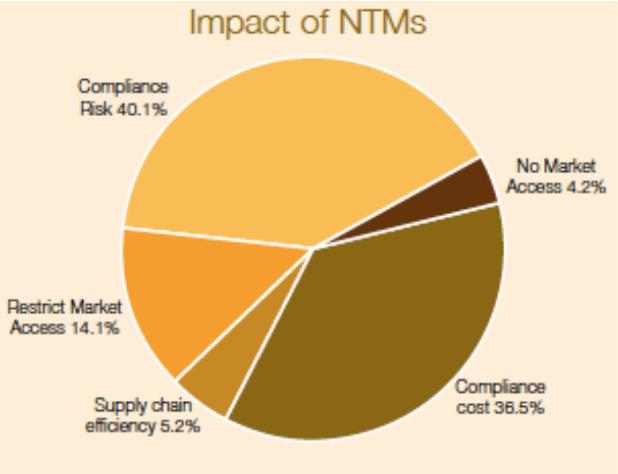
(tonnes)	2016	2017	2018	2019	2020p
Chile	662,750	589,266	675,204	716,445	810,326
China	3,090,293	3,995,407	2,333,489	2,128,684	5,242,158
Indonesia	6,097,812	9,162,899	6,537,073	5,106,045	4,513,242
Japan	5,201,373	5,644,873	5,576,711	5,287,100	5,366,309
Korea	2,439,458	2,821,330	3,092,882	2,792,687	2,842,482
Malaysia	1,175,621	1,226,168	1,211,979	1,083,451	929,634
New Zealand	415,031	575,750	532,567	416,167	334,629
Peru	1,765,642	1,885,137	1,674,474	1,709,210	1,974,739
Philippines	2,997,009	4,564,305	4,916,432	4,720,580	4,474,428
Singapore	203,456	203,751	210,529	201,434	243,893
Chinese Taipei	1,300,587	1,398,342	1,199,990	1,316,832	1,396,153
Thailand	1,160,996	1,369,624	1,349,661	1,432,862	1,605,071
USA	1,887,323	2,796,832	3,129,476	1,817,969	1,812,245
Viet Nam	1,707,375	2,074,579	3,524,042	5,029,545	2,408,509
Other	4,135,736	4,760,014	4,824,191	968,504	733,090
APEC	**34,240,462**	**43,068,277**	**40,788,700**	**34,727,515**	**34,686,908**

Source: https://comtrade.un.org

There is significant interdependency across the wheat sector in APEC i.e., wheat is imported from APEC member economies for processing into a range of food (and feed) products for domestic use and export - much of which is also with APEC member economies. For example, around 40% of wheat exports by APEC members are within APEC, but between 75- 85% of flour and processed product exports by APEC members are with other APEC economies.

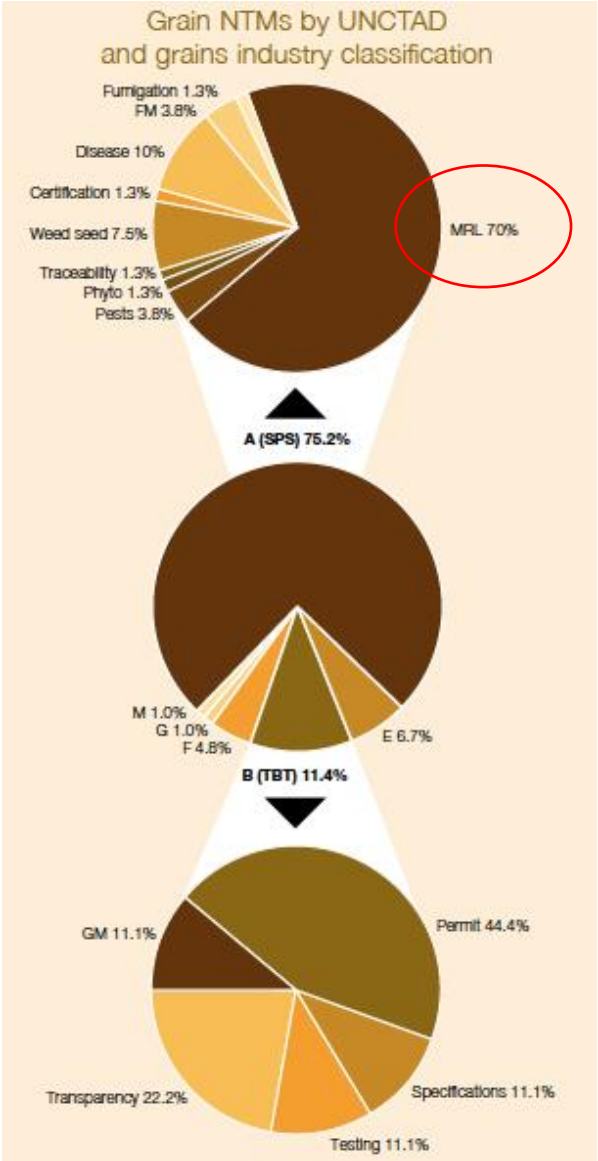
This case study examines the impact of NTMs in relation to the Australian-APEC wheat value chain. Previous work undertaken by the Australian grains industry has identified the importance of NTMs in relation to market access and in particular MRLs and documentation (refer Figure 1). The impact of NTMs acts to increase costs and risk for exporters (refer Figure 2).

Figure 2 – Impact of NTMs



- *Source: https://www.graintrade.org.au/%5Bmenupath-raw%5D/grains-ntm-summary-report*

Figure 1 – Grains NTMs



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2. Global Wheat Market Overview

The global wheat industry represents an important commodity both in terms of food security and in the development of other goods, including high-value food products and, to a lesser extent, animal feed products.

World wheat consumption is forecast to increase to a new record in 2021–22 and continue to increase over the medium term to 2025–26 (ABARES). Table 3 shows that the world consumption of milling and feed wheat accounts for 90% of total wheat use.

- **Table 3: Global Wheat Consumption and Trade**

Global wheat Mt	2018–19	2019–20 s	2020–21 f	2021–22 f
Production	731.5	763.7	770.5	780.1
Consumption	735.4	743.9	757.9	772.6
Trade	170.9	188.3	189.9	186.3

Sources: https://www.agriculture.gov.au/abares/research-topics/agricultural-outlook/data#agricultural-commodities

Demand is expected to continue increasing over the medium term in line with population growth, changing diets and rising incomes, and as economies recover from the impact of movement restrictions put in place to control COVID-19. There is a strong wheat processing industry throughout the APEC economies and thus, a wide range of value-added products are traded between APEC members. Annex 1 shows exports of processed products by APEC member economies to APEC.

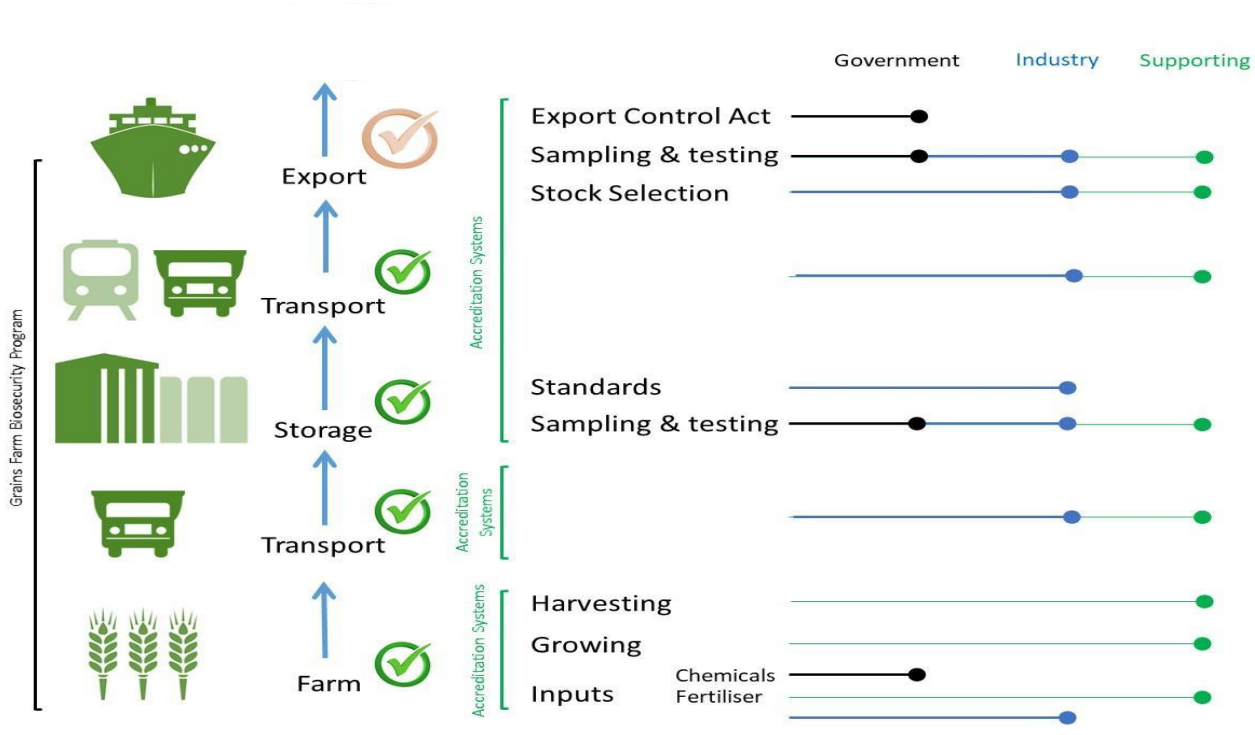
3. Specific Trade Pathway Examined

Wheat accounts for the majority of Australia's grain production. Australia produces just three per cent of the world's wheat, but accounts for 10-15% of the world's global wheat trade. Australian wheat production for the 2020/21 season was a record high of 33.7 million tonnes. This compares to the five-year average of 21.5 million tonnes.

There are various different types of wheat produced in Australia, including Australian Prime Hard (APH), Australian Hard (AH), Australian Premium White (APW), Australian Noodle Wheat (ANW), Australian Standard White (ASW), Australian Premium Durum (ADR), and Australian Soft (ASFT). Australian wheat varieties are classified into eight classes to meet distinct quality attributes for processors and end-users.

The Australian wheat industry produces, handles, exports, and processes large volumes of wheat for a range of markets and end uses. Australia is the only export economy to have a Code of Practice that covers all aspects of the grain supply chain. Features of the Australian wheat supply chain are its clean and safe environment; high product quality; supply chain quality assurance processes; and reliability of supply chain.
There are quality assurance processes in each link of the supply chain, supported by accreditation systems and programs that enhance and strengthen the supply chain, and underpins reliability (refer Figure 3).

Figure 3: Australian wheat export supply chain processes



The majority of Australia's wheat exports to APEC are in bulk, although there is a strong and growing trade in containers, accounting for around 10% of total wheat exports.

APEC economies collectively are the major destination for Australian wheat exports accounting for 75% of total Australian exports.

Australia's Wheat exports to APEC

Australia's wheat exports to APEC are largely for flour milling for domestic consumption and export, and further processing into a range of products including:

- Instant noodles (Instant noodles, cup noodles, packet noodles)
- Other noodles (Yellow alkaline, white salted noodles (udon noodles, ramen noodles)
- Pasta
- Bread (Pan bread, flat bread, Indian breads, hearth bread, rolls, buns, pan desal)
- Cakes and biscuits (Confectionary, cakes, sweet biscuits, crackers, steamed buns)
- Retail (Snack foods, grocery flour, other flour mixes, other refined flour products)

Smaller quantities are utilised by the feed processing sector, including for starch content for aqua feed as well as animal feed.

This wheat value chain example examines the wheat value chain, with a focus on food, and identifies issues/barriers as they relate to MRLs and documentation. While MRLs are largely considered at the wheat level, the principles, issues and impacts can be translated across the value chain.

This report focuses on MRLs and documentation as incurred in export of wheat to APEC economies, however, as noted above wheat imports are utilised by APEC member economies for processing into a range of food (and feed) products for domestic use and export - much of which is also with APEC member economies (75-85% of flour and processed product exports). While this case study does not examine all trade flows in detail, previous work undertaken as part of the APEC Grains NTM Project for the workshop in November 2019 illustrates the impact of NTMs across the value chain. This is shown in the breakout box.

The approach adopted in the Indonesian example may be beneficial to adopt more broadly as captures the impacts for exporter and importer economies across commodities and value-added products, and may better demonstrate the benefits of addressing NTMs for all APEC economies.

Indonesian Wheat Milling Value Chain Case Study

The material in this case study example is drawn from a report that was prepared for the Australian Government Department of Agriculture, Water and Environment (DAWE) in 2019 as part of the APEC Grains NTM project.

The report was developed Jointly by Grain Trade Australia (GTA) and Australian Export Grain Innovation Centre (AEGIC). GTA, AEGIC and DAWE thank the Indonesian flour milling companies and other organisations that participated in consultation and provided data and input to this study.

The value chain presented in this example is a generic representation of the Indonesian flour milling sector and valued-added wheat flour products. It does not represent any specific company information or position.

The case study looked at the Indonesian wheat flour milling and value-added export value chain. In this example, NTMs can occur at:

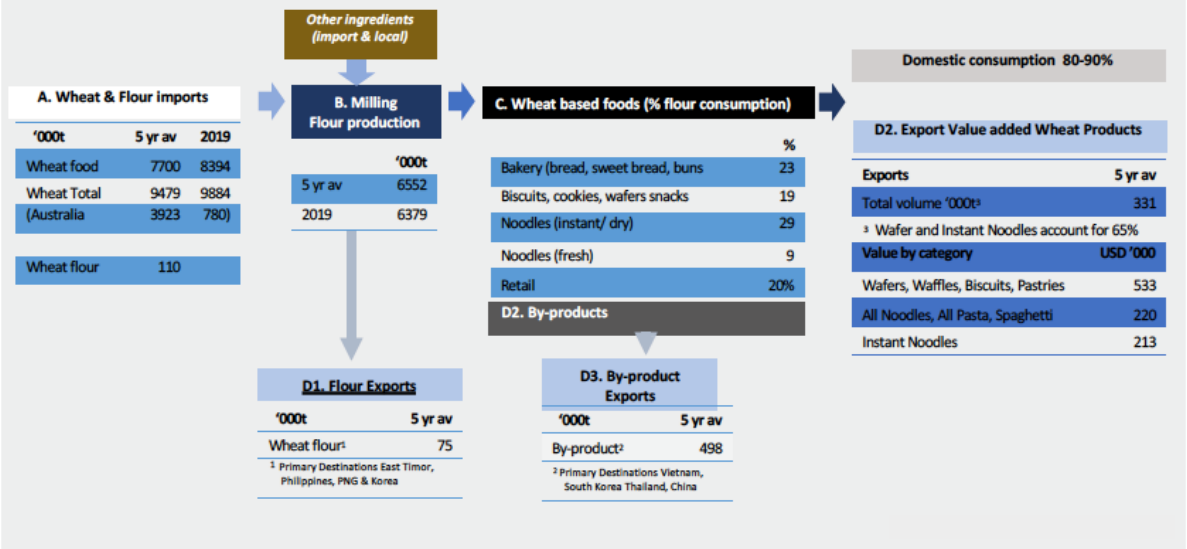
- Export of raw materials - handling/transport/port
- Import/manufacturing -mill/further processing/ packaging/transport; and/or
- Export of finished products - importer/retailer.

The aim of the case study was to demonstrate the potential benefits of trade enabling measures to address NTMs, while maintaining safety/security. Specific objectives of the project were to:

- Map and describe the Indonesian wheat flour milling and value-added export value chain
- Identify NTMs across the value chain and their impacts
- Identify opportunities for regionally based trade enabling measures to address NTMs that will potentially facilitate trade and enhance competitiveness of the value chain.

Figure 1 summarises the trade flows across the value chain.

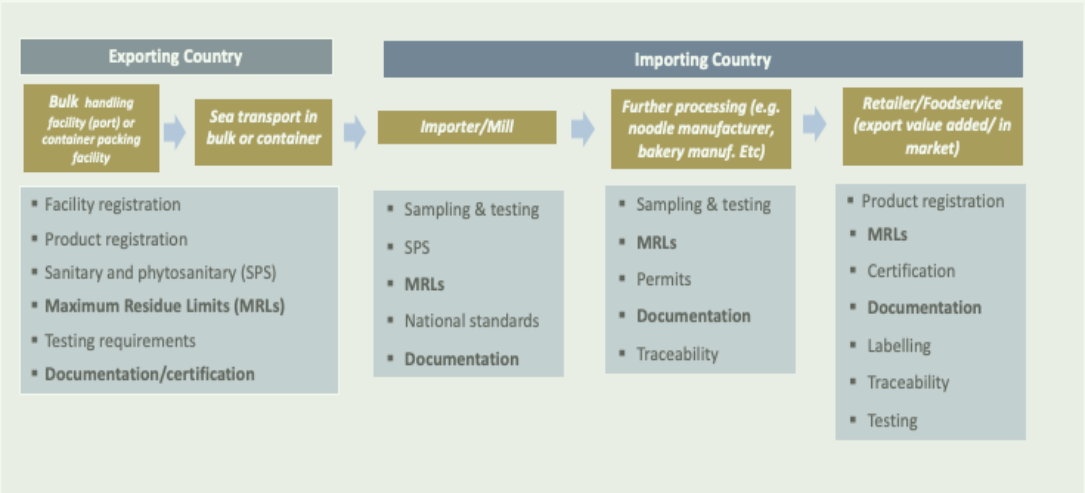
The Indonesian wheat flour milling value chain



This case study example identified all NTMs across the value chain which are represented in Figure 2. However, for the purposes of this document only NTMs relating to MRLs and Documentation are detailed in the table below.

NTM	Issues	Impacts
Maximum Residue Limits (MRLs)	Across raw materials, processed products and by-products customers are increasingly asking about MRLs and standards are becoming tighter. Zero tolerance of a residue is not practical nor based on objective risk-based assessment. Lack of alignment on testing methodology was a key issue. More broadly for the grain sector key issues are the increasingly tight MRLs and lack of MRLs in some economies for certain chemicals.	MRL non-compliance is not a major issue (in particular, for grain from Australia), however, it does result in higher compliance risk and costs. In some cases, it can also cause trade disruption, and could potentially block trade completely.
Documents and certificates and transparency in regulations	While not a major issue in the value chain case study, it was noted that streamlining processes and reducing red tape in relation to certifications and permits would assist trade. Transparency of regulations can be an issue – this was observed within the Indonesian environment with cross sector impacts on the flour milling sector. General trend towards increasing regulation across the sector/region e.g., red-tape, SPS requirements, clearance processes, etc. This is exacerbated by variations in requirements across APEC member economies.	These factors can increase costs and risks and lead to loss of market access.
e- documentation	Adoption of e-documentation would greatly benefit the sector. Whilst globally Governments are working towards implementation of an ePhyto platform through the IPPC, it was noted that adoption of electronic documentation more broadly is limited by the Indonesian Government. It was also noted that the grains sector, and commerce more broadly is moving very rapidly in adoption of e-documentation and that this is causing some misalignment between Government and business.	Inefficient processes around documentation; lack of transparency and inefficiency for customers; and higher costs and time delays for importers/ exporters.

Figure 2: NTMs across the value chain.



4. Documentation

All wheat exports are required to conform to the importing economy and buyer requirements. Plant health export certificates (e.g. phytosanitary certificates) are common across most markets. Export certificates are commonly negotiated between governments, and for plants, are principally based on the internationally established guidelines set by the International Plant Protection Convention (IPPC).

For Australian wheat exports, the Department of Agriculture, Water and the Environment (DAWE) issues export documentation required by the Export Control Act and the authorities of importing economies. Export documentation verifies that the commodity meets legislated export requirements and the requirements of the importing economy.

Key documentation required by importing markets for wheat can include:

- Import Permit (or may be exempt if part of a Protocol market)
- Phytosanitary Certificate
- Additional declarations

However, for processed products the document and certification requirements can be extensive and include documents such as those listed below, as well as a range of product specific documents where product registration for processed/packaged products is required:

- Import permit/ license
- Phytosanitary certificate
- Certificate of free sale
- Certificate of analysis
- Health certificate
- Certificate of origin
- Certificate of quality/condition
- Religious certificate e.g. halal

A key issue for the industry is the limited adoption of e-documentation which can result in limited visibility on end-to-end flow; manual and repetitive data entry and checks; labour intensive audit trial; and long processing and waiting times. These factors can increase costs and risks and lead to loss of market access, lack of transparency and inefficiency for customers, and higher costs and time delays for importers/exporters.

The wheat (grains) industry and Government processes related to export and import certification and documentation are still largely manual. There is a recognition that streamlining processes and reducing red tape in relation to certifications and permits would assist trade.

The Australian Government is working to address these issues through its “congestion busting programme”, which involves introducing measures to reduce government intervention while increasing assurance, and enhanced export certification (NEXDOC). Australia is also an active participant in the global ePhyto solution which provides the global standard for e-documentation in the trade of plants and plant products.

A wide range of exporting and importing economies, including a number of APEC economies, are part of the ePhyto initiative which is aimed at developing an electronic phytosanitary certificate. Refer to Annex II for a summary of APEC economies participating and their current status. There are APEC economies who are not yet part of the initiative and thus there is an opportunity for greater dialogue to encourage further participation.

The ePhyto Solution aims to implement an accessible way for all governments to exchange phytosanitary certificates electronically via a global Hub. The work is being led and supported by the International Plant Protection Convention (IPPC), the Standards and Trade Development Facility (STDF), and government funders.

Over 90 National Plant Protection Organizations (NPPOs) have signed up to the IPPC’s ePhyto Solution with around half of those actively exchanging. There is only a small number of economies that are fully enabled to both send and receive ePhytos. Feedback from economies is used to improve the Hub and the GeNS. Success stories among NPPOs have included:

- The integration of the ePhyto Solution with EU TRACES
- USA’s active exchanges with 48 economies
- Argentina’s 100% paperless implementation with four economies
- Adoption in Korea “across all commodities” from May 2021

- Uganda's decision to choose the grains and pulses sector to begin full adoption in November 2020
- Onboarding and active testing between Argentina and China

There is minimal training required on the export side as there is little process change when sending an ePhyto, however, import clearance training and change management is required for new processes with the receipt and clearance based on an ePhyto.

Australia is currently receiving ePhytos for imports via the IPPC Hub (commenced in Dec 2020), and is currently undertaking a technical assessment of IT enhancements required to be able to send export ePhytos via the IPPC Hub. Australia is bilaterally paperless with New Zealand.

The grain trade sees the ePhyto Solution as an important part of the drive to streamline border processes, reduce time for cargo clearance, and reduce unnecessary cost burdens in trade.

The IPPC ePhyto Industry Advisory Group (IAG) has collated over 40 ePhyto case studies which articulate benefits and obstacles. While these have shown positive indications that "ePhyto contributes to greater efficiency and ease of export/import", there has been little actual quantification of benefits. The case studies have mainly been in the grains sector (USA-Mexico, Argentina-USA, Argentina-Chile, USA-New Zealand) but there have also been a limited number in cotton, seeds and fresh fruit, and vegetables.

Some key areas where industry has identified further work that could assist to progress the ePhyto solution include:

- Developing further grain trade case studies to test ePhyto i.e**.** identify shipments to be involved in "case studies of the impacts of implementing ePhyto on trade flows" that will test ePhyto exchange from a commercial perspective. The purpose of the industry case studies would be to identify issues – technical, regulatory, business flow, or otherwise – and to provide clarity to all parties regarding the ePhyto process and how it can benefit suppliers and end users. Results from these industry case studies can be used to establish a set of guidelines as the trade moves forward with electronic documents and paperless execution.
- Testing of a "Channel" component to allow for interoperability with industry and government-led digital platforms - the interoperability of ePhyto with other digital platforms is important for use alongside government-led platforms such as single window automated systems.

Additional to this Government initiative, globally the grain industry is investigating ways to standardise and digitise global grain shipping transactions for the benefit of the entire industry. The focus is to reduce operational risk and cost, improve transparency (end-to-end visibility), and reduce delays. The disruption caused by the COVID-19 pandemic may provide the opportunity and impetus to learn and fast-track digital documentation and e-certification. Encouraging adoption of digital processes and improved data security through use of electronic portals could assist to streamline certification processes, increase transparency, and serve as a repository of information for rules and regulations across APEC. Refer to Table 4 for examples of potential benefits from the move to e-documentation.

Table 4: Potential benefits from e-documentation

Benefits for	Exporters	Government
Transparency	• Predictability • Reduced time/costs	• Better compliance • Better quality decisions
Consistency	• Reduced costs • Reduced delays • Reduced complexity	• Better compliance • More effective government • More efficient government
E-documentation	• Reduce clearance times and costs • Lower operational risk/cost • End to end real time visibility • More flexible workforce • Single source of truth • Decreased risk of manual error • Shorter waiting times	• Align with modern business practice • More effective government • More efficient government

5. Maximum Residue Limits (MRLs) [15]

Governments regulate pesticides to ensure safe and effective use, as well as to prevent harm to humans, animals, plants, or the environment by setting MRLs in commodities used for food and feed. It is important to note that MRLs do not represent food safety measures; they are set to ensure that farmers are following safe label practices when using pesticides, for trading purposes. Downstream products are generally covered by the whole commodity MRLs but may vary depending on economy/product.

MRLs reflect the highest concentration of the pesticide residue that will result from approved uses. Since practices differ between economies due to different pest/disease pressures and environmental conditions, MRLs can also differ.

Chemical residues on imported food and food safety in general are arguably the key focus for markets at present, driven by increased awareness from consumers, and changing community and farmer sentiment.

Each economy has its own chemical regulations and method for setting MRLs. A range of factors are taken into account, including different climates, pests and diseases, and approaches to risks and food safety in general.

The Australian Pesticides and Veterinary Medicines Authority (APVMA) sets MRLs for agricultural and veterinary chemicals registered for use in Australia. The APVMA defines an MRL as "the maximum concentration of a residue resulting from the registered use of an agricultural or veterinary chemical which is legally permitted or recognised as acceptable to be present in or on a food, agricultural commodity or animal feed". These MRLs are set at levels that do not pose risk to human health and are not likely to be exceeded if used in accordance with label directions for each product. Hence MRLs are generally not considered to be related to any food safety issues. The Australian approach also considers the potential risk to trade of residues being present.

While many economies follow international guidelines, there is a trend towards markets developing their own chemical regulations rather than relying on international standards, such as Codex. In addition, where no MRLs have been established, some markets apply the 'limit of determination' such that detectable residues are not allowed. Markets are also increasing their level of monitoring of imported grain via sampling and testing to check compliance with their needs.

The increase in grain traded internationally may cause a market access issue for grain exports where:

- The market has no MRL (missing MRL)
- The market does not apply a Codex MRL (divergent MRL)
- There is no Codex MRL for those markets that follow or default to Codex
- The market does not have a default policy and hence a zero limit applies
- The market applies a low level of detection (LOD).

Wheat is typically sold in bulk and blended at points along the supply chain. There are various challenges when trading grain internationally due to the different approaches to setting MRLs including:

- MRL in importing economy is different to the exporting economy (Australian MRL). This can result because of the method/approach to setting MRLs.
- Missing MRLs refers to MRLs that exist in an exporting economy, but do not exist in the importing economy for that specific chemical/commodity.
- Lack of an Import Tolerance policy.
- Support for old compounds - different economies have differing approaches to the re-evaluation of previously registered compounds. The resources (data generation, cost etc.) required to support reviews

[15] The information in this section is drawn from the National Working Party on Grain Protection which is the Australian grain industry's initiative to manage crop protection product issues including MRLs, and the recent report undertaken by the United States International Trade Commission (USITC) Global Economic Impact of Missing and Low Pesticide Maximum Residue Levels

of compounds is often outweighed by the commercial returns of sales of that compound. Thus, many old compounds may not be supported.

- MRL setting policies are increasingly being influenced by public concerns and views on chemical use/ residues generally in food, water and the environment.

- All of the above may lead to a change in risk profile of grain to a particular market. The Australian wheat industry utilises a range of (voluntary) management practices during production and across the supply chain to help address this risk including:
    - On-Farm Stewardship Guide enabling growers to demonstrate compliance with good management practices regarding chemical use
    - Growers providing advice on chemical use through a Commodity Vendor Declaration (CVD)
    - Segregating grain on receival into storage
    - Sampling and testing grain to select stock with required residue levels, and only out-turning grain once residue levels are known
    - Only trading grain that meets market requirements, as per requirements of industry documents such as the Grain Trade Australia *"Code of Practice for the management of grain along the supply chain"*
    - Sampling and testing grain through company QA programs and/or participation in the National Residue survey, to confirm the residue status of the grain and that all management strategies used were appropriate.

Table 5 illustrates differences in market regulation for both imports and domestic situations, and Table 6 shows MRLs for key pesticides for wheat in selected APEC markets.

Table 5: Selected market regulations for MRLs as of 2 June 2021

Market	Codex	Australia	China	Indonesia	Japan	Korea	Chinese Taipei	Thailand	Viet Nam
Regulation	Not adopted by all markets	Own MRL standard							
Default	No default				Default system		No default	Default system is complex	No default
If no MRL	Zero				0.01		LOQ*	0.01	Zero
Updates	Yearly	Monthly-6 weeks	Bi-annually	Rarely	Often	Often	Approx. twice/ year	Rarely	Rarely

Source: National Working Party on Grain Protection

*The LOQ for most pesticides and agricultural commodities is 0.01ppm.

Table 6: MRLs for key pesticides for wheat in selected markets as of 25 May 2021

Chemical	Codex	Australia	China	Indonesia	Japan	Korea	Malaysia	Philippines	Thailand	Viet Nam
2,4-D	2	0.2	2T	2	0.5	2 (IT)	2 (Cod)	2 (Cod)	2 (Cod)	2
Chlorpyrifos	0.5	T0.1	0.5	0.5	0.5	0.4 (IT)	0.5 (Cod)	0.5 (Cod)	0.5 (Cod)	0.5
Chlorpyrifos-methyl	3	10	5T	10	10	3 (IT)	3 (Cod)	3 (Cod)	3 (Cod)	10
Clopyralid	0	2	2	0	2	3 (IT)	0.01 D	0	0.01 D	0
Deltamethrin	2	2	0.5	0	2	2 (IT)	2 (Cod)	2 (Cod)	2 (Cod)	2
Diquat	0	2	2	2	2	2 (Ex)	0.01 D	0	0.01 D	2
Fenitrothion	6	10	5T	0	1	0.2 (Ex)	6 (Cod)	6 (Cod)	6 (Cod)	6
Glyphosate	30	5	5	0	30	5 (IT)	30 (Cod)	30 (Cod)	30 (Cod)	30
MCPA	0.2	0.02*	0.1	0.2	0.1	0.2 (IT)	0.2 (Cod)	0.2 (Cod)	0.2 (Cod)	0.2
Salfufenacil	0.7	0.2	0	0	0.6	0.5 (IT)	0.7 (Cod)	0.7 (Cod)	0.7 (Cod)	0.01

Abbreviations re MRL (all listed in mg/kg):
T Temporary
D Default MRL
Ex MRL expires 21Dec2021
Cod Codex Alimentarius Commission MRL
* Limit of quantification
IT Import tolerance

Expected to be under review shortly

Under review currently

Source: National Working Party on Grain Protection

There has been considerable effort within APEC to harmonise MRLs and MRL setting processes. The APEC Import MRL Guideline for Pesticides includes assessment methodologies involved in considering import MRL requests (import tolerances) from the perspective of consumer protection across the APEC region. The aim being to not only increase consumer confidence in the MRL setting process, but where practical and appropriate, also achieve greater regulatory convergence of MRLs, promoting greater alignment with Codex standards, while reducing the regulatory burden across APEC economies and facilitating trade. The main principles that underpin the guidelines are consumer protection, minimisation of data requirements needed to assess safety, and emphasis on the use of Codex MRLs, including the supporting JMPR monographs, where such MRLs exist.

Despite these efforts and the level of economic integration, there remains considerable variation in the implementation of different MRLs, with some economies using a combination of formulating their own MRLs and following the Codex MRLs, others totally adopting the international standards of Codex, and some where the process is less transparent.

Increasingly there are more missing MRLs as fewer economies are using international standards (Codex MRLs), and more application of zero-or near-zero defaults. This is leading to a prevalence of domestic MRL lists or "positive list" systems. In developing these positive lists, regulators may to varying degrees consider and incorporate Codex standards. Meeting MRLs is not the problem, rather it is meeting the near-zero default tolerances that apply when an MRL has not been established. This is reflected within APEC where some economies have adopted a system that includes both a positive list approach for MRLs and a level of detection at or near zero where there is not an MRL.

There is no global or APEC standard for a default value in the event an MRL is not granted or has not yet been considered in a market. Markets may defer to MRLs established by Codex or by other markets, or they may establish their own numerical default, or defer to a third market. However, some markets effectively have zero tolerance in the absence of an MRL, rather than set a specific default.

If there are no MRLs established in an importing economy or by Codex, an import tolerance approach is important. For example, an interim measure policy could include economies adopting MRLs as applied in exporting economies until an MRL is formally established by the economy in question or by Codex.

Australia has a (streamlined) Import Tolerance process to allow for trade into Australia where an MRL for a particular chemical/commodity combination does not apply. It does this by considering requests to harmonize Australian MRLs with MRLs established by Codex Alimentarius or other economies where the commodity is produced. A range of data is required to be provided and then assessed by FSANZ, including dietary exposure and intake assessments. If accepted, the MRL will be adopted in Schedule 20 of the Food Standards Code.

Economies may or may not have an Import Tolerance process, with variations in the requirements for those that do operate an Import Tolerance process (e.g., data requirements, application fees). Without an Import Tolerance process, if an economy does not have a specific MRL, Australia may not be able to seek an MRL and thus place at risk useful chemical tools for growers or face increased risks of market access violations if grain is exported to that economy. At present there is no common approach across APEC when setting Import Tolerance regulations.

The constant shift or unclear policies on MRL policy setting in importing markets complicates decisions for growers and for traders who rely on consistency and transparency. Transparency will assist in identifying and mitigating against any risks to minimize trade disruption through non-compliance.

Australian growers are recognised globally for their good agricultural practices. Use of crop protection products are critical for profitable and sustainable production by reducing losses from weeds, diseases, insects, and other pests**. The pesticides used and how they are used are adapted to Australian** pests and growing conditions.

Australian farmers are increasingly aware of market access implications of various pesticide usage and seek to adjust production practices in response to evolving regulations and community attitudes. Pesticides are just one option for pest control in modern farming, with Australian farmers widely adopting Integrated Pest Management approaches, such as rotating between different crops and pesticides. An integrated pest management system ensures that farmers are able to control and mitigate the effects of pests, including yield losses and reduced product quality.

Stewardship is an important part of the farming system across chemical companies, growers and the supply chain. The Australian grower guide *"Growing Australian Grain: Safely managing risks with crop inputs and grain on farm"* is an on-farm stewardship guide designed to show compliance by growers with regulatory and market requirements for chemicals. It also outlines activities growers may conduct over and above regulatory requirements that may be considered. The Guide covers all chemicals used during the on-farm activities including all those used pre-sowing and in-crop, and any chemicals used during storage of harvested grain. There are a range of resources to review on a range of topics related to chemical use on-farm.

It is difficult to quantify the impacts of NTMs given the diverse nature and risk management approaches undertaken to mitigate potential impacts. Adopting a risk assessment approach may be a way to identify and quantify impacts. Table 7 is an example of how the working group may be able to look at the assessment of impacts of MRLs gaps.

Table 7: Example approach to assessing impact of MRL Gaps

Issue	Point of impact	Impact	Risk Probability/Impact
Missing, low, or diverging MRLs	Growers	Changes to management practices and/or crop protection product use Market access	Low/Med
	Supply chain participants	Disrupt/impede trade Impose supply chain practices e.g. segregation, pre-export testing	Med/High
	Millers/bakers/ consumers	Impact on supplier options and costs of extra testing or changing sourcing methods to accommodate an unreasonable MRL	Med/High
Exceeding MRLs which results on MRL violation	Trade/ Growers	Rejected shipment (costs could include finding alternate market/use, potential replacement of shipment) Higher inspection rates Reputation Future market access	Med/Med
	Consumers	Access to safe food Higher prices	Low/Low

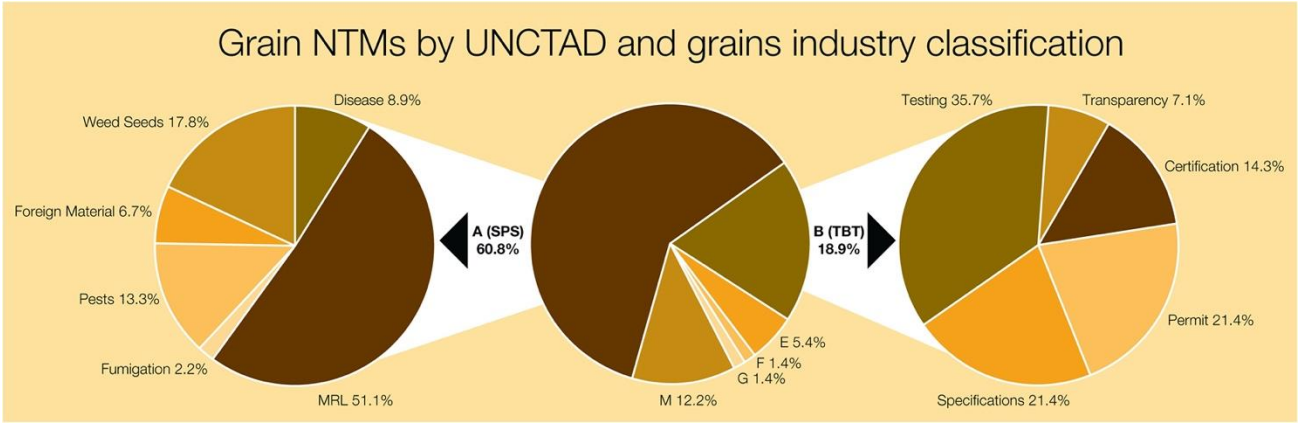
- The recent USITC report provides insights to potential solutions and approaches that could be considered to address limitations/gaps in the current Codex MRL setting process and import MRL guidelines developed in APEC. This report also notes the proposal developed by the International Agri-Food Network's Coalition for an Enhanced Codex which also identifies action to address Codex limitations.

6. Other NTMS for Australian wheat exports to APEC

The Australian grains industry has processes in place to capture and monitor NTMs by commodity and market. The industry utilises this information to help inform Government of industry priorities in relation NTMs.

Figure 5 shows NTMs for the grains industry for APEC economies only. This highlights that MRLs and other SPS issues are the most prevalent NTMs.

Figure 5: NTMs impacting Australian grains - APEC economies



For UNCTAD classifications, refer https://unctad.org/webflyer/international-classification-non-tariff-measures-2019-version

Source: Grain Trade Australia

7. Key Findings

- APEC is important in the global wheat and wheat products trade, and is very large trading partner for the Australian wheat industry.
- APEC economies account for over 20% of global wheat exports, and 42% of APEC member economies wheat exports are to other APEC members. APEC economies account for around 75% of Australia's wheat exports.
- APEC economies account for around 22% of global wheat imports, with 75% of imports by APEC economies supplied by other APEC member economies.
- Trade within the APEC community is important and growing. The trade environment is becoming more complex and challenging. The lack of consistency in rules and regulations across APEC has the potential to cause trade disruptions and limit market access, resulting in significant regulatory burden.
- Addressing priority non-tariff measures (NTMs) such as MRLs and documentation will help in improving market access, potentially leading to increased and more efficient trade across the APEC group.
- The ePhyto initiative, aimed at developing an electronic phytosanitary certificate, has the potential to deliver significant benefits for regulators and industry. There are APEC economies who are not yet part of the initiative and thus an opportunity for greater dialogue to encourage further participation.
- MRLs are a priority trade due to the increasing number of missing or non-aligned MRLs, lack of coherence in approaches to dealing with missing MRLs, and the increasing prevalence of economies to develop domestic lists. There is a trend towards moving away from international standards (Codex) as economies modernise their regulatory environment, thus providing potential for greater misalignment as domestic MRLs diverge from Codex/international standards.
- Access to crop protection products is critical for ongoing sustainability of wheat production and enabling growers to address weeds, disease and pests, thus helping maximise yields and production.
- Promoting increased alignment with Codex standards and enhanced regulatory coherence in MRL setting processes, default MRLs and import tolerance processes, would assist to reduce the regulatory burden across APEC economies and facilitate trade.
- There is no global or APEC standard for a default value in the event an MRL is not granted or has not yet been considered in a market. The application of zero-or near-zero defaults is also a key challenge, and this is reflected within APEC where some economies have adopted a system that includes both a positive/domestic list approach for MRLs and a level of detection at or near zero where there is not an MRL.
- Other key issues are the lack of import tolerance policies or policies that are on a case-by-case basis. This can increase risk and delays for exporters.
- It is recognised that it is difficult to quantify the impacts of NTMs given the diverse nature and risk management approaches undertaken to mitigate potential impacts. Adopting at a risk assessment approach may be a way to identify and quantify impacts.
- The recent USITC report on MRLs provides insights to potential solutions and approaches that could be considered to address limitations/gaps in the current Codex MRL setting process and import MRL guidelines developed in APEC.

References

- ABARES https://www.agriculture.gov.au/abares/research-topics/agricultural-outlook/wheat

National Working Party on Grain Protection http://graintrade.org.au/nwpgp

USITC report: https://www.usitc.gov/publications/332/pub5071.pdf

Annex 1: Exports by APEC member economies to APEC, 2020

Tonnes	Flour	Bakery	Pasta/Noodles	Prepared foods
Australia	271,574	33,745	4,748	399,651
Brunei Darussalam	779	16	14	36
Canada	184,569	732,286	136,893	2,023,059
Chile	53	511	1,309	132,628
China	114,471	119,552	763,399	1,107,167
Hong Kong, China	4,562	23,407	65,656	98,575
Indonesia	39,639	236,525	240,799	493,398
Japan	166,776	29,316	44,231	104,059
Korea	45,220	51,176	649,715	746,891
Malaysia	59,666	218,208	79,813	356,111
Mexico	6,309	0	18,168	19,310
New Zealand	1,609	26,826	13,421	53,607
Papua New Guinea	8	0	0	16
Peru	60	11,123	17,624	36,807
Philippines	31,189	35,797	15,934	75,635
Russia	114,538	17,869	1,425	57,788
Singapore	85,252	11,486	32,561	46,659
Chinese Taipei	28,284	33,390	119,896	167,300
Thailand	7,249	82,132	301,176	482,742
United States of America	252,684	553,716	327,222	1,719,332
Viet Nam	111,411	51,004	144,653	214,507
APEC	**1,525,902**	**2,268,085**	**2,978,657**	**8,335,278**

Annex II: ePhyto HUB Summary – participating APEC economies

Economy	Registration Approved	UAT Exchanges	Production Exchanges	GeNS Implemented	
				UAT	PROD
Australia	Yes	Yes	Yes	No	No
Canada	Yes	Yes	No	No	No
Chile	Yes	Yes	Yes	No	No
China	Yes	Yes	No	No	No
Hong Kong, China	Yes	Yes	Yes	No	No
Indonesia	Yes	No	No	No	No
Korea	Yes	Yes	Yes	No	No
Malaysia	Yes	No	No	No	No
Mexico	Yes	Yes	Yes	No	No
New Zealand	Yes	Yes	Yes	No	No
Papua New Guinea	Yes	Yes	No	Yes	No
Peru	Yes	No	No	No	No
Philippines	Yes	No	No	No	No
Singapore	Yes	No	No	No	No
United States of America	Yes	Yes	Yes	No	No

Attachment 2 – **Non-Tariff Measures (NTMs) applied to the Peruvian Quinoa in the APEC region** | Prepared by Peru

PART 1 – Overview

APEC represents the 47.9% of world exports of quinoa, with Peru being the main exporter in the region and worldwide. Even in the COVID context, Peruvian quinoa exports presented a growth of 12.30% during 2020 in comparison with 2019. However, quinoa trade is not excluded from different kind of non-tariff measures.

This report covers different aspects of Peruvian quinoa trade and emphasizes on the non-tariff measures applied to this product. The case is mainly focused only on quinoa grain in bulk, and not extended to processed foods that include quinoa. The report begins by detailing relevant commercial information on quinoa. In addition, it mentions about those exporters outside the APEC region and their level of competitiveness.

On the other hand, the Peruvian quinoa supply chain is explained in detail in each of its stages according to the logistics chain, the value chain and the organic product chain through the main transport route to its main destination markets.

Additionally, the report includes information about the documentation related to the Peruvian quinoa export process. The main documents required are phytosanitary documents, certification of origin, customs documentation, microbiological tests, and organic certification. It is worth mentioning that the APEC economies consider the phytosanitary certificate as a mandatory requirement for the export of this product. The requirements established by the APEC economies are also detailed.

Some MRLs differences are exposed considering the main trade partners. It also includes a brief explanatory case about the Peruvian experience on the US market.

Finally, it is mentioned that there are other regulatory measures that could impact quinoa trade in the future, such as contaminants maximum levels.

PART 2 – Global Commodity Market Overview

Quinoa exports worldwide have had a sustained average annual growth of 18.92% between 2012 and 2019, reaching the maximum value in 2014, with 464.6 million USD. In

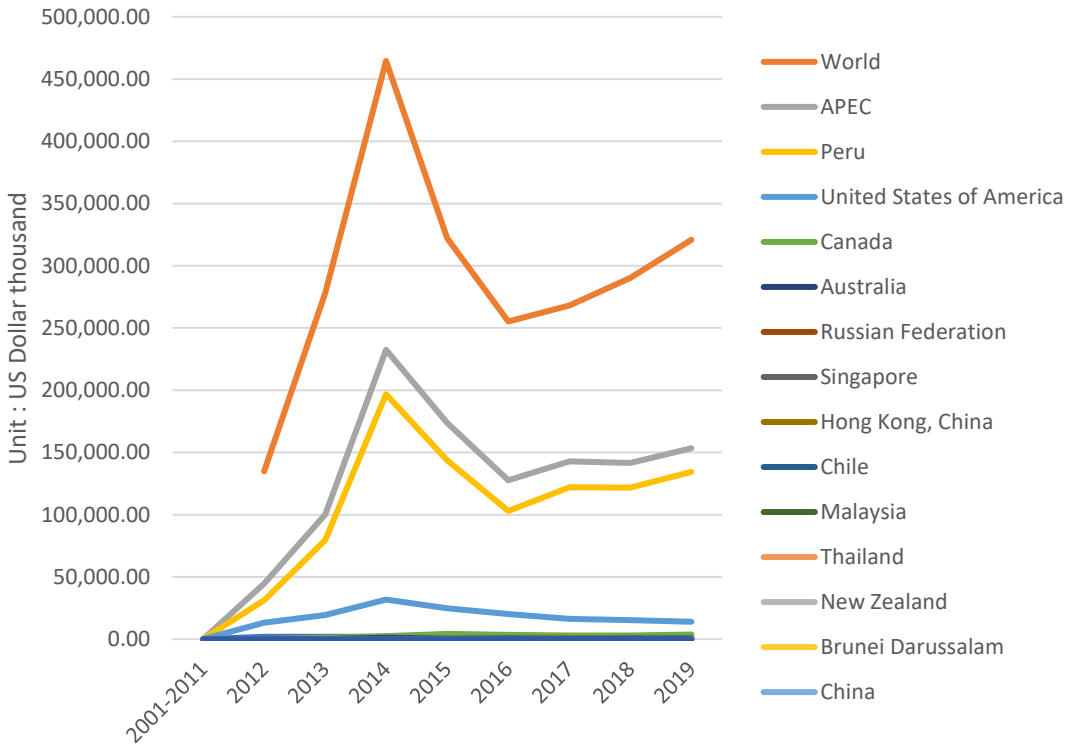
Figure **1**, the development of quinoa exports is presented.

Among the 5 main quinoa exporters worldwide in 2019 are Peru (134 million USD), Bolivia (90.7 million USD), Spain (16.5 million USD), followed by the Netherlands (15.1 million USD), and finally, the United States (14 million USD).

APEC exports of quinoa represents 47.9% of world exports of this product. The main worldwide exporter is Peru with the 41.9% of quinoa world trade, however, this share has been progressively decreasing from its highest point in 2014 (49.78%). This decrease is explained by the average growth in quinoa sales in other economies such as Spain, which increased its sales by up to 81.51%, Belgium with 41.36% and Austria with 31.33% in the 2015-2019 period.

Other APEC economies that also export this grain are the United States, Canada and Australia. Those economies represent less than 7% of total quinoa exports.

Figure 1: APEC quinoa exports, 2001-2019



Source: International Trade Centre (ITC), 2021

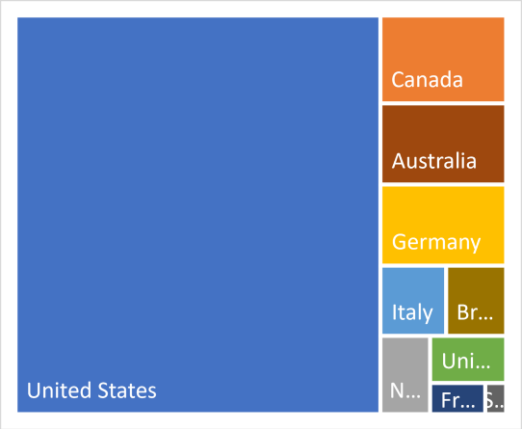
During the period between 2011 to 2020, Peruvian exports of quinoa to the world presented a sustained annual average growth of 116.31%. In 2014, quinoa exports registered the highest historical value (+157 million USD).

Over the last 10 years, in general, Peruvian exports of quinoa have maintained important trading partners such as the United States (44.08%), Canada (8.05%), the Netherlands (7.21%), Germany (4.17%), and Italy (3.80%). Due to the United States market demand, imports of quinoa from Peru and other economies have significantly increased in the past few years. The United States continues to be the main trading partner since 2012 as is shown in

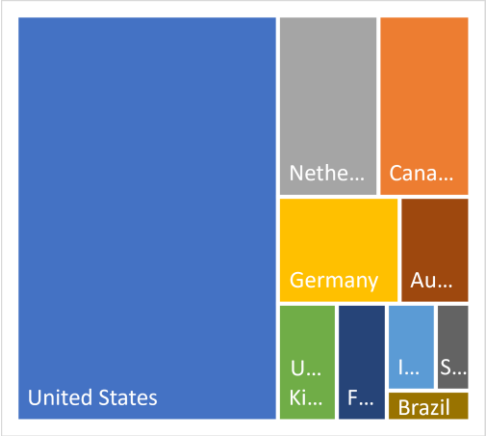
Figure **2**. However, the market share has decreased, considering the market diversification of Peruvian quinoa exports.

Figure 2: Peruvian main trade partners for quinoa exports

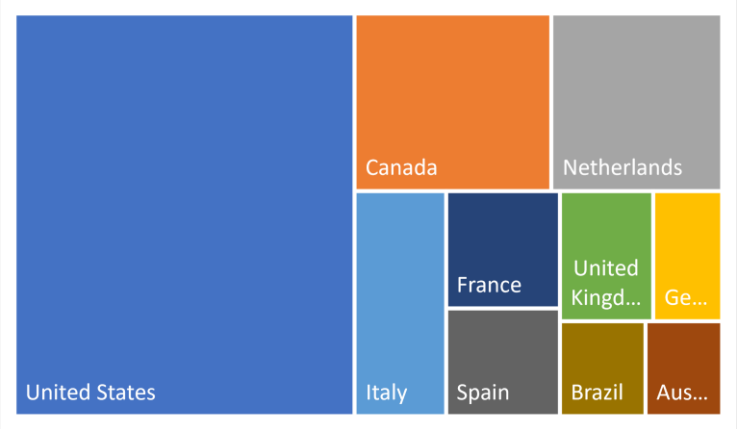
Year: 2012



Year: 2015



Year: 2020



Source: Ministry of Foreign Trade and Tourism from Peru (MINCETUR), 2021

On the other hand, Peruvian exports of quinoa to APEC economies registered a significant annual average growth of 104.06%, between 2011 and 2020.

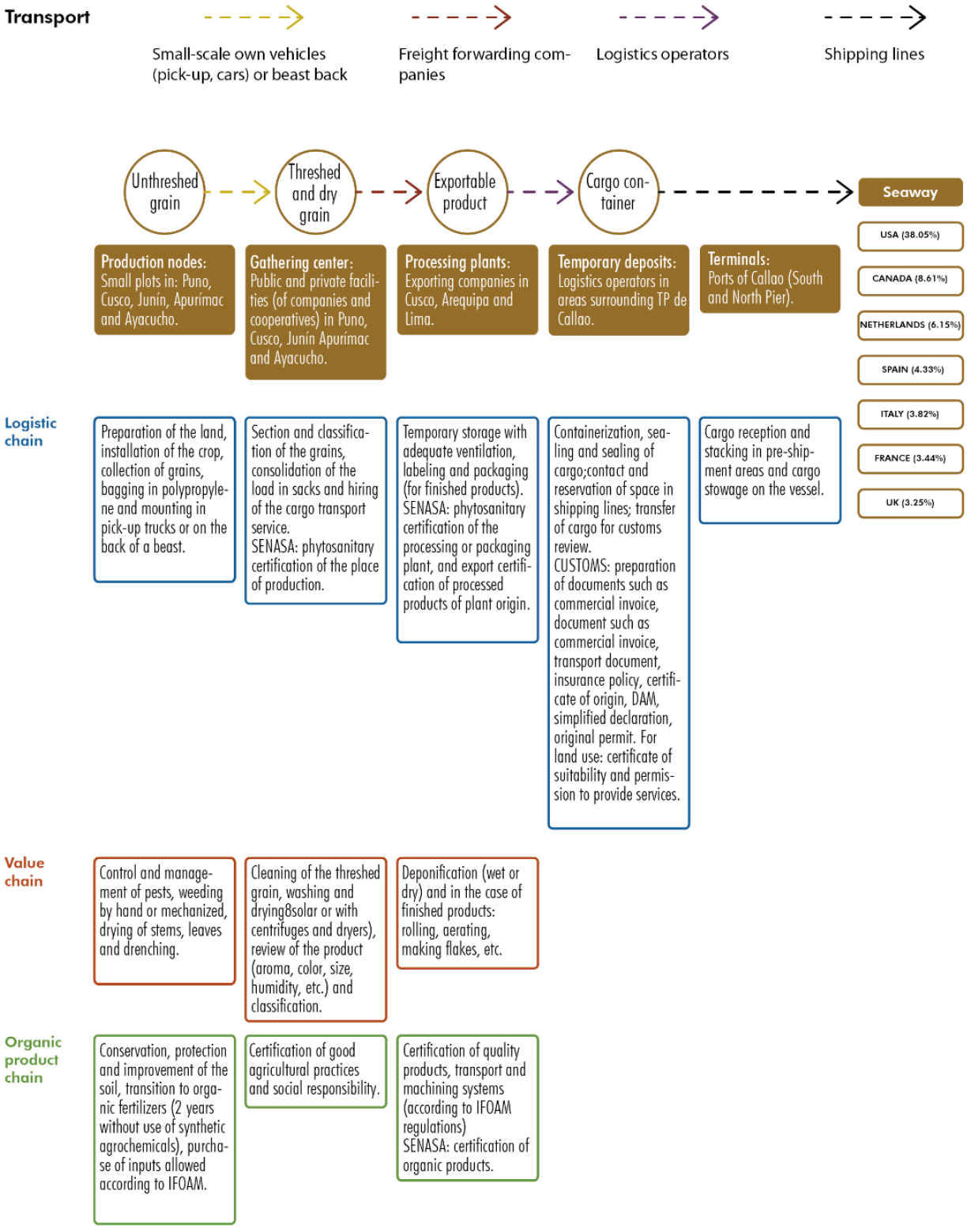
Despite the difficulties in international trade due to the COVID-19 pandemic, Peruvian exports of quinoa have not lost the pace of growth. In 2020, Peru exported quinoa valued in more than 115 million USD to the world, which represented a growth of 12.30% in comparison with 2019. A better situation was presented of Peruvian exports of quinoa to APEC economies, registering an important growth of 19.19% in comparison with 2019 (MINCETUR, 2021).

Finally, it should be noted that Peruvian exports of quinoa are mainly in bulk with 75% of cases, while the remaining 25% are products made of quinoa, such as powder and snacks, among others (MINCETUR, 2016a).

PART 3 – Specific Trade Pathway Examined

In Figure 3, the supply chain for exporting Peruvian quinoa is presented.

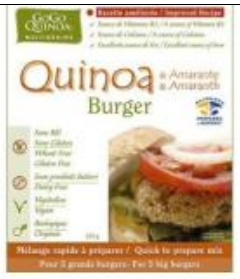
Figure 3: Peruvian quinoa supply chain



Source: MINCETUR, 2016b

Besides packaged (whole) quinoa grains, quinoa is also processed to other value-added products (there are more than 200 quinoa products globally) including ready-to-eat meals, snacks, baby food, cereals, etc. Some examples are shown in Figure 4.

Figure 4: Quinoa value-added products

Product	Referential photo
Quinoa Lunch & Artichoke Sauce	
Quinoa, rice and cocoa cereal	
Chicken dumpling with quinoa	
Veggie Quinoa Burger	
Organic quinoa macaroni	

Source: Peruvian Commission for Promotion of Export and Tourism (PROMPERU), 2015

PART 4 – Documentation

The main documents needed to export quinoa from Peru are the phytosanitary inspections, origin certification, the customs documentation, microbiological tests, and organic certification (MINCETUR, 2016a).

Alternatively, through the Peruvian National Institute of Quality (INACAL), public and private sector have developed several Peruvian Technical Standards to improve the quality of the products, including quinoa in grain, quinoa powder and snacks. Those standards are available for a limited time in the Peruvian Technical Standards Catalog[16].

Documentation could represent around 0.17 USD per kg of quinoa to be exported. The logistical costs, which also includes the documentation, could represent up to 40% of the total value of the exported product (MINCETUR, 2016a).

Documentation is considered one of the main three issues of the probable causes that increases logistical costs. A lack of coordination between customs and the phytosanitary authority would represent delays and more costs for exporting this product (MINCETUR, 2016a).

It should be noted that a phytosanitary certificate is needed to export quinoa to APEC economies and the requirements depends on each economy. In

[16] Available in: https://www.inacal.gob.pe/cid/categoria/catalogo-bibliografico
https://salalecturavirtual.inacal.gob.pe:8098/

Chart **1** a summary of requirements is presented: Phytosanitary certification and other kind of documentation, even when it increases the logistical costs, does not seem to be difficult to obtain.

Chart 1: Sanitary and phytosanitary requirements to export quinoa to APEC economies

Economy	General requirements	Regulated pests	Additional declaration	Quarantine treatment	Labelling requirements	Considerations to fill the phytosanitary certificate	Sanitary requirements demanded jointly with the phytosanitary certificate
Australia	Phytosanitary certificate	None	"Peru is free from Trogoderma granarium".	None	None	Certificate must be in English	None
Canada	Phytosanitary certificate	None	None	None	None	Certificate must be in English	None
Chile	Phytosanitary certificate	None	None	None	None	Certificate must be in English	None
China	Phytosanitary certificate Packing plants must have Sanitary Authorization. Packing plants must be included in the list published by the General Administration of Customs of China (GACC). The shipment must be free of soil and other plant debris, in addition to being in new first-use containers.	Sorghum halepense, Cenchrus echinatus, Avena sterilis, Mikania micrantha, Ambrosia artemisiifolia, Nacobbus aberrans, Xiphinema index, Prunus necrotic ringspot virus	"The quinoa covered by this phytosanitary certificate comply with the requirements of the Protocol of Phytosanitary Requirements for the Export of Quinoa from Perú to China, signed in Pekin, June 28, 2019, between the Chinese side and Peruvian side"	None	Packing plant code Packing plant name Packing plant address Lot Number Product name Exporter name The following text must be marked on each box and pallet: “本 产品 输往 中华人民共和国” (Exported to the People's Republic of China).	Certificate must be in English	Yes
Korea	Phytosanitary certificate	None	None	None	None	Certificate must be in English	None
United States	Phytosanitary certificate	None	None	None	None	None	Yes
The Philippines	Phytosanitary certificate Phytosanitary import permit	None	None	None	None	None	None

Economy	General requirements	Regulated pests	Additional declaration	Quarantine treatment	Labelling requirements	Considerations to fill the phytosanitary certificate	Sanitary requirements demanded jointly with the phytosanitary certificate
Hong Kong, China	Phytosanitary certificate	None	None	None	None	Certificate must be in English	None
Indonesia	Phytosanitary certificate	None	None	None	None	Certificate must be in English	None
Japan	Phytosanitary certificate	None	None	None	None	Certificate must be in English	None
Malaysia	Phytosanitary certificate Phytosanitary import permit	None	Source of consignments and processing /packing house/ collecting centre has been located in area free from South American Leaf Blight (SALF) Microcyclus ulei of rubber, with a minimum of 50 km away from rubber trees. The consignment has been inspected and declare free from SALB spore on the date of inspection this Phytosanitary Certificate. Import permit number and/or Treatment certificate number	Phosphamine 2.0 G / M3 for 120 H The fumigation treatment must be carried out by companies authorized by SENASA.	None	None	None

Economy	General requirements	Regulated pests	Additional declaration	Quarantine treatment	Labelling requirements	Considerations to fill the phytosanitary certificate	Sanitary requirements demanded jointly with the phytosanitary certificate
Mexico	Phytosanitary certificate The shipment must be free of soil and other plant debris, in addition to being in new first-use containers.	None	None	None	None	None	None
New Zealand	Phytosanitary certificate	None	None	None	None	Certificate must be in English	None
Russian Federation	Phytosanitary certificate	None	"The pests Caulophilus latinasus, Trogoderma granarium, Caryedon gonagra, Striga spp. aren´t present in Perú. Therefore the regulated product is produced in free area of these pests, according to the quarantine phytosanitary requirements of the Council of the Euroasian Economic Commission dated 30 Nov. 2016, No 157". "The consignment is free from Zabrotes subfasciatus and Callosobruchus spp.".	None	Product (Name) Exporting economy Exporting Company	Include the container number Certificate must be in English The issuance of the phytosanitary certificate must be carried out before the cargo leaves Peruvian territory.	None

Economy	General requirements	Regulated pests	Additional declaration	Quarantine treatment	Labelling requirements	Considerations to fill the phytosanitary certificate	Sanitary requirements demanded jointly with the phytosanitary certificate
			Container number				
Singapore	Phytosanitary certificate	None	None	None	None	None	None
Thailand	Phytosanitary certificate	None	None	None	None	Certificate must be in English	None
Chinese Taipei	Phytosanitary certificate	None	None	None	None	Certificate must be in English	None
Viet Nam	Phytosanitary certificate	None	None	None	None	None	None

Source: Peruvian National Agrarian Health Service (SENASA), 2021

Even when the phytosanitary certification is required for exporting to all APEC economies, some of them also demanded that prior to the exporting season, Peru has to send a list of authorized primary processing plants. This situation demands extra coordination and is resource-consuming among public and private sector in order to comply with this requirement.

It should be mentioned that Peru has already been exchanging electronic phytosanitary certificates through the Peruvian Single Window for Foreign Trade (VUCE) with the Pacific Alliance members and with the Netherlands directly from SPS authorities.

Currently, Peru is working to be part of the IPPC ePhyto initiative. The connection with the ePhyto hub is expected to be by the Peruvian Single Window for Foreign Trade (VUCE) during 2021.

It should be noted that no health certificates are required for export of quinoa snacks, powder, and other food products. In this case, Peruvian exporters are demanded to comply with the requirements of other economies, generally oriented to comply with HACCP principles. There have not been major concerns related to this kind of requirements.

The monitoring of changes of requirements that could impact quinoa trade is made by the Peruvian Commercial Offices that are physically located in the main importer economies. Monitoring is also made with the WTO SPS or TBT notifications.

Peruvian trade authorities have developed a specialized website called “Market Access Requirements”[17] to summarize and present the non-tariff measures that apply to different products, including quinoa.

Regarding the requirements from quinoa after it is processed in other APEC economies and then reexported, there is a gap of information that could be identified in further studies.

[17] Available in: http://ram.promperu.gob.pe/

PART 5 – MRLs

Peruvian small farmers in the highland regions have traditionally produced, maintained, controlled, protected, and preserved the production of quinoa as an important food staple using their ancestral knowledge and cultural practices. Although subject to attack by a variety of pests, experts state that the traditional production of quinoa in high-altitude environments in Peru has not necessarily required the use of pesticides as a pest control measure (Suguiyama, 2017). The one-cycle crop season per year, the implementation of cultural practices, the presence of natural beneficial organisms, the lower density of plantings, the agro-climatic conditions of lower humidity and temperatures, and the higher altitude production areas have been mentioned as key contributing factors for preventing pests from reaching economic damage thresholds in most cases. Thus, most of the traditional production of quinoa in the Peruvian highland regions has been produced organically or with limited pesticide use.

The expansion of quinoa production into newer areas in Peru with different agro-conditions and surrounding crops changed the crop-pest interaction with significant increases in pest presence and pressure (Suguiyama, 2017). Many factors have contributed to the increased pest presence and pressure in the Peruvian quinoa grown in the newer areas. Among the key factors were the substantial expansion and intensity of cultivation instead of one fairly uniform crop season per year in the highlands. The coastal areas of Peru cultivate quinoa year-round with an observed maximum of 3 crop cycles in some areas; quinoa is present at different stages of the plant at the same time without crop rotation and thus becomes highly susceptible to heat, humidity, and pests migrating from other crops, mainly pests from potatoes and corn (Suguiyama, 2017).

FAO reports diagnosed how to properly recognize, identify the distribution, and describe the biological cycle of the complex of pests that can attack quinoa production in Peru and the Andean region (Suguiyama, 2017). The pest complexes identified in these reports include the insects, diseases, weeds, and birds that may be present in different intensities in a quinoa field. For insects alone, there are more than 70 species of potential pests, although only a handful may reach economic importance. These reports also note that many of the pest species listed are common pests of many other major crops and these pests or their relatives may be present globally. Experts agree that the quinoa crop is a very attractive crop and highly susceptible to damage from insect pests migrating from adjacent crops (Suguiyama, 2017).

In Peru, the pest complexes attacking quinoa are present in the highland as well as the coastal regions, but the intensity is greater in the coastal areas (Suguiyama, 2017). Chart 2 shows the most important pests currently affecting quinoa production in Peru and for which pesticide control measures may be needed to minimize yield loss and maintain the quality of the crop.

Chart 2: Economically-important pests of Peruvian quinoa

1) Quinoa moths (*Eurysacca quinoa* and *Eurysacca melanocampta*)
The larvae of this moth are small (about 1 cm. long) and brown-colored with a red tint in its back. The adult is a small moth that hides in the plant or nearby weeds. The larval stage of this pest is especially damaging and of high importance in the Andean region, affecting the seed assembly as it feeds on the emerging grains. The larvae can also feed on the leaves of the plant.

2) Plant bugs (*Dagbertus sp., Nysius sp.,* and *Liorhyssus hyalinus*)
The adult stage of these plant bugs feed on leaves, grains, flowers, and other plant parts by sucking the sap of the affected plant parts. Its damage has increased in recent years due to the expanded production of quinoa in the coastal and Andean regions of Peru. The immature stages of these pests can also feed on many plant parts.

3) Downy mildew (*Peronospora variabilis*)
This disease is of high importance in the production of quinoa. It causes spots and dried leaves affecting plant development and subsequently the seed assembly. It attacks quinoa production in the coastal and Andean regions requiring the use of fungicides to maintain adequate yields.

4) Stem rot (*Phoma heteromorphospora*)
This fungus causes rot mainly in the stem of the plant, possibly killing the plant. As a disease, it reaches economic damage importance in the presence of high humidity.

5) Armyworms (*Spodoptera spp.*)
The armyworm larvae can reach 3 cm. in length (appreciably long) and as it develops it feeds on the leaves of the early stages of the plant, capable of causing early plant death. It also feeds on the stem supporting the seed assembly, thus causing grain loss.

6) Leaf miners (*Lyriomyza huidobrensis*)
The leaf miner larvae are small and difficult to detect as it develops tunnels (commonly called “mines”) in the internal parts of the leaves. Under favorable conditions, the larvae cause dried leaves and leaf drops.

7) Cutworms (*Agrotis sp.* and *Feltia sp.*)
The larvae of this moth cause early plant damage by cutting at the base of the plant stem. Cutworm larvae usually remain hidden in the soil.

8) Aphids (*Macrosiphum euphorbiae* and *Myzus persicae*)
These pests usually form colonies in the back part of the leaves, newly formed buds, and early flowering. It can cause severe defoliation and weakening in the early stages of the plant. Uncontrolled, large populations of aphids may create a secondary disease problem for the development of sooty mold (*Capnodium sp.*).

9) Root rot complex (*Rhizoctonia solani, Fusarium oxysporum,* and *Phytophthora sp.*)

Rot is caused by a complex of fungal diseases that attack the root and the base of the stem causing early plant death. Excess watering and humidity are important contributors to the development of these fungi complex.

10) Cucurbit beetles (*Diabrotica undecimpunctata, D. viridula,* and *D. speciosa*)
These are small insects (about 0.5 cmm long) that as larvae attack the root system and as adults attack all other plant parts. The potential root damage is the most significant impact of these pests.

11) Thrips (*Frankliniella sp.*)
These are very small insects (about 2 mm. long) that usually hide in the plant parts. The nymph and adult stages are the most damaging by scratching and sucking plant sap, thus weakening plant development.

Source: Suguiyama, 2017

Of this list, the three most important pests that can cause significant yield loss and economic damage and require the use of pesticides are: the quinoa moth, plant bugs, and the downy mildew.

Considering the need for pesticides, the compliance with MRLs is an especially important issue when exporting quinoa in grain. Chart 3 presents a comparison on MRLs demanded from some APEC economies for quinoa grain in bulk.

Chart 3:MRL for quinoa grain (ppm)

Pesticide	United States*	China**	Canada***	Australia****	Peru*****
Abamectin	-	-	-	-	0.01
Acetamiprid	-	-	-	-	0.01
Aldrin	-	0.02	-	-	-
Azoxystrobin	3	-	3	-	3
Benalaxyl	-	-	-	-	0.05
Bentazon	-	0.1	-	-	-
Broflanilide	-	-	0.01	-	-
Cadusafos	-	0.02	-	-	-
Carbofuran	-	0.05	-	-	-
Carfentrazone-ethyl	0.1	-	-	-	-
Chlorantraniliprole	6	0.02	-	-	-
Chlordane	-	0.02	-	-	-
Chlorothalonil	-	-	-	-	0.01
Chlorpyrifos	-	-	-	-	0.05
Chlorpyrifos-Methyl	-	5	-	-	-
Cooper Hydroxide	-	-	-	-	10
Cooper Oxychloride	-	-	-	-	10
Cymoxanil	-	-	-	-	0.05

Pesticide	United States*	China**	Canada***	Australia****	Peru*****
Cyazofamid	-	-	-	-	0.02
Cypermethrins	-	-	-	-	0.3
DDT	-	0.1	-	-	-
Deltamethrin	-	0.5	-	-	-
Dichlorvos	2	0.1	-	-	-
Dieldrin	-	0.02	-	-	-
Dimethomorph	-	-	-	-	0.01
Diquat	-	-	-	T5	-
Endrin	-	0.01	-	-	-
Ethoprophos	-	0.05	-	-	-
Etofenprox	5	-	-	-	-
Fenamiphos	-	0.02	-	-	-
Fenitrothion	-	5	-	-	-
Fenoxaprop-P	-	0.1	-	-	-
Fipronil	-	-	-	-	0.005
Flupyradifurone	3	-	3	-	-
Fluopicolide	-	-	-	-	0.001
Flusilazole	-	0.2	-	-	-
Glyphosate	5	-	-	-	5
HCH	-	0.05	-	-	-
Heptachlor	-	0.02	-	-	-
Imidacloprid	-	-	-	-	0.1
Iprodione	-	-	-	-	0.02
Lufenuron	-	-	-	-	0.02
Malathion	-	8	-	-	-
Mancozeb	-	-	-	-	0.05
Metalaxyl	-	0.05	-	-	0.05
Methamidophos	-	0.05	-	-	-
Methidathion	-	0.05	-	-	-
Methomyl	-	0.2	-	-	-
Monocrotophos	-	0.02	-	-	-
Myclobutanyl	-	0.1	-	-	-
Ometoato	-	0.02	-	-	-
Parathion	-	0.1	-	-	-
Parathion-methyl	-	0.02	-	-	-
Permethrin	-	2	-	-	-
Phorate	-	0.02	-	-	-
Piperonyl butoxide	EXEMPT	30	-	-	-
Propamocarb	-	-	-	-	0.01
Propineb	-	-	-	-	0.05
Prochloraz	-	2	-	-	-
Propiconazole	3	-	-	-	3
Propyzamide	-	-	-	T02	-

Pesticide	United States*	China**	Canada***	Australia****	Peru*****
Pydiflumetofen	4	-	4	-	-
Quizalofop-ethyl	-	-	-	T0.02	-
Sethoxydim				T0.5	-
Spinetoram	0.04	-	-	-	0.04
Spinosad	0.02	1	-	-	0.02
Thiabendazole	-	-	-	-	0.05
Triadimefon	-	0.2	-	-	-
Triadimenol	-	0.2	-	-	-

*Provided by US.
**According to SENASA's webpage: https://servicios.senasa.gob.pe/consultaRequisitos/consultarRequisitos.action
***According to Health Canada Database: https://pr-rp.hc-sc.gc.ca/mrl-lrm/index-eng.php
****According to Australia New Zealand Food Standards Code – Schedule 20 – Maximum residue limits. The symbol 'T' indicates that the maximum residue limit is a temporary maximum residue limit.
*****According to Ministerial Resolution N°1006-2016/MINSA

On the other hand, the Codex Committee on Pesticide Residues (CCPR) approved (step 8) the incorporation of quinoa as a member in the Grass Commodity Group in its April 2017 meeting in Beijing, China and submitted its recommendation for final approval by the Codex Alimentarius Commission (CAC). The CAC officially approved the CCPR recommendation in its July 2017 meeting.

It should be noted that during these years, the quinoa trade has experienced some issues relating to MRLs.

Missing US Pesticide MRLs in Quinoa Production – The Peru Experience

To provide one example, we examine the United States as one export market for Peruvian quinoa. The US Food and Drug Administration (FDA), who is in charge of ensuring compliance with the US food safety requirements on domestic and foreign agricultural foods and seafood, is responsible for monitoring and testing Peruvian shipments of quinoa grains (seed and dry) imported into the United States. In recent years, a number of factors, including shifting pesticide use in Peru and a significant increase in the volume of quinoa imports being shipped from Peru, have led to an increased need for MRLs.

Prior to December 2015, only one pesticide had an established MRL in the United States, as is presented in Chart 4. Thus, the detection of any other pesticide residue in a Peruvian import of conventional quinoa or the detection of illegal pesticides in organically-certified quinoa would have caused the detention and refusal for entry by the FDA into the United States.

Chart 4: US established pesticide Maximum Residue Limits in/on Quinoa before December 2015

Pesticide (active ingredient)	Type	MRL (in ppm)
Glyphosate	Herbicide	5

Source: Environmental Protection Agency (EPA), 2015

Considering FDA monitoring and testing to assure that imported food meet the same safety standards as the ones produced in the US, some shipments of imported Peruvian quinoa were detained or refused entry since 2012. The total number of detained and refusals of Peruvian quinoa shipments due to illegal pesticide residues and its comparison with exports is shown in Chart 5.

Chart 5: Number of FDA refusals due to MRL pesticide residues in imported Peruvian quinoa and exports

Year	2014	2015	2016	2017	2018	2019	2020
Number of FDA shipment refusals	12	7	6	2	2	3	1
Peruvian quinoa exports to the US (In thousand USD)	99,809	67,449	35,401	45,693	43,436	49,029	44,091

Source: US FDA & ITC, 2021

Some of the reasons to explain the problem during 2014 were related to:

- Inadequate knowledge among Peruvian quinoa farmers and exporters on the US food safety import requirements for agricultural products prior to engaging in exporting their crops.

- Lack of advanced strategic planning and stricter control of the agricultural practices in the quinoa fields whose production were targeted for export.

- Lack of available technical publications and guidance for implementing good agricultural practices in the quinoa fields.

- Lack of public or private training or extension programs for promoting the implementation of Good Agricultural Practices by quinoa farmers.

- Inadequate knowledge of the potential increase in pest populations, pest pressure, and pest damage to quinoa grown in lowland areas.

- Erroneous or illegal use of pesticides by farmers in order to protect the crop and minimize yield losses in their quinoa fields. Some quinoa fields were treated with legally registered pesticides for use on other crops but were not registered or labelled for use on quinoa in Peru.

In response to this problem, an economy wide intensive effort in Peru involving many stakeholders, was implemented in early 2015 in order to develop appropriate corrective measures (Suguiyama, 2017). Some of these measures included the following:

- Public (at the highest level) and private (farmers and exporters) commitments to implement corrective actions.

- Public meetings and conferences involving stakeholders to address the problem with the illegal use of pesticides and restore the quality of the quinoa crop, for domestic and export markets.

- Dissemination of bulletins and manuals on Good Agricultural Practices for quinoa production in fields.

- Key meetings in the United States between the Minister of Agriculture Development and Irrigation (MIDAGRI) of Peru with the FDA and the EPA to ensure Peru's commitment to address this problem and find solutions.

- Stricter control by farmers and exporters on the production of conventional quinoa and organically-certified quinoa by heavily implementing certification guidelines.

- Stricter control by farmers and exporters in the production of conventional quinoa to be in compliance with sanitary and phytosanitary requirements of the destination export market, especially in the allowable pesticide control options that can be used for pest control.

- SENASA amended the Agricultural Food Safety Law by requiring that any agricultural food or animal feed grown in the economy and intended for export must originate from an establishment with a SENASA sanitary permit.

In addition, there were additional actions taken by US authorities that helped the conventional quinoa farmers in Peru to address their pest problems. Beginning in late December 2015, EPA established additional pesticide MRLs by extrapolating data from accepted residue studies on other cereal grains through the efforts of the IR-4 Program (EPA). The IR-4 Program is a federally-funded program to provide assistance to US growers of 'minor crops' by identifying priority pest control needs on these crops, conducting the required field residue trials for registered pesticides (usually for lower-risk compounds) on a priority basis, and submitting the data to the EPA for establishing the respective MRLs. Quinoa is a 'minor crop" as less than 300,000 acres of the crop are grown in the United States. Therefore, Peruvian farmers of conventional quinoa have directly benefitted from this action intended to assist US quinoa growers. These additional MRLs were established for pesticides considered to be 'lower-risk' compounds based on their lower toxicity profile (Suguiyama, 2017).

Currently, sanitary conditions are well developed in the SENASA's Unified Procedure for Agro-export program and there is still interest to continue working with the IR-4 program.

Missing MRLs in other markets

With respect to pesticide MRLs, some destination markets allow the import of agricultural foods even in the absence of specific pesticide MRLs if certain levels are not exceeded after analysis. For example, the European Union and Japan have a stricter enforcement threshold of 0.01 ppm.

Considering that it is not clear the process for establishing new MRLs on other economies and that further resources are needed to develop new risk analysis, Peru preferred to support the Codex work and achieve an international reference.

PART 6 – Other major NTMs for commodity

There are other regulatory initiatives that could have an impact in the future of quinoa trade.

In the first place, the 40th Session of the Codex Alimentarius Commission requested that the Codex Committee on Contaminants in Foods (CCCF) considered including quinoa in the maximum levels for lead and cadmium in cereals. For that reason, currently there is a discussion paper on cadmium and lead in quinoa that would be presented at the 14th session of the CCCF to be held in May 2021.

In the same context, the EU has notified the document G/SPS/N/EU/466 to the WTO SPS Committee and is proposing a maximum level of cadmium in quinoa of 0.15 mg/kg wet weight.

Previous experience with other commodities suggests that these kinds of requirements could impact farmers as their buyers would require more laboratory testing and would negotiate the prices depending on the content of the contaminant. In those cases, there is a possible use of maximum levels for commercial purposes and not for health issues.

PART 7 – Key Findings

Peru has consolidated its leadership as the main quinoa exporter among APEC economies, considering quinoa's high nutritional content and differentiation in comparison with other economies.

Regarding non-tariff measures related to quinoa trade, logistical costs, including documentation, could represent up to 40% of the total value of the exported product.

Documentation is considered one of the main three issues of the probable causes that increases logistical costs. In this context, the phytosanitary certificate is required to export quinoa to APEC economies. Only in two cases are MRLs required jointly with the phytosanitary certificate.

MRLs for quinoa seemed to be problematic when they are not previously established by an importing economy. However, Peruvian experience indicated that there are positive ways to facilitate trade when bilateral cooperation is encouraged.

Peruvian experience also suggests that further harmonization is needed. Continuing work on Codex Alimentarius standards would the better way to establish MRLs for this grain, considering the lack of information and resources to work on each APEC economy's procedures for establishing new MRLs.

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Attachment 3 – APEC Soybean Non-Tariff Measures (NTMs) Case Study | Prepared by United States

Overview:
This case study identifies and examines the impact of documentation requirements and pesticide maximum residue limits (MRLs) for USA soybean exports across Asia-Pacific Economic Cooperation (APEC) economies.

Global Commodity Market Overview:
The APEC region is one of the most important areas in the global soybean trade. APEC members make up approximately 41 percent of global soybean production. Regionally, over 75 percent of global soybean imports were consumed by APEC economies during the 2020/2021 marketing year.

The United States is the APEC's largest soybean producer. During the 2020/2021 marketing year, the United States grew more than 112 million metric tons of soybeans, about 80 percent of the APEC region's production. USA soybean exports account for more than 90 percent of APEC's total soybean trade.

***Table 1**. APEC economies' harvested area, yield, imports, and exports of Soybean– MY 2020/2021 (source: USDA PSD)*[18]

	Harvested area (Hectares)	**Production (Metric Tons)**	**Imports (Metric Tons)**	**Exports (Metric Tons)**
Australia	24,000	41,000	4,000	1,000
Canada	2,040,000	6,350,000	350,000	4,200,000
Chile	0	0	100,000	7,000
China	9,866,000	19,600,000	100,000,000	100,000
Indonesia	390,000	475,000	2,650,000	2,000
Japan	142,000	235,000	3,410,000	0
Korea	55,000	81,000	1,350,000	0
Malaysia	0	0	845,000	15,000
Mexico	155,000	240,000	6,000,000	0
Peru	2,000	3,000	350,000	0
Philippines	1,000	1,000	175,000	0
Russian Federation	2,709,000	4,307,000	2,100,000	1,450,000
Singapore	0	0	21,000	0
Chinese Taipei	4,000	5,000	2,800,000	0
Thailand	32,000	52,000	4,000,000	3,000
United States	33,313,000	112,549,000	953,000	62,051,000

[18] https://apps.fas.usda.gov/psdonline/app/index.html#/app/home

Viet Nam	47,000	72,000	2,000,000	0
World	127,934,000	363,187,000	167,762,000	170,912,000

Table 2. USA's soybean (meal/oil) production and export-2015-2021 (source- FAS's Global Commodity Analysis Division)[19]

USA Soybean Complex (1,000 Metric Tons)	***Marketing Year: Beans & Meal (Oct-Sep) | Oil (Sep-Aug)***							
	2015/16	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**3-yr average**	**5-yr average**
Soybean Production	106,869	116,931	120,065	120,515	96,667	112,549	109,910	113,345
Soybean Crush	51,335	51,742	55,926	56,935	58,910	59,602	58,482	56,623
Soy Meal Production	40,525	40,630	44,657	44,283	46,358	46,955	45,865	44,577
Soy Meal Extraction Rate	78.94%	78.52%	79.85%	77.78%	78.69%	78.78%	78.43%	78.73%
Soy Oil Production	9,956	10,035	10,783	10,976	11,299	11,573	11,283	10,933
Soy Oil Extraction Rate	19.39%	19.39%	19.28%	19.28%	19.18%	19.42%	19.29%	19.31%
Soy Meal Exports	10,843	10,505	12,717	12,191	12,770	12,927	12,629	12,222
Soy Meal Exports as a % of Production	27%	26%	28%	28%	28%	28%	28%	27%
Oil Exports	1,017	1,159	1,108	880	1,288	1,134	1,101	1,114
Soy Oil Exports as a % of Production	10%	12%	10%	8%	11%	10%	10%	10%

Specific Trade Pathway Examined:
As the largest exporter of soybeans in the APEC region, this case study analyzes USA soybean exports to APEC economies.

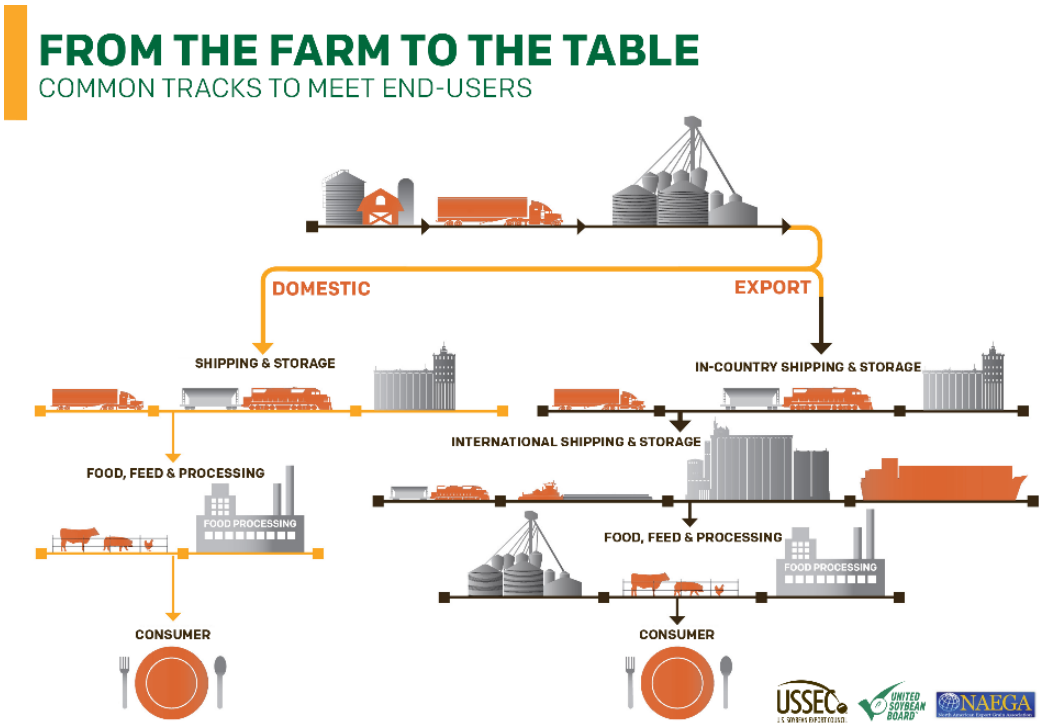
The United States has a geographically diversified, fungible, economy soybean production and distribution supply chain that does not differentiate or segregate domestic and international flows. The USA soybean supply chain is a private sector system that relies on market signals to meet production, sourcing and distribution demands. Soybeans are grown on more than 33 million hectares by more than 300,000 soybean farms across 45 states. Most soybean acres are harvested across the Midwest, Eastern and Southern United States, and top producing states in 2020 included Illinois, Iowa, Minnesota, Indiana and Nebraska, accounting for approximately half of total production.[20]

USA soy is a commodity crop that is produced, mixed, handled and transported as part of one efficient integrated system. Once harvested, farmers often sell their soybeans to local elevators, which are often the first step in the supply chain. Once USA soybeans leave the farm, they then enter a highly efficient and integrated inland transportation system that includes road, railroad and river conveyances to help deliver products to domestic and international customers. During this journey, soybeans are aggregated and mixed at each point in the supply chain, resulting in a fungible product that is delivered to meet private, contractually set quality, quantity and intrinsic value specifications.

[19] https://www.fas.usda.gov/data

[20] https://www.soyconnection.com/growing-soybeans/us-soybean-production#:~:text=Sustainable%20Soybean%20Production,-Unlike%20many%20other&text=Soybean%20farms%20sit%20among%20the,300%2C000%20farms%20across%2045%20states.

About 55 to 60 percent of USA soybeans are exported annually as beans, meal, or oil to more than 50 economies. USA soy exports were valued at more than $25 billion in 2020. While China is the largest market, USA soy exports are highly diversified with shipments of more than
$1 million going to nearly 50 markets in 2020.



Soybeans are generally exported in two ways – in bulk or in container. Most USA soybeans are exported in bulk from Atlantic, Gulf of Mexico, Pacific and Great Lakes terminal ports. About 62 percent travel through USA Gulf ports, largely via the Mississippi River waterway. Another 22 percent of USA bulk export occur from the Pacific Northwest (primarily the states of Washington and Oregon).

About 10 percent of USA soybeans are exported via container. Container exporters receive soybeans at transloading facilities via truck, rail or barge deliveries. At these transloading facilities soybeans are loaded into containers per customer specifications, and those containers then continue to port facilities where they are loaded on vessels with other containerized ocean freight.

Soybeans, for domestic consumption or for international markets and unless reserved for seed use, are processed to meet customer demand. Most USA soybeans exports are whole, unprocessed beans. When USA soybeans arrive in a destination economy, including APEC economies, they are often crushed into soybean meal and soybean oil either by the importer or another downstream user. Domestic processing at destination by an importer or downstream user is done outside of USA jurisdiction and occurs under local laws and regulations. About 79 percent of a soybean's composition is soybean meal, which is generally used as animal feed
(97 percent) with about 3 percent for human consumption. The other 20 percent of a soybean's composition is 19 percent soybean oil and one percent ash/waste. About 61 percent

of soybean oil is used for human consumption, with about 31 percent used as biodiesel or bioheat and about 8 percent is used for industrial purposes (e.g. paints).[21] Soybean crushing, whether done in the United States or at destination, can be done either mechanically or through a solvent extraction process in which the soybean is cracked, rolled into flakes and soaked in a solvent (often hexane) to separate the oil from the flake. Once the oil and flake are separated, the oil is often further refined from its crude state and the flake is often dried and ground into soybean meal.

While whole soybeans account for the majority of exports of soy products from the United States, soybean meal still represents about 22 percent of exports by metric ton in the 2019/2020 marketing year. Meanwhile, soybean oil is about 2.4 percent of 2019/2020 exports.

Throughout the USA supply chain, whether soybeans are consumed domestically or exported, USA producers, processors, handlers, transporters, and exporters are required to adhere to multiple overlapping local, state and federal laws. Individual shipments are also governed by a private contracts system supported by well-established USA contracts law and practice.

Documentation:
Numerous official and commercial documents are needed to provide for exports of soybeans from the United States. Many of the documents are specific to each shipment, type of product (whether whole soybean, soybean meal or soybean oil) and destination market. Some of these documents include:

Commercial Documents	**Official Documents**
- Commercial invoice	- FGIS weighing and inspection documents
- Bill of lading	- Stowage examination certificate
- Certificate of origin	- Phytosanitary certificate
- Laboratory certificates	- Certificates of free sale
- Fumigation certificate	
- Sustainability certificate	

Deploying modern and available information technology to manage these documents with compatible, interoperable, cost effective and secure digital formats represents a considerable and achievable opportunity to improve the sustainability of APEC economies and provision of food security.[i]

Phytosanitary certificates are a government-to-government document that certifies that a specific shipment meets the plant health import requirements of its destination economy and are often required by importing economies and subject to an international convention of governments called the International Plant Protection Convention (IPPC). Although not required for all markets, phytosanitary certificates are often mandatory for USA soybeans to access APEC markets. APEC economies' support for the deployment of the IPPC ePhyto Solution is an immediate need and opportunity in the innovation of digital documents.

[21] https://mosoy.org/check-off-at-work/domestic-marketing/

In the United States, the USA Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) is the National Plant Protection Organization (NPPO) and competent authority that issues phytosanitary certificates. APHIS provides export certifications under the authority of the USA Plant Protection Act. When preparing a shipment for export, USA exporters may be commercially obligated to provide phytosanitary certificates from APHIS. Once an exporter request for a phytosanitary certificate is accepted, APHIS then provides analysis of a representative sample extracted from the shipment. For soybeans, the sampling and analysis is most often performed by the Federal Grain Inspection Service (FGIS).

Traditionally, phytosanitary certificates in APEC economies have been paper documents and or photographic images that provide for physical certificates, often requiring a wet signature that is exchanged between NPPOs via international mail or delivery services. The paper process is relatively expensive, time consuming, complex, and subject to disruption and fraud. The process also has a relatively large environmental footprint and could be much more sustainable. Recent expansion of the use of digital tools to manage phytosanitary certificates with domestic and regional data management systems have proven effective. However, they have been relatively costly to design, build and operate, and they have limited ability to provide for essential harmonization and communication with other data management systems. The IPPC ePhyto Solution is a global response providing for scale, security and uniformity through three key elements:

1. A central server or "Hub" that facilitates the transfer of electronic phytosanitary certificates between NPPOs.
2. A generic ePhyto system (GeNS) which can produce and receive ePhytos, allowing economies that do not have a domestic electronic phytosanitary system to produce, send and receive ePhytos.
3. A harmonized format for the structure and transmission of ePhytos.

APHIS officials have recognized and reported significant cost and time saving by deploying the IPPC ePhyto solution. Start-up and operational costs have been reduced. Security as well as record retention have been improved.

The electronic ePhyto Hub acts as a clearing house or mailbox for electronic certificates. When NPPOs issue ePhytos, those certificates are uploaded into the Hub. From the Hub, importing economies can access the ePhyto for each specific shipment. NPPOs can upload and download from the Hub using either their domestic electronic phytosanitary system, or the GeNS. As of March 31, 2021, 91 economies were registered to use the ePhyto Hub, one-third of which were using the GeNS system. The following table shows the APEC economies participating in the system:

Table 3. APEC's participating economies (* registered, exchanging and testing)

APEC economies	Registered	Exchanging	Testing
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	*	*	
Thailand			
United States of America	*	*	
Viet Nam			

Case Studies for ePhyto Use in the Grain Trade

IPPC and APHIS are currently conducting case studies with industry and NPPO partners on shipments using the ePhyto system. These case studies are intended to test and monitor the ePhyto system using select shipments, allowing exporters, importers and NPPOs to practice using the ePhyto system and ensuring that NPPO operators and shippers are familiar and comfortable with ordering, sending, and receiving ePhytos. To date, APHIS has conducted 41 case studies during which it has both sent and received ePhytos with nine economies. These case studies have included shipments of corn, corn seed, soybeans, wheat, sorghum, cotton, distillers dried grains (DDG) and corn gluten feed (CGF).

Among these 41 case studies, there was only one soybean case study. In this case study of a rail shipment to Mexico, the exporters reported that the ePhyto provided a better process for communicating phytosanitary certificates between parties, and that the process was more efficient than sending the certificates via email.

USA shippers have also completed case studies for other grains (e.g., corn, sorghum, wheat, etc.), to APEC economies, including Mexico, Chile, New Zealand and Korea. While these commodities' NPPO import requirements differ from those for USA soybeans, the process of executing an ePhyto is similar. In many cases, commercial parties have observed improvements to official practices and found improved efficiencies and security. However, NPPO operators often had not been trained on the ePhyto system, and there was initially some reported hesitancy in receiving an ePhyto certificate in lieu of a paper copy. One case study does provide a clear and somewhat unique example of the benefits of the ePhyto Solution. During one grain shipment to Chile from the United States, APHIS issued a paper

phytosanitary certificate that was lost in transit. Upon arrival, the vessel could not be discharged without the presence of a phytosanitary certificate. APHIS, in cooperation with its NPPO counterpart in Chile, was able to issue and provide an acceptable ePhyto allowing the vessel to discharge. This discharge allowed for timely delivery of a perishable product and the avoidance of costs for demurrage or rerouting the vessel.

Maximum Residue Limits (MRLs):

Plant protection products (PPPs), including pesticides, are important to agricultural producers working to ensure crop production for expanding populations. Farmers' decision-making is driven by efficiency, effectiveness, economics and sustainability. Farmers use PPPs as one of a range of tools that help optimize production, helping to combat damaging weeds and insects and boost yields. PPPs are critical components to the broader integrated pest management (IPM) system, an approach that helps farmers decide how to evaluate and determine how PPPs will be utilized in their production system. This approach includes preventing pests from becoming a problem by rotating between different crops, selecting pest-resistant varieties and carefully evaluating the proper PPP control methods for risk and effectiveness.

The necessary use of PPPs and other pesticides, including, fungicides and rodenticides, might result in detectable residues in soybeans.

Governments regulate the use of these products to ensure that agricultural products are safe to consume and do not pose adverse risks to human, animal or plant life or health. One aspect of the regulation that may be added and impacts trade is the establishment of a maximum residue level (MRL) for each specific pesticide/crop combination. An MRL is the highest level of a given pesticide's residue on a given crop that is legally tolerated in a government's jurisdiction. Unfortunately, impediments to trade of grains, feed and oilseeds result when economies implement MRLs that are either zero, near-zero or missing. Unmanageable risk is often the result and trade may be disrupted.

Pesticide residues are regulated by each individual economy with MRLs specific to a pesticide/crop combination. As a result, tens of thousands of MRL exist globally. Not all of these MRLs are harmonized at the same level across origin and destination markets, and differences in MRLs between economies, missing MRLs in destination markets, or low MRLs justified by non-science and hazard-based risk assessments increase risks for exporters. One challenge for exporters is when there are missing MRLs for specific pesticide/crop combinations that are commonly used in the exporting economy. Missing MRLs can happen for a variety of reasons. A specific pesticide may not be registered in the destination market or be registered for a specific pesticide/crop combination. Or, where a registration does exist there may not be an established MRL. In some cases, where there are missing MRLs, a destination market may default to an MRL set by the Codex Alimentarius Commission (Codex).[22]

Pesticide-related policies in some economies are creating significant challenges to agricultural trade. Policies that are not based on sound science, are inconsistent with international norms and subject to changes and uncertain enforcement often result in unmanageable circumstances for trade and may result in market failure. The associated uncertainty often negatively affects consumer access to nutrition as well as farmers' costs and

[22] USITC report: https://www.usitc.gov/publications/332/pub5071.pdf

ability to access export markets. The impacts from missing or low MRLs can vary by economy and may be particularly problematic for trade in minor or specialty crops, which may have fewer established MRLs.

Soybeans and soybean products produced and marketed in the United States, whether consumed in domestic markets or exported to international consumers, are produced and managed under the same high standards for approval, use and labeling. Like in other economies, farmers and the value chain in its entirety are required to comply with local, state and federal laws regarding the handling and application of pesticides. The United States has a long history of regulating pesticides such that the risk of adverse human or environmental health effects is taken into consideration and is a reliable supplier of safe soybeans and soybean products to benefit consumers around the world. Today, there are 19 related federal laws and programs governing the environmental and conservation aspects of soybean production. These include the Federal Insecticide, Fungicide, Rodenticide Act (FIFRA), which regulates authorization and use of PPP, and the Federal Food Drug and Cosmetics Act (FFDCA), which sets maximum residue limits (MRLs). Many States have additional laws and rules pertaining to the use of pesticidal compounds. These regulations are strictly enforced by federal and state officials and fortified through the USA tort system; this system is highly effective. Annual industry studies show that residues in USA soy are safe, very low and generally meet USA and international legal requirements.

Diverging Global MRL Policies

Many domestic authorities across the world rely on MRLs set by the Codex Alimentarius Commission's Committee on Pesticide Residues (CCPR) for a pesticide residue to be permissible on a commodity crop. Other economies have a domestic system in which they set their own MRLs. As economies around the world modernize their food safety legislation, they often establish or amend their domestic MRL systems. Regulators typically establish wide safety margins by setting MRLs at very low levels, from a toxicological perspective, to safeguard human health and/or the environment. The WTO Sanitary and Phytosanitary (SPS) Agreement requires that the members set measures, including MRLs, based on risk assessments which consider both hazard and exposure and minimize negative trade effects. However, some economies/regions have moved away from science-based risk assessments in favor of an approach that establishes much lower MRLs solely based on a substance's intrinsic hazard. The use of hazard-based approach has the potential to cause significant trade disruptions. For example, in some economies widely used active ingredients may be banned because a hazard-based assessment of its toxicity triggers an MRL with a default value at a rate that is not trade facilitating (often 0.01 ppm or lower). Hazard determinations like this run counter to the WTO SPS Agreement, which provides that phytosanitary measures should be based on risk-assessment techniques.

Using a solely hazard-based approach creates uncertainty for exporters seeking adequate import tolerances (ITs) from importing governments for active substances whose MRLs have been removed. Some importing governments often only consider ITs on a case-by-case basis, adding delays that could limit trade. Also, some importing economies may use the 'precautionary principle' or other non-risk-based approaches which inhibits the establishment of a proper IT or MRL, a risk that severely impact market access. Furthermore, delays in considering applications for ITs by importing economies and the short period of time between the reduction of the MRL and the adoption of ITs (transitional periods) can add additional uncertainty to the process and increase the level of risk for export shipments.

Some APEC importing economies have adopted a dual system that includes a positive list for substances with MRLs and a level of detection at or near zero for substances without MRLs. Both these approaches have the potential to create a significant gap between the USA MRLs and MRLs in importing markets which can lead to possible trade obstacles - unless the importing economy takes additional steps to minimize negative trade impacts. For example, prior to 2016, Korean authorities would either default to the Codex standard or the lowest MRL set for the same crop group. Under its positive list system, Korea now establishes a default tolerance of 0.01 ppm when there is no established MRL in the Korean Food Code. To limit disruptions to trade during the transition, MFDS took several measures to reduce/control the impact of a transition to a 0.01 ppm default. For example, MFDS extended 2,500 MRLs that were scheduled to expire during the transition period to the end of 2021, established 3,342 temporary MRLs until the end of 2021 and accepted Codex, the USA Environmental Protection Agency (EPA), and EU evaluation reports for generic compounds.[23]

To meet the challenge of producing more food in a safer and sustainable way, farmers must be able to access a range of tools and technologies available for agricultural production, including PPPs. The USA and other economies' farmers seek to implement good agricultural practices which consider pesticide application rates that meet regulatory standards, maintain efficacy, and provide good stewardship of land. In the United States, these safe management practices have allowed farmers to increase crop yields using less inputs. Also, pesticidal compound residues in USA soybeans are extremely low, meeting both USA legal requirements and importing economies' standards.

Non-risk-based changes in MRLs in some global markets can affect farming and logistics practices, often resulting in reduced supply and hampering sustainable farming practices. An open global trading system based on predictable, transparent and risk-based food safety regulations is critical to meeting the growing demand for food in the world in a sustainable way. Sensible and practical MRLs and ITs (as trade-enabling tools) that are in compliance with WTO SPS requirements are an essential part of a sustainable system that allows for export from areas of surplus production to areas of deficit.

The USA International Trade Commission (USITC) released a two-volume report entitled, *Global Economic Impact of Missing and Low Pesticide Maximum Residue Levels*. The United States Government views the USITC report as an important contribution to the commission's ongoing discussions around MRLs. The USITC report includes a case study for the grains and oilseeds. This case study examines the future impact on growers of changing MRL policies of major row crops (including soybeans) that are leading USA agricultural export commodities. Unlike specialty crops, grains and oilseeds are often sold in bulk and blended before reaching final export markets. USA growers comply with USA laws regarding pesticides use and residues. Any differences between USA rules and rules in export markets regarding pesticide residues increases risks for exporters and decreases market access opportunities for USA growers. These challenges are particularly acute because grain crops face a variety of pest pressures from weeds, insects and fungi, pressures that often apply the appropriate application of pesticides to maintain yields. In the report, grain producers and trade associations noted that there are growing concerns that future changes in MRL policies, including lowering MRLs and banning the use of important pesticides could significantly increase yield losses, increase rejected shipments, and increase costs for

[23] USDA GAIN Report KS1843

producers. For example, as shown in Table 3, there are significant differences between pesticide MRL levels within APEC economies and in some cases missing MRLs for important chemicals. Further changes to MRL levels or registrations could increase uncertainty and risk in cross border trade.

Global harmonization

Divergent and non-existent MRLs increase the risks of trading soybeans across international borders. These risks translate into costs for industry that are eventually passed on to consumers. To reduce these risks and their costs, greater global harmonization, coordination and training is needed to help align MRL levels and provide transparency around missing MRLs. Some opportunities for enhancing global cooperation on MRLs include:

- *Deferral to Codex where no MRL exists:* in situations where there is no MRL or import tolerance for a specific crop/chemical combination, competent authorities could automatically defer to Codex MRL levels.
- *Greater Codex harmonization overall:* Overall, economies could aspire to harmonize to Codex across all markets. This would provide a level regulatory playing field based on science and help narrow the divergent MRL levels that currently exist between economies and between economies and Codex.
- *Increase regulatory and policy capacity building activities:* Governments could work together to increase capacity building at the technical or policy level to support more transparent and science based regulatory structures that follow international commitments. Furthermore, governments could support capacity building at the Codex Alimentarius to promote further transparency, efficiency and responsiveness in the establishment of Codex MRLs.

Table 4. APEC economy MRLs for key pesticides used in global soybean production (ppm)

Substances / APEC Economies	Chlorpyrifos*	Chlorothalonil*	Glufosinate	Glyphosate	Mancozeb*[24]	Paraquat
Australia	0.01	3	2	20	0.5	1
Brunei Darussalam	0.5	5	2	20	2	0.05
Canada	0.1	0.1	2	20	0.1	0.1
Chile	0.1	1	2	20	-	0.5
China	0.1	0.2	2	-	-	0.5
Hong Kong, China	0.1	1	2	20	0.06	0.5
Indonesia	0.1	-	2	20	-	-
Japan	0.3	0.2	2	20	3	0.1
Korea	0.04	0.07	2	15	0.05	0.1
Malaysia	0.1	1	2	20	0.01	0.5
Mexico	0.3	0.2	2	20	-	0.05
New Zealand	0.1	1	2	20	7	0.5
Papua New Guinea	0.1	1	2	20	-	0.5
Peru	0.1	1	2	20	0.1	0.5
Philippines	0.1	1	2	20	-	0.5
Russian Federation	0.1	-	2	20	-	-
Singapore	0.1	1	2	20	-	0.1
Chinese Taipei	0.02	0.1	2	10	0.5	0.5
Thailand	0.01	0.2	2	20	0.1	0.02
United States of America	0.3	0.2	2	20	-	0.7
Viet Nam	0.1	1	2	20	-	0.5
Codex	0.1	1	2	20	-	0.5

* Substances with limited to no use in the United States

Source: USITC and BCGlobal

APEC economies have an opportunity to support continued exchange on the NTMs related to pesticide MRLs that are not examined in full detail in this case study. For example, discussions between both importing and exporting APEC economies would allow deeper exploration of NTMs that arise later in the supply chain, such as MRL compliance issues associated with the re-export of processed products such as soybean meal. Future discussions could also explore how APEC economies can work together to adopt more trade facilitative approaches around NTMs, including: a) establish import tolerance (IT) systems as an important tool to harmonize MRLs and facilitate trade; b) support transparency initiatives

[24] Not registered for use in the United States.

regarding regulatory actions, notification of changes related to MRLs to the WTO, and transitional periods; c) conduct exchanges on trade facilitating practices related to MRL registration, enforcement, and monitoring; and d) support overarching MRL policy initiatives in APEC and other international discussions that balance SPS goals with trade facilitating principles, such as those that establish guidelines for compounds of low public health concern.

Key Findings of the soybean case study:

Soybean production, marketing, and utilization:

- APEC members make up approximately 41 percent of global soybean production. The United States is APEC's largest soybean producer.
- The United States produced about 80 percent of the soybeans grown in the APEC region during the 2020/2021 marketing year. USA soybean exports account for more than 90 percent of APEC's total soybean trade.
- More than 75 percent of global soybean imports were consumed by APEC economies during the 2020/2021.
- Most USA soybeans exports, including to APEC economies, are crushed into soybean meal and soybean oil.
- About 79 percent of a soybean's composition is soybean meal, which is generally used as animal feed (97 percent) with about 3 percent for human consumption (e.g., soybean milk and protein alternative products). The other 20 percent of soybean composition are 19 percent soybean oil and 1 percent ash/waste.
- About 61 percent of soybean oil is used for human consumption, with about 31 percent used as biodiesel or bioheat and about 8 percent is used for industrial purposes (e.g., paints).

Documentation:

- In the United States, the USA Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) issues phytosanitary certificates on a shipment and destination specific basis as a service to USA exporters.
- The certificate is provided to the importing economy's National Plant Protection Organization (NPPO) as proof of compliance with local plant health requirements.
- Recently, many exporting and importing economies have agreed to participate in an electronic phytosanitary certificate scheme sponsored by the International Plant Protection Convention (IPPC) called the IPPC ePhyto Solution.
- As of March 31, 2021, 91 economies were registered to use the ePhyto system.
- APHIS has conducted 41 case studies, including a soybean case study, during which it has both sent and received ePhytos with nine economies.
- The soybean case study indicated that ePhyto provided a better process for communicating phytosanitary certificates between the USA and Mexico, and that the process was more efficient than sending the certificates via email.
- The other case studied indicated that ePhyto was more cost-effective and timesaving than utilizing paper phytosanitary certificates.

Pesticide MRLs:

- PPPs are important for combating damaging weeds and insects and helping boost yields and production.

- In the United States, like in other economies, farmers are required to comply with local, state, and federal laws regarding the handling and application of PPPs.
- Annual reports/studies show that PPP residues in USA soy are very low and generally meet USA and international legal requirements.
- The WTO Sanitary and Phytosanitary (SPS) Agreement requires that the members set measures, including MRLs, based on risk assessments which consider both hazard and exposure and minimize negative trade effects.
- Some economies or regions have moved away from science-based risk assessments in favor of an approach that establishes much lower MRLs solely based on a substance's intrinsic hazard.
- The use of hazard-based approach has the potential to cause significant trade disruptions.
- Some importing governments often only consider import tolerances (ITs) on a case-by-case basis, adding delays that could limit trade.
- Delays of IT approvals by importing economies and the short period between the reduction of the MRL and the adoption of ITs (transitional periods) can add additional uncertainty to the process and increase the level of risk for export shipments.
- Some importing economies may use the 'precautionary principle' or other non-risk-based approaches which inhibits the establishment of a proper IT or MRL, a risk that could severely impact market access.
- Some APEC importing economies have adopted a dual system that includes a positive list (PL) for substances with MRLs and a limit of detection (LOD) at or near zero for substances without MRLs. Both these approaches have the potential to create a significant gap between the USA MRLs and MRLs which can lead to possible trade obstacles.
- The USITC report states that grain producers and trade associations noted that there are growing concerns that future changes in MRL policies, including lowering MRLs and banning the use of important pesticides could significantly increase yield losses, increase rejected shipments, and increase costs for producers. For example, as shown in Table 3, there are significant differences between pesticide MRL levels within APEC economies and in some cases missing MRLs for important chemicals. Further changes to MRL levels or registrations could increase uncertainty and risk in cross border trade.

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[4] https://mosoy.org/check-off-at-work/domestic-marketing/
[5] USITC report: https://www.usitc.gov/publications/332/pub5071.pdf
[6] USDA GAIN Report KS1843
[7] USITC report: https://www.usitc.gov/publications/332/pub5071.pdf
[8]USDA GAIN Report Number: TH2020-0151

[i] Food security, as defined by the United Nations' Committee on World Food Security, means that all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life. According to the International Food Policy Research Institute (IFPRI), over the coming decades a changing climate, growing global population, rising food prices, and environmental stressors will have significant yet uncertain impacts on food security. Adaptation strategies and policy responses, including options for handling water allocation, land use patterns, food trade, postharvest food processing, and food prices and safety, will need to evolve to address these global changes. Food systems that contribute to food security should be closely aligned with the UN Sustainable Development Goals (SDGs).