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# **REPORT**

## **Standards Committee Working Group (SC-7)**

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**13–15 May 2024**

**IPPC Secretariat**

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## 1. Opening of the meeting

### 1.1 Welcome by the IPPC Secretariat

- [1] The IPPC Secretariat (hereafter referred to as “the secretariat”) welcomed all participants to the Standards Committee Working Group (SC-7) meeting and Avetik NERSISYAN, Standard Setting Unit lead, wished all a fruitful meeting.

## 2. Meeting arrangements

### 2.1 Election of the chairperson

- [2] The SC-7 elected André Felipe C.P. da SILVA (Brazil) as chairperson.

### 2.2 Election of the rapporteur

- [3] The SC-7 elected Nader ELBADRY (Egypt) as rapporteur.

### 2.3 Adoption of the agenda

- [4] The SC-7 adopted the agenda (Appendix 1).

## 3. Administrative matters

- [5] The documents list (Appendix 2) and the participants list (Appendix 3) had been made available to the SC-7 before the meeting. The secretariat invited participants to notify them of any information that required updating in the latter.

## 4. Draft ISPMs for approval for second consultation

### 4.1 Draft annex to ISPM 46 (*Commodity-specific standards for phytosanitary measures*): International movement of fresh *Mangifera indica* fruit (2021-011), priority 1

- [6] The steward, Joanne WILSON (New Zealand), introduced the draft annex to ISPM 46, which had been revised to take into account the comments received during consultation, and supporting documentation.<sup>1</sup>

- [7] **Main issues requiring consideration by the SC-7.** The steward highlighted the main comments received during consultation, for the particular attention of the SC-7:

- proposals to change the text of the “scope” to be commodity-specific;
- requests to include synonyms or preferred synonyms only for the names of pests;
- suggestions to emphasize phytosanitary treatments (PTs) adopted by the Commission on Phytosanitary Measures (CPM);
- reinforcement of key statements made in the overarching ISPM 46 and suggestions to clarify other aspects;
- requests to include references for pest–host association in the pest list;
- requests to add examples of integrated measures that could be included in a systems approach;
- requests to remove and include pests from the pest list;
- proposals to change treatment codes to align with the IPPC phytosanitary treatments search tool;
- requests to add and remove options for measures; and
- identification of issues with referencing within the annex.

- [8] **Commodity-specific scope.** The steward explained that, although it had been agreed by the SC-7 at its 2021 meeting that, during the development of ISPM 46, the Scope section in all annexes of the standard would be standardized, several consultation comments had suggested that the Scope be specific to the

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<sup>1</sup> 2021-011; 04\_SC7\_2024\_May; 05\_SC7\_2024\_May; 06\_SC7\_2024\_May.

commodity. Therefore, the steward, in collaboration with the Technical Panel on Commodity Standards (TPCS), had reworded the Scope to clearly describe fresh *Mangifera indica* (mango) (*Sapindales: Anacardiaceae*) fruit and a list of associated pests and related options for phytosanitary measures.

- [9] An SC-7 member noted that this draft annex did not describe mango in a botanical way. Based on several consultation comments, the member proposed a revision to the Scope to say that the draft annex provided guidance for national plant protection organizations (NPPOs) on pests associated with fresh *Mangifera indica* (mango) (*Sapindales: Anacardiaceae*) fruit and options for phytosanitary measures for the international movement of mango fruits. This revision was agreed upon by the SC-7.
- [10] **Synonyms or preferred synonyms for the names of pests.** The SC-7 chairperson recalled a comment highlighted by the steward requesting the inclusion of synonyms or preferred synonyms for the names of pests. The SC-7 chairperson pointed out the difficulty with using multiple synonyms of pests from different sources and asked the steward how the TPCS had handled this issue. The steward explained that including all synonyms of pest names in the annex was not considered feasible and so the TPCS had used the names provided by NPPOs, with the assumption that those were the most commonly used, and names that aligned with PTs. Therefore, it would be the responsibility of individual countries to look up synonym names. An SC-7 member pointed out the possibility that the scientific names provided could be incorrect and the steward explained that some names had been changed during the review. To clarify this matter, the SC-7 agreed to add a statement that the scientific names used in the table of pests were based on the submissions of contracting parties.
- [11] **Emphasizing PTs adopted by the CPM.** The steward explained that the PTs adopted as annexes to ISPM 28 (*Phytosanitary treatments for regulated pests*) were presented in bold type in the tables of options for phytosanitary measures, alongside additional text specifically stating that.
- [12] **Reinforcing key statements made in ISPM 46 and clarifying other aspects.** The steward briefly reported that additional text had been included in the text.
- [13] **Requests to include references for pest–host association in the pest list.** The steward explained that several consultation comments had suggested that pests identified in the list should have a reference to technically justify their inclusion in the list. This issue had been extensively discussed by the TPCS and Standards Committee (SC). It had been suggested that a secondary source be used, such as the EPPO Global Database. However, this database did not include all pests listed and no other comparable, accurate databases were available to fill these gaps. The steward had also concluded that including references was not feasible because of the differing factors affecting pest–host associations in different countries. The steward pointed out that, to address this, new text had been added in the section on pests associated with fresh *M. indica* fruit. This stated that the list of pests did not consider factors that may affect the status of *M. indica* fruit as a host, or factors that influenced pest infestation of fruit in the country of origin, and that the relevance of the pest list should be evaluated using applicable expert sources (e.g. information verified by exporting NPPOs, peer-reviewed literature). Moreover, the steward reported that the TPCS was discussing the development of a database to include all the information that was gathered from pest risk analyses, clarifying that such information was provided by the NPPOs.
- [14] The SC-7 discussed a proposal to include a footnote stating that the references for the list of pests would be made available on request, which could be modified later once the database had been developed. They considered various options, including referring the reader to the secretariat for references, listing the names of the countries that had provided the information, or referring the reader to the secretariat for the names of these countries. Eventually, the SC-7 agreed to add a footnote saying that the information used to compile the list was supplied by at least one contracting party and may be provided by the secretariat upon request.
- [15] Regarding the database, the secretariat clarified that it would take at least two years for it to be realized. An SC-7 member asked the secretariat what the level of access would be to this database and the secretariat suggested that the requesting NPPO would be provided with the contact information of the country that submitted the information.

- [16] **Removing and including pests in the pest list.** The steward explained that several requests had been received to include or remove pests from the list. The reasons for removing pests from the list included that mango was not a host, there was insufficient information about host status and that mango in trade was not a pathway for introduction. However, the TPCS had not removed any pests from the list, because independent references had been found supporting host association for some pests and because more than one country regulated several pests on the pathway. The few cases where pests had been removed during the drafting had been with the agreement of the countries that had submitted them. Furthermore, the steward emphasized that it was not the role of the TPCS to judge the validity of the technical justification for the regulation of pests by a contracting party when a pest risk analysis or comparable evidence was provided. The draft annex was clear that the listing of a pest did not constitute technical justification for its regulation. The steward concluded that removing pests from the list could discourage countries from providing information for future commodity standards.
- [17] **White fly.** Among the requests to add pests to the pest list was one to include white fly. The steward explained that it had not been included in the annex, because of the lack of information about a specific corresponding measure. Therefore, if specific measures and a better description of such measures were provided, white fly could be included in the list.
- [18] **Proposal to change treatment codes to align with the IPPC phytosanitary treatment search tool.** The steward invited the SC-7 to discuss whether codes for measures should be aligned with those in the IPPC phytosanitary treatment search tool, following a consultation comment suggesting this. These codes would result in the following changes:
- IRDN would become RAT (radiation treatment);
  - VHT would become TPT-VH (thermal phytosanitary treatment-vapour heat); and
  - MB would become CHT-FU (chemical treatment – fumigation).
- [19] The SC-7 noted that the code for methyl bromide may be misleading if other fumigants (e.g. phosphine) were included. Additionally, the IPPC phytosanitary treatments search tool did not list abbreviations for hot water immersion, methyl bromide fumigation or systems approaches. The steward had drafted an alternative table of measures, with the proposed abbreviations. An SC-7 member, the steward of the Technical Panel on Phytosanitary Treatments (TPPT), pointed out that the treatment codes used in the IPPC phytosanitary treatments search tool had originated from the IPPC ePhyto Solution and were not actually used by the TPPT. Eventually, the steward proposed the deletion of the drafted table with the proposed treatment codes, and the SC-7 agreed to retain the TPCS's original treatment codes.
- [20] **Implementation issues.** The steward pointed out some implementation issues that had been raised during consultation, such as the potential for the pest list to be misused to require unjustified measures to manage some pests and that the tables of measures did not provide all the necessary parameters for application.
- [21] **Reference to the pest list in the annex or an NPPO's own pest list.** An SC-7 member questioned the necessity of having a pest list where references need to be requested individually for each pest, especially if every country performed its own pest risk analysis. The member asked the steward whether an NPPO should refer to its own pest list if it differed from the one in the annex, or if it should request additional information from the TPCS, such as the host association with the fruit.
- [22] The steward responded that the NPPO had two obligations: to consider the annex and to conduct its own pest risk analysis.
- [23] **Title of the annex.** The SC-7 discussed a consultation comment that proposed to modify the title to refer to phytosanitary requirements, but some SC-7 members pointed out that the annex listed options for measures, not requirements for trade in mangoes or for phytosanitary measures that have to be imposed by an NPPO. Moreover, some consultation comments had suggested there was a fear that, by referring to phytosanitary measures, the draft annex would be given a level of authority that it should not have. The SC-7 agreed not to modify the title.

- [24] **Contamination.** The SC-7 discussed whether contamination should be excluded or covered by the annex. The steward highlighted that, in line with ISPM 46, the draft annex excluded contamination and did not consider diversion from intended use (e.g. *M. indica* seed in fruit intended for consumption but used for sowing). However, an SC-7 member pointed out that the draft annex referred to measures taken to prevent contamination and infestation and to agricultural practices and production procedures that aimed to secure management and sanitation of packing facilities to prevent pest contamination and infestation. The member assumed that the annex covered actions to prevent contamination, identifying what seemed to be a gap between the annex and ISPM 46.
- [25] The SC-7 then considered whether another term should be used in the annex to refer to contamination and infestation. The SC-7 noted that, although the term “contamination” was defined in ISPM 5 (*Glossary of phytosanitary terms*), the term appeared several times in the draft annex referring rather to the maintenance of hygiene in the supply chain. To better describe good practices without using “contamination”, the SC-7 discussed alternatives and considered the term “contaminating pest”, although its definition in the glossary was more specific than that for “contamination”, and “regulated articles”, as its glossary definition included words such as storage place, packaging, conveyance and container, which were terms used in the definition of “contamination” as well. Ultimately, the SC-7 agreed to remove references to measures taken to prevent pest contamination from the section on integrated measures in systems approaches. They also agreed to revise the text in the Scope to align with ISPM 46, removing redundant examples in brackets.
- [26] **Factors that may affect the status of mango fruit as host.** In the section on pests associated with fresh *M. indica* fruit, an SC-7 member pointed out that the term “host” had a broad meaning – referring to the categories of host – and so could be understood with differing meanings. The member therefore proposed that the term be removed.
- [27] **General factors.** The SC-7 considered a proposal about the text that been added to the section on pests, relating to factors that may influence pest infestation of fruit. It was proposed that the factors be split as follows:
- natural factors (e.g. fruit cultivar or variety and geographical and ecological factors); and
  - artificial factors (e.g. general agricultural practices and production procedures).
- [28] However, some SC-7 members questioned the use of the term “artificial”, as it was a term not easily understood, and they proposed that the factors simply be listed or that the term be replaced with “production practices”. It was pointed out that this added text may be misleading, as an earlier section of the draft annex stated that it applied to all cultivars or varieties of mango. The steward replied that the additional text had been inserted to explain the reason why the references for each pest were not included in the annex. Eventually, the SC-7 agreed not to split the factors, agreed to remove the reference to host, and amended the paragraph.
- [29] An SC-7 member pointed out that it would be advisable to state that other factors should be taken in consideration following the pest risk analysis, which was the first step. However, the SC-7 noted that the measures listed in this annex were not related to a specific cultivar (otherwise, they would not have been included in the annex), but this did not mean they should not be considered in the pest risk analysis.
- [30] **Potential changes to ISPM 46 and its annexes.** An SC-7 member questioned whether the statement “when instituting phytosanitary measures, NPPOs should consider the parameters that are critical for the successful application of the measures” should be removed from this draft annex and instead included in all standards – in this case, ISPM 46. The member explained that the correct application of such measures should be implicit, as the way a treatment is applied affected its efficacy. The secretariat lead for the TPCS explained that the panel had already been tasked with the creation of a template for draft annexes to ISPM 46 and therefore suggested that the TPCS could discuss the inclusion of this kind of statement and its placement, as it may lead to potential consequential changes to the text of ISPM 46.
- [31] **Historical measures.** An SC-7 member questioned whether all the measures contained in the tables in the draft annex were technically justified. The secretariat lead for the TPCS replied that they were

historically justified and that contracting parties had agreed to them. This issue arose from an example of a list of historical treatments that the TPPT had not been able to assess because of the lack of a mechanism for assessment, and it was noted that the TPPT required a proven efficacy for evaluation. An SC-7 member proposed revising the text to state that “estimates of the efficacy of historically used measures based solely on their use in international trade are not included in this annex because they cannot be accurately calculated.” However, the sentence was considered unclear and the steward added that not all the background data were available, making it impossible to determine the pre-treatment infestation rate within the fruit or distinguish which measures are based on trade and which were supported by research data. The SC-7 therefore agreed not to include this text.

[32] **Systems approaches.** An SC-7 member proposed that the text be modified to reflect the fact that systems approaches are not just a combination of multiple measures. The steward explained that, as ISPM 14 (*The use of integrated measures in a systems approach for pest risk management*) already clearly defined responsibilities and was referenced in the draft annex, there was no need to include detailed text on integrated measures in a systems approach. Despite the measures being slightly more specific for mango, including detail about them did not add any significant value. The SC-7 agreed with this assessment.

[33] **Differentiation of tables on general and pest-specific options for phytosanitary measures.** Following the proposal of an SC-7 member to differentiate between the table on “Options for phytosanitary measures that may be relevant to any pests associated with fresh *Mangifera indica* fruit” and the table on “Pest-specific options for phytosanitary measures”, the SC-7 discussed and clarified that the former table referred to general options for phytosanitary measures (e.g. pest free areas (PFAs), inspection) while the latter contained pest-specific options for phytosanitary measures. The SC-7 then made the following additional changes to the former table:

- reinstated the reference to ISPM 26 (*Establishment of pest free areas for fruit flies (Tephritidae)*) for the option on PFAs;
- revised the references for phytosanitary measures by retaining only ISPM 28 and removing the references to ISPM 18 (*Requirements for the use of irradiation as a phytosanitary treatment*), ISPM 42 (*Requirements for the use of temperature treatments as phytosanitary measures*) and ISPM 43 (*Requirements for the use of fumigation as a phytosanitary measure*), as they mainly referred to operational requirements for measures and did not list measures; and
- added testing and pest identification as options, with reference to ISPM 27 (*Diagnostic protocols for regulated pests*).

[34] Regarding the options of testing and pest identification, the SC-7 discussed several possibilities for naming the option related to ISPM 27 (“testing for diagnostic”, “detection”, “pest identification”, “testing and identification”) and eventually agreed to use “testing and pest identification”.

[35] **Inspection.** An SC-7 member commented that inspection was presumably relevant for more pests than the two or three for which it was listed as an option, as many of the pest species listed in the table of pest-specific options were subject to export inspections. The steward explained that the reference was to a higher level of inspection, over and above the general phytosanitary inspection listed in the preceding table.

[36] **PT 1, PT 2 and PT 3.** An SC-7 member recalled that PT 1 (Irradiation treatment for *Anastrepha ludens*), PT 2 (Irradiation treatment for *Anastrepha obliqua*) and PT 3 (Irradiation treatment for *Anastrepha serpentina*) were to be revoked and replaced by PT 39 (Irradiation treatment for the genus *Anastrepha*).<sup>2</sup> The SC-7 noted that this would not happen until CPM-19 (2025) but agreed not to cite PT 1, PT 2 and PT 3 and instead cite PT 39 as the reference for the option for irradiation IRDN 1.

[37] **Hemipterans and true bugs.** The SC-7 chairperson recalled a consultation comment that pointed out that the suborder “Heteroptera” included all of the insects that were known as true bugs, and the SC-7

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<sup>2</sup> SC 2024-05, agenda item 7.1.



modified the text of the draft annex accordingly. Some SC-7 members thought that “Other hemipterans”, as in the original text, was more common than “true bugs” and would fit better for translation purposes.

[38] **Export inspection and inspection.** The SC-7 discussed whether to keep the term “export” in “export inspection” or to just use “inspection”, considering that it referred to inspection before dispatch. An SC-7 member suggested that “pre-export inspection” be used as in the original text. Ultimately, the SC-7 agreed to retain the term “export” in “export inspection”.

[39] **Immersion time and time.** An SC-7 member noted that the table on hot water immersion treatments included both the phrase “Immersion time (minutes)” and “Time (minutes)”, which was confusing, and hence the difference needed clarifying. The steward explained that “Immersion time (minutes)” referred to the total time the fruit should be immersed in hot water. The SC-7 member proposed that a footnote be included, specifying that “Time (minutes)” referred to the length of time the fruit pulp temperature should be maintained regardless of fruit size. The SC-7 agreed to incorporate the footnote.

[40] **Source for treatment.** An SC-7 member pointed out that, although it referred to mango, the source cited as “European Union (2019)” (a European Union (EU) regulation), did not contain any information on the treatment schedule for the hot water immersion treatment but rather the procedure. The SC-7 member suggested that the appropriate records be provided during the upcoming consultation period. Another member pointed out that the same source was used for one of the systems approaches based on ISPM 14 (SA 2) and proposed its deletion in that case because it was too general, while the first case was problematic because of its specific treatment context.

[41] Additionally, an SC-7 member reported that the EU regulation stated that *Mangifera* L. must be subjected to an effective systems approach or post-harvest treatment for Tephritidae (non-European), with details indicated on the phytosanitary certificate. However, the European Union did not approve but only accepted the systems approach, so the reference to EU legislation should not be retained. Furthermore, this regulation was non-pest-specific and could miss certain pests. The SC-7 agreed to remove the reference to the EU legislation in both cases and reinstate Zakariya and Alhassan (2014) as the source for the hot water immersion treatment.

[42] The SC-7:

- (1) *approved* the draft annex *International movement of fresh Mangifera indica fruit* (2021-011) to ISPM 46 (*Commodity-specific standards for phytosanitary measures*) as modified during this meeting to be submitted for second consultation (Appendix 4).

#### **4.2 Draft annex to ISPM 39 (*International movement of wood*): Use of systems approaches in managing the pest risk associated with the movement of wood (2015-004), priority 3**

[43] The steward, Steve CÔTÉ (Canada), introduced the draft annex to ISPM 39, which had been revised to take into account the comments received during first consultation, and supporting documentation.<sup>3</sup>

[44] The steward highlighted comments, concerns and suggestions proposed by contracting parties.

[45] **Overlap between ISPM 39 and the annex.** Some contracting parties and RPPOs had noted some overlap between the main standard (ISPM 39) and the draft annex and it had been suggested that cross-references be included to the elements contained in the main standard, as it contained useful information that was not always captured in the draft annex.

[46] **Guide or annex.** The steward recalled that one of the overarching comments was that countries felt that this draft annex resembled a guide more than an annex and that it contained few requirements beyond those relating to compliance with other ISPMs. The steward highlighted the challenge of making it more requirements-based, given the wide range of products that could be moved under a systems approach for forestry products (ranging from wooden chips to logs and to dimensional timber that has been sawn),

<sup>3</sup> 2015-004; 07\_SC7\_2024\_May; 08\_SC7\_2024\_May; 09\_SC7\_2024\_May.

the different pest profiles or pests that could be associated with those commodities (depending on the nature of processing they have been through) and the type of production chain involved (from the time the trees are harvested to when they are brought to a storing place or processing facility, etc.).

- [47] **Possibility of the NPPO from an importing country evaluating a forestry systems approach as an alternative method.** Some countries had also expressed concerns about the possibility of an importing NPPO evaluating a forestry systems approach as an alternative to measures currently used. These concerns stemmed from the long growing cycle of forestry products, which are cultivated over extended periods in managed environments, unlike plants or plant products grown in a single season or controlled environments. This difference presented unique challenges, given the lengthy maturation period required for forestry seedlings to become ready for harvest and international trade. Additionally, the entire production chain and systems approach were considered cumbersome.
- [48] **Practicality and potential application of proposed measures.** Some contracting parties had also expressed concerns about the practicality of some of the proposed measures and their potential application. The steward pointed out that, as per ISPM 14, the NPPO of the importing country decides the suitability of the systems approach in meeting its requirements, subject to consideration of technical justification, minimal impact, transparency, non-discrimination, equivalence and operational feasibility.
- [49] **Exclusion of bamboo and bamboo products.** Some contracting parties had questioned why bamboo and bamboo products were not included in the scope of the annex. However, the steward noted that ISPM 39 clearly stated that bamboo and rattan were excluded from the scope of the ISPM and the same would therefore apply to the annex.
- [50] **Application of the annex to regulated non-quarantine pests.** The SC-7 discussed the application of the annex to regulated non-quarantine pests (RNQPs). Some contracting parties had suggested that the annex should also apply to RNQPs. However, the steward noted that, given that phytosanitary measures for RNQPs only applied to plants for planting, RNQPs fell outside the scope of this annex.
- [51] **Application of certain measures in a systems approach for forestry products.** A recurring element that had been identified in the consultation comments was the practical application of certain measures in a systems approach for forestry products, taking into consideration the long production cycle of wood, the ecosystem, the biological diversity and the fact that the pest status may change over time given that the trees remain for years in the same production site and the conditions during this period may change. Some contracting parties and RPPOs had indicated that several measures, particularly pre-planting measures and measures applied during the early stages of a tree's life cycle, may be less relevant to the management of pest risk of wood commodities in a systems approach.
- [52] **Pest free areas as a sufficient measure.** The steward noted that there seemed to be a misconception that a PFA should be considered a sufficient measure and its combination with other measures in a systems approach was not technically justified. However, according to ISPM 14, PFAs could be one of the elements contained in a systems approach, for example in the pre-planting stage. The steward suggested that a clarification might be needed.
- [53] **Contaminating pests.** Some contracting parties had expressed the desire to introduce the concept of contaminating pests in the scope of the draft annex. However, the steward noted that ISPM 39 specifically excluded contaminating pests.
- [54] **Certificate versus phytosanitary certificate.** Some contracting parties had requested that the annex refer to "phytosanitary certification" rather than "certification". The steward suggested that it was preferable to use "certification" rather than "phytosanitary certification" to provide greater flexibility for the NPPO of the importing country and the NPPO of the exporting country to negotiate other type of certificates. This was because the legislation of some countries did not allow for documentation other than a phytosanitary certificate to be accepted.
- [55] An SC-7 member recalled the case of a draft ISPM on wooden handicrafts where, during the consultation period, some contracting parties and RPPOs had proposed that another type of certificate be introduced.

However, this would have created confusion among contracting parties and the draft had been put on hold and then removed from the *List of topics for IPPC standards*. The SC-7 member also commented that the introduction of certificates other than phytosanitary certificates would not contribute to harmonization at a global level. At a regional level, it was possible to use other type of certificates, for example between the United States of America and the European Union, but the use of different certificates at the level of international standards should not be encouraged. The SC-7 member proposed that phytosanitary certificates be referred to explicitly in the annex, while acknowledging the possibility of NPPOs negotiating alternative certification documents.

- [56] This discussion prompted the SC-7 to consider whether to retain the reference to “certification” in the pre-dispatch stage or change it to “phytosanitary certification”. A consultation comment had suggested removing it because “this is the result, not the measure”. The steward replied that it was an important stage of the systems approach, which culminated with the issuance of a phytosanitary certificate. However, recognizing that a phytosanitary certificate is not always required, the SC-7 agreed to remove references to “certification” from the table of practices and measures to prevent confusion. The steward then proposed that the SC-7 consider referring to “phytosanitary certificate” in other sections of the annex and an SC-7 member pointed out that in the section on the responsibilities for NPPOs there was a reference to ISPM 14, which included “providing phytosanitary certification in accordance with requirements of the system” among the other responsibilities of the exporting country.
- [57] **Use of fumigation and the CPM Recommendation on *Replacement or reduction of the use of methyl bromide as a phytosanitary measure*.** An SC-7 member suggested that the draft annex not refer to treatment with methyl bromide; if it needed to be retained, the member suggested removing the reference to the Montreal Protocol and referring to the CPM Recommendation on *Replacement or reduction of the use of methyl bromide as a phytosanitary measure* (R-06). The steward noted that ISPM 39 referred to the CPM recommendation although it did not provide context, while another SC-7 member suggested there was no need to describe the type of treatments. Eventually, the SC-7 agreed to remove the reference to the Montreal Protocol and not to refer to the CPM recommendation.
- [58] **Measure vs phytosanitary measure.** An SC-7 member suggested referring to “measures” rather than “phytosanitary measures” for components of the systems approach, noting that some measures, such as industry practices, were not phytosanitary. This prompted the SC-7 to differentiate between phytosanitary and non-phytosanitary measures. The steward cited ash log treatments (debarking, sun- and heat-treating) as examples of phytosanitary measures meeting NPPO requirements. Another SC-7 member noted that measures agreed upon by importing and exporting countries become phytosanitary measures. It was clarified that phytosanitary measures, as defined in the glossary, must be established or authorized by an NPPO. The steward acknowledged that many measures in the production chain were not NPPO-authorized and agreed to use “measures” instead of “phytosanitary measures” to encompass both types. The SC-7 agreed to remove “phytosanitary measures” and use “measures” as it did not exclude phytosanitary measures.
- [59] **Measures recognized but not authorized by the NPPO.** The SC-7 considered the case of a procedure that was adopted by industry to mitigate pest risk and was not authorized, and therefore not a phytosanitary measure, but it was recognized by the NPPO. The SC-7 noted that there was no need for the NPPO to authorize every single measure. The steward explained that the role of the NPPO might be more towards the end of the production chain where it was required that the product needed to be debarked, sawn and heat treated; while debarking, a visual inspection could be carried out to verify that there was no residual bark on the timber that had been sawn. Moreover, the NPPO could consult treatment records on traceability for the lot in question (including the number of cubic metres of timber that had been treated and a count chart record) and confidentially issue a phytosanitary certificate based on the records verified by the NPPO.
- [60] **Systems approach.** Referring to the table on examples of post-import practices and measures, an SC-7 member pointed out that all of the systems approach had to be agreed by both the importing and the exporting country. The member explained that, although some countries sent products through a systems approach, when the products arrived in another country, that country performed treatments regardless

of the systems approach. The steward agreed that this would defeat the purpose of the systems approach and that no additional measures should be applied if a product had been produced under a systems approach. The SC-7 member therefore proposed that “practices or measures that are specific to the post-import part of the production chain may be employed as a part of the systems approach” if agreed by the NPPO of the importing country and the NPPO of the exporting country. The SC-7 agreed to the additional text for clarification.

[61] Then, the SC-7 discussed what verb should be used when the NPPO of the importing country and the NPPO of the exporting country decide on practices and measures from pre-planting to post-import (described in the first table in the draft annex). An SC-7 member proposed that the term “approved” should not be used, as some countries decided to “implement” measures and practices. Eventually, the SC-7 clarified that, when applicable and feasible, some of the practices or measures described in the table may be implemented as post-import measures. In addition, practices or measures that were specific to the post-import part of the production chain may be employed as a part of the systems approach, if agreed by the NPPO of the importing country and the NPPO of the exporting country (these being listed in the table on post-import practices and measures).

[62] **Pest free areas as a measure in a systems approach.** The steward recalled that some contracting parties and RPPOs had noted that PFAs may not be appropriate in a systems approach for forestry products and proposed that this be addressed in the text. An SC-7 member reminded the SC-7 of a consultation comment stating that a PFA was a measure and should not require other measures. The member noted that, although this was true, the PFA managed only one pest for a given period of time whereas the production cycle of wood was a long process. The steward gave an example where surveys were being conducted to select a site that was free from gypsy moth to plant seedlings. From that PFA, trees were sourced and harvested and could be moved elsewhere within the country into parts that were not free from gypsy moth, which could lay its eggs in a sorting yard. In such a case, a systems approach might be used to mitigate the pest risk through the whole wood production cycle. Recalling that PFAs were mentioned in ISPM 14, the SC-7 considered referring to PFAs at different critical control points consistent with ISPM 14 and stating that wood produced in a PFA or pest free place of production may be moved to other areas that were not necessarily PFAs. However, they noted that this was already covered in the first table by the examples of post-harvest-related practices and measures. Therefore, the SC-7 agreed to add the following clarifying text in the section on the development of a wood-commodities systems approach: “Pest free areas established to manage one pest on the pathway may not manage all pests needing to be mitigated. Pest free areas may be a component of a wood-commodities systems approach (see also ISPM 14) to meet [the] phytosanitary requirements of the NPPO of [the] importing country”.

[63] **Title of section on practices and measures that may reduce pest risk.** The SC-7 discussed how best to make it clear that the practices and measures described in this section were only examples and did not form an exhaustive list. Following a proposal from a member, they agreed that, rather than including “examples” in the title, they would clarify it within the text, stating that examples of practices and measures relating to activities in an exporting country, from pre-planting to transport, that may reduce pest risk were described in the first table.

[64] **Site selection.** An SC-7 member questioned whether it was correct to include “soil testing” as an example of a pre-planting assessment, as it was the soil conditions that were assessed. The member therefore proposed that “testing” be replaced with “conditions”. The steward replied that the sentence would then become rather vague and explained that “soil testing” added greater clarity because, for example, it was used to verify freedom from any regulated soil-borne pathogens or diseases that could be in the site that was being selected. The SC-7 then focused on the term “pre-planting assessments”, as the word “assessment” might be misleading, and it was proposed that it be reworded as “pre-planting site assessment”. The SC-7 also considered whether the pre-planting assessment would lead to pest status determination. The steward explained that the purpose of a pre-planting assessment was to assess the site to determine if it was a suitable site for the tree and for pests to potentially establish themselves in that given area. The SC-7 therefore agreed to the proposed rewording, which referred to pre-planting

assessments including determining site suitability for the host species and pests of concern, because of the high number of measures and practices that could be included (e.g. assessing access to machinery and, from a phytosanitary perspective, ensuring that the trees are not stressed and determining the risk of having a pest in that site).

- [65] **Pest free areas and areas of lost pest prevalence.** Following the proposal of a member, the SC-7 agreed to remove the reference to ISPM 8 (*Determination of pest status in an area*) from the measures related to “pest free areas or areas of low pest prevalence”, as pest status and pest free areas were two different concepts and referring to ISPM 8 could therefore be confusing. Consequently, the SC-7 agreed to include the reference to section 2.5 of ISPM 39 and to ISPM 10 (*Requirements for the establishment of pest free places of production and pest free production sites*).
- [66] **Field inspection as a measure.** Following a comment from an SC-7 member, the SC-7 discussed whether the entry for “field inspection” in the examples of pre-harvest practices and measures should refer just to “inspection”, as section 2.4 of ISPM 39 described inspection and testing, which may be used for the detection of specific pests associated with wood, rather than field inspection, which was the inspection of plants in fields. However, the SC-7 noted that ISPM 39 also stated that “inspection may be used to identify specific signs or symptoms of pests” depending on the wood commodity and that inspection “may also be carried out at various points along the production process [...]”, therefore also when the trees grow. An SC-7 member pointed out that field inspection was applied to detect pests or signs of pests and it would take place before the harvest-planning stage. Therefore, the SC-7 agreed to retain the reference to section 2.4 of ISPM 39 and modify the text so that data from field inspections may be used to identify infested trees (e.g. pest or signs of pests) and guide harvest-planning decisions and to help ensure that infested trees were not selected for export.
- [67] **Visual examination vs examination.** The steward reported that one consultation comment had suggested that the term “examination” be used instead of “visual examination” in the examples of post-harvest practices and measures, as in the future the examination could be done not only by the human eye but also by machines. This change would broaden the measure as the round wood may be examined for evidence of pests not only by trained personnel through visual examination but also by machines without the verification of the said trained personnel. The SC-7 noted, however, that this would not mean that the possibility of verification was excluded, as it would be the NPPOs who would be responsible for putting together the measures that composed the systems approach.
- [68] **Measures that may be performed at more than one stage of the process.** The SC-7 discussed whether to retain examples of measures that may occur in multiple process stages to prevent confusion. For instance, bark removal could occur during the post-harvest stage or during the processing and treatment of the wood commodity. An SC-7 member proposed that such measures be annotated with footnotes or asterisks instead of duplicating them. Another member suggested relocating measures such as washing or water-blasting, bark removal, branches (or boughs) removal and semiochemicals application from the post-harvest section of the table of practices and measures to the processing and treatment section, arguing that the current division lacked clarity. Discussions included scenarios where harvested logs are stored or promptly processed to maintain quality before final treatment (e.g. by sawing, debarking, heat treatment or kiln-drying), either in the origin or destination country. Ultimately, for clarification the SC-7 agreed to specify that bark removal could occur in either the post-harvest or the processing and treatment stages.
- [69] **Transport vs export.** The SC-7 chairperson questioned whether the final section of the table on pre-planting to post-import practices and measures should be called “export” rather than “transport”, because the latter might be understood as referring mainly to domestic transport and might therefore create confusion. The steward replied that “transport” would cover transportation within the country of origin, within the country of destination and between the two countries. An SC-7 member proposed that the section referred to transport throughout the production or supply chain. Eventually, the SC-7 agreed to retain the term “transport”.

- [70] **Sea containers vs containers vs conveyances.** The steward pointed out that one of the practices listed referred to containers and a consultation comment had suggested that the term “shipping containers” not be used and “sea containers” used instead, as the latter was a more commonly used term. However, it was argued that containers were sea containers if at least one part of the transport was by sea. If the container was transported on land, it could not be a sea container. It was then proposed that “cargo transport unit” be used, which could refer to any type of container, “ship hold” or “conveyance”; however, the steward warned that, depending on what it was, the cleaning of the outside of the container may not be practical or feasible. An SC-7 member therefore proposed that the text simply refer to the cleaning of the conveyance, without specifying the inside or the outside, either before loading or after unloading. Eventually, the SC-7 agreed to refer to the practice of “cleaning conveyances”, as it would cover the use of ship holds and containers and also the transport of stationary trucks.
- [71] **Treatment on arrival.** The steward highlighted the inclusion of “treatment on arrival” in the table on post-import practices and measures, which had been added in response to a consultation comment. The steward explained that the addition was to clarify that, for example, if a treatment was applied on arrival as a prophylactic measure, it would defeat the purpose of the systems approach if this was considered to be outside of it; but there could be a treatment that, although having a lower efficacy, could provide an additional safeguard to reduce the pest risk as part of the systems approach. Referring to a consultation comment, an SC-7 member suggested changing “treatment on arrival” to “other measures on arrival” or “phytosanitary measures on arrival”, as the measures applied on arrival would be phytosanitary measures instituted by the importing country to reduce pest risk from imports. Eventually, the SC-7 agreed to retain “treatment on arrival”.
- [72] **Less mobile pests treated on arrival.** The SC-7 considered a suggestion from a consultation comment, which was to specify that treatments on arrival were for less mobile pests, for example the use of a hot-water bath to kill fungi, and the steward questioned whether this kind of example would be useful to contracting parties. An SC-7 member proposed that the text refer just to the type of treatment, such as fumigation or hot-water bath, rather than the type of pest, as the latter would require a more detailed description. However, it was noted that this would be inconsistent with the intention of reducing the use of fumigation and it was the responsibility of the importing and exporting countries to decide what measures comprised the systems approach. Eventually, the SC-7 agreed not to refer to less mobile pests and not to mention any examples.
- [73] **Level of protection of NPPOs of importing countries.** An SC-7 member pointed out a possible discrepancy in the language used in this annex and the draft annex *International movement of fresh Mangifera indica fruit* (2021-011) to ISPM 46. While the draft annex to ISPM 46 required the NPPO of the importing country to assess whether proposed options met the necessary level of risk reduction, the draft annex to ISPM 39 only stated that the NPPO of the exporting country should propose suitable measures and practices to meet the phytosanitary import requirements of the importing country. Therefore, the SC-7 member proposed that text be added to the section on designing a wood-commodities systems approach explaining that the NPPO of the importing country should determine the level of risk reduction required to manage quarantine pests and evaluate whether the measures provided by the NPPO of the exporting country met this level.
- [74] Another SC-7 member pointed out that this would give power to the NPPO of the importing country without involving the NPPO of the exporting country, but the SC-7 noted that this was about the appropriate level of protection determined by the NPPO of the importing country. If, for example, the measures proposed did not meet the said level of protection, both importing and exporting countries should agree on additional measures to be included in the systems approach in order to meet that level of protection. Ultimately, the SC-7 agreed on the modified sentence.
- [75] **Guide or annex.** Following the review of the draft annex, the steward commented that the additional context should provide extra clarity and make the draft annex more requirements-based rather than looking like a guide. An SC-7 member noted that no particular language had been proposed during consultation, nor specific parts highlighted for modification, to make the draft annex more requirements-based rather than a guide. Another member pointed out that the decision about whether the draft annex

should be an annex to a standard or provided to the IC as a potential guide rested with the SC not the SC-7. The member proposed, therefore, that the draft annex be sent to second consultation, after which the SC could decide whether to recommend it for adoption as an annex to ISPM 39 or provide it to the IC as a potential guide.

[76] **Further reading.** Based on a consultation comment and a discussion at the SC May 2024 meeting,<sup>4</sup> an SC-7 member proposed that the reference to NAPPO RSPM 41 be removed from the body text and included instead in a new section on “Further reading”. The SC-7 agreed.

[77] The SC-7:

(2) *approved* the draft annex *Use of systems approaches in managing the pest risk associated with the movement of wood* (2015-004) to ISPM 39 (*International movement of wood*) as modified during this meeting to be submitted for second consultation (Appendix 5).

## 5. Items arising from the SC May 2024

[78] No items arose from the SC meeting held the week before.

## 6. Review of the standard setting calendar

[79] The secretariat introduced the standard setting calendar, which listed the major events in the upcoming months, and highlighted the IPPC regional workshops that would be held in August and September in all FAO regions and the SC meetings in November 2024 and May 2025.

## 7. Any other business

[80] An SC-7 member recalled a discussion during the SC meeting in November 2023 on the possibility of receiving consultation comments in all languages related to each paragraph rather than divided in tables per language, as it was in the past. The secretariat agreed to consider the feasibility of the request and to report back to the SC

[81] An SC-7 member proposed that representatives from the Secretariat of the Codex Alimentarius Commission and the World Organisation for Animal Health be invited to present their work and their standard setting procedure. The secretariat confirmed that they would invite them to deliver a presentation at the next SC meeting.

## 8. Date and type of the next SC-7 meeting

[82] The next SC-7 meeting is scheduled to take place after the SC May 2025 meeting, tentatively from 19 to 23 May 2025, to be adjusted based on the workload.

## 9. Evaluation of the meeting process

[83] The SC-7 chairperson encouraged all SC-7 members to complete the evaluation of the meeting via the link provided on the agenda for this meeting.

## 10. Close of the meeting

[84] On behalf of the secretariat, Avetik NERSISYAN thanked the participants for their commitment and work and reminded them of the importance of completing the feedback survey to suggest improvements.

[85] The SC-7 chairperson thanked all participants for their contributions and closed the meeting.

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<sup>4</sup> SC discussion: SC 2024-05, agenda item 5.1.

**Appendix 1: Agenda**

| 1.        | Opening of the Meeting   | Document number / link   | Presenter / IPPC Secretariat support |
|-----------|--|--|--------------------------------------|
| 1.1.      | Welcome by the IPPC Secretariat  |  | NERSISYAN                            |
| <b>2.</b> | <b>Meeting Arrangements</b>  |  |                                      |
| 2.1.      | Election of the Chairperson  | –  | Secretariat                          |
| 2.2.      | Election of the Rapporteur   | –  | Chairperson                          |
| 2.3.      | Adoption of the Agenda   | 01_SC7_2024_May  | Chairperson                          |
| <b>3.</b> | <b>Administrative Matters</b>  |  |                                      |
| 3.1.      | Documents list   | 02_SC7_2024_May  | TORELLA                              |
| 3.2.      | Participants list  | 03_SC7_2024_May<br><a href="#">SC membership list</a>                                | TORELLA                              |
| <b>4.</b> | <b>Draft ISPMs for approval for the second consultation</b>  |  |                                      |
| 4.1.      | <p><b>Draft annex <i>International movement of fresh Mangifera indica fruit (2021-011) to ISPM 46 (Commodity-specific standards for phytosanitary measures)</i>, Priority 1</b></p> <p>Steward: Joanne WILSON</p> <ul style="list-style-type: none"> <li>○ Steward's responses to comments from 2023 Consultation (2021-011)</li> <li>○ TPG proposals to the steward on terminology and consistency comments (2021-011)</li> <li>○ Steward's notes and potential implementation issues (2021-011)</li> </ul>       | <p>2021-011</p> <p>04_SC7_2024_May</p> <p>05_SC7_2024_May</p> <p>06_SC7_2024_May</p> | WILSON/MOREIRA                       |
| 4.2.      | <p><b>Draft annex <i>Use of systems approaches in managing the pest risk associated with the movement of wood (2015-004) to ISPM 39 (International movement of wood)</i>, Priority 3</b></p> <p>Steward: Steve CÔTÉ</p> <ul style="list-style-type: none"> <li>○ Steward's responses to comments from 2023 Consultation (2015-004)</li> <li>○ TPG proposals to the steward on terminology and consistency comments (2015-004)</li> <li>○ Steward's notes and potential implementation issues (2015-004)</li> </ul> | <p>2015-004</p> <p>07_SC7_2024_May</p> <p>08_SC7_2024_May</p> <p>09_SC7_2024_May</p> | CÔTÉ/SHAMILOV                        |
| <b>5.</b> | <b>Items arising from the SC May 2024</b>  |  |                                      |
| 6.        | Review of the standard setting calendar  | <a href="#">Link to the IPP calendar</a>   | TORELLA                              |
| 7.        | Any other business   |  | Chairperson                          |
| 8.        | Date and type of the next SC-7 Meeting   |  | Chairperson                          |
| 9.        | Evaluation of the meeting process  | <a href="#">Survey link</a>  | Chairperson                          |
| 10.       | Close of the meeting   |  | Chairperson                          |



**Appendix 2: Documents list**

| DOCUMENT NO.  | AGENDA ITEM | DOCUMENT TITLE  | DATE POSTED / UPDATED |
|---|-------------|---|-----------------------|
| <b>Draft ISPMs for approval for the second consultation</b> |             |   |                       |
| 2021-011  | 4.1.        | Draft annex <i>International movement of fresh Mangifera indica fruit</i> (2021-011) to ISPM 46 ( <i>Commodity-specific standards for phytosanitary measures</i> ), Priority 1          | 2024-04-05            |
| 2015-004  | 4.2.        | Draft annex <i>Use of systems approaches in managing the pest risk associated with the movement of wood</i> (2015-004) to ISPM 39 ( <i>International movement of wood</i> ), Priority 3 | 2024-04-05            |
| <b>Meeting documents</b>                                    |             |   |                       |
| 01_SC7_2024_May   | 2.3.        | Provisional agenda  | 2024-04-08            |
| 02_SC7_2024_May   | 3.1.        | Documents list  | 2024-05-13            |
| 03_SC7_2024_May   | 3.2.        | Participants list   | 2024-05-03            |
| 04_SC7_2024_May   | 4.1.        | Steward's responses to comments from 2023 Consultation (2021-011)   | 2024-04-08            |
| 05_SC7_2024_May   | 4.1.        | TPG proposals to the steward on terminology and consistency comments (2021-011)   | 2024-04-08            |
| 06_SC7_2024_May   | 4.1.        | Steward's notes and potential implementation issues (2021-011)  | 2024-04-08            |
| 07_SC7_2024_May   | 4.2.        | Steward's responses to comments from 2023 Consultation (2015-004)   | 2024-04-08            |
| 08_SC7_2024_May   | 4.2.        | TPG proposals to the steward on terminology and consistency comments (2015-004)   | 2024-04-08            |
| 09_SC7_2024_May   | 4.2.        | Steward's notes and potential implementation issues (2015-004)  | 2024-04-11            |

**Documents links** (presented in the order of the agenda items)

| Links                                   | Agenda item | Document link                            |
|---|-------------|--|
| SC membership list                      | 3.2.        | <a href="#">SC membership list</a>       |
| Review of the standard setting calendar | 6.          | <a href="#">Link to the IPP calendar</a> |
| Evaluation of the meeting process       | 9.          | <a href="#">Survey link</a>              |

**Appendix 3: Participants list**

| SC-7 members |  |  |  |  |              |
|--------------|--|--|--|--|--------------|
| ✓            | Region / Role                              | Name, mailing address, telephone   | Email address  | Membership Confirmed   | Term expires |
| ✓            | Africa Member<br>SC-7                      | <b>Mr David KAMANGIRA</b><br>Senior Deputy Director and IPPC Focal Point<br>Department of Agricultural Research Services<br>Headquarters,<br>P.O. Box 30779,<br>Lilongwe 3<br><b>MALAWI</b><br>Tel: +265 888 342 712<br>Tel: +265 999 122 199              | <a href="mailto:davidkamangira1@gmail.com">davidkamangira1@gmail.com</a>   | CPM-11 (2016)<br>CPM-14 (2019)<br>CPM-16 (2022)<br><br>3 <sup>rd</sup> term / 3 years                | 2025         |
| ✓            | Asia Member<br>SC-7                        | <b>Mr Masahiro SAI</b><br>Head<br>Pest Risk Analysis Division<br>Yokohama Plant Protection Station<br>Ministry of Agriculture, Forestry and Fisheries (MAFF)<br>1-16-10 Shin-Yamashita,<br>Naka-ku, Yokohama. 2310801<br><b>JAPAN</b><br>Tel: +81456228693 | <a href="mailto:masahiro_sai670@maff.go.jp">masahiro_sai670@maff.go.jp</a>   | CPM-13 (2018)<br>CPM-15 (2021)<br><br>2 <sup>nd</sup> term / 3 years                                 | 2024         |
| ✓            | Europe Member<br>SC-7                      | <b>Mr David OPATOWSKI</b><br>Head, Plant Biosecurity, Plant Protection and Inspection Services (PPIS),<br>P.O. Box 78, Bet Dagan,<br>50250<br><b>ISRAEL</b><br>Tel: 972-(0)3-9681518<br>Mob: 972-(0)506-241885<br>Fax: 972-(0)3-9681571                    | <a href="mailto:dopatowski@yahoo.com">dopatowski@yahoo.com</a><br><a href="mailto:davido@moag.gov.il">davido@moag.gov.il</a> | CPM-1 (2006)<br>CPM-4 (2009)<br>CPM-12 (2017)<br>CPM-15 (2021)<br><br>4 <sup>th</sup> term / 3 years | 2024         |
| ✓            | Latin America and Caribbean Member<br>SC-7 | <b>Mr André Felipe C. P. da SILVA</b><br>Federal Inspector<br>Quarantine Division<br>Ministry of Agriculture, Live Stock and Food Supply<br><b>BRAZIL</b><br>Tel: (61) 3218-2925   | <a href="mailto:andre.peralta@agro.gov.br">andre.peralta@agro.gov.br</a>   | CPM-14 (2019)<br>CPM-16 (2022)<br><br>2 <sup>nd</sup> term / 3 years                                 | 2025         |
| ✓            | Near East Member<br>SC-7                   | <b>Mr Nader ELBADRY</b><br>Phytosanitary Specialist,<br>Central Administration of Plant Quarantine,<br>6 Michel Bakhoum St.,<br>Dokki, Giza,<br><b>EGYPT</b><br>Tel: +201096799493   | <a href="mailto:nader.badry@gmail.com">nader.badry@gmail.com</a>   | CPM-15 (2021)<br><br>1 <sup>st</sup> term / 3 years  | 2024         |

| SC-7 members |                                  |  |  |   |              |
|--------------|----------------------------------|--|--|---|--------------|
| ✓            | Region / Role                    | Name, mailing address, telephone   | Email address  | Membership Confirmed  | Term expires |
| ✓            | North America Member<br>SC-7     | <b>Ms Marina ZLOTINA</b><br>IPPC Technical Director<br>USDA-APHIS, Plant Protection and Quarantine (PPQ)<br>4700 River Rd,<br>5c-03.37 Riverdale,<br>MD 20737<br><b>USA</b><br>Tel: 1-301-851-2200<br>Cell: 1 -301-832-0611  | <a href="mailto:Marina.A.Zlotina@aphis.usda.gov">Marina.A.Zlotina@aphis.usda.gov</a> | CPM-10 (2015)<br>CPM-13 (2018)<br>CPM-15 (2021)<br><br>3 <sup>rd</sup> term / 3 years | 2024         |
| ✓            | Southwest Pacific Member<br>SC-7 | <b>Ms Sophie Alexia PETERSON</b><br>Director, Pacific Engagement and International Plant Health   Australian Chief Plant Protection Office<br>Department of Agriculture, Water and the Environment<br><b>AUSTRALIA</b><br>Tel: +61 2 6272 3769<br>Mob: +61 466 867 519 | <a href="mailto:sophie.peterson@aff.gov.au">sophie.peterson@aff.gov.au</a>           | CPM-15 (2021)<br><br>1 <sup>st</sup> term / 3 years                                   | 2024         |

| Others |   |  |  |
|--------|---|--|--|
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## Appendix 4: Draft annex to ISPM 46 (*Commodity-specific standards for phytosanitary measures*): International movement of fresh *Mangifera indica* fruit (2021-011), priority 1

### Status box

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|--|--|
| This is not an official part of the standard and it will be modified by the IPPC Secretariat after adoption. |  |
| <b>Date of this document</b>   | 2024-06-03   |
| <b>Document category</b>   | Draft annex to ISPM 46   |
| <b>Current document stage</b>  | To second consultation   |
| <b>Major stages</b>  | 2021-04 CPM-16 added topic Annex <i>International movement of mango (Mangifera indica) fruit</i> (2021-011) to ISPM 46 ( <i>Commodity-specific standards for phytosanitary measures</i> ) to the work programme, priority 1.<br>2022-11 Standards Committee (SC) approved Specification 73 ( <i>International movement of fresh mango (Mangifera indica) fruit</i> ).<br>2023-01 Technical Panel on Commodity Standards (TPCS) drafted.<br>2023-02 TPCS revised and recommended to SC for approval for consultation.<br>2023-05 SC revised and approved for first consultation.<br>2023-07 First consultation.<br>2024-05 SC-7 revised and approved for second consultation. |
| <b>Steward history</b>   | 2022-05 SC Joanne WILSON (NZ, Lead Steward)<br>2022-05 SC Hernando MORERA-GONZÁLEZ (CR, Assistant Steward)   |
| <b>Notes</b>   | 2023-01 TPCS removed common name “mango” from title (as per IPPC style to use scientific names)<br>2023-02 Edited<br>2023-05 Edited<br>As per new FAO style, references cited in tables listed below tables rather than in References<br>2024-01 Edited<br>2024-06 Edited (references cited in tables moved to References section, following change in FAO style that permits this)  |

### Adoption

[Text to this paragraph will be added following adoption.]

#### 1. Scope

This commodity standard provides guidance for national plant protection organizations (NPPOs) on pests associated with fresh *Mangifera indica* (mango) (Sapindales: Anacardiaceae) fruit and options for phytosanitary measures for the international movement of mango fruit.

#### 2. Description of the commodity and its intended use

This commodity standard applies to the fresh fruit of all cultivars and varieties of *M. indica*. It applies to fresh whole *M. indica* fruit, with or without a section of fruit stalk attached but without leaves or stem. The standard applies to fruit that has been produced for international trade and is intended for consumption or processing in an importing country. It does not apply to fruit that has already been processed (e.g. sliced, dried, frozen, canned).

#### 3. Pests associated with fresh *Mangifera indica* fruit

The pests included in Table 1 are considered to be associated with fresh *M. indica* fruit and are regulated in international trade by at least one contracting party based on technical justification. The list of pests is not exhaustive, nor country specific.

The list of pests does not consider factors that may influence pest infestation of fruit in the country of origin (e.g. fruit cultivar or variety, geographical and ecological factors, general agricultural practices and production procedures).

Inclusion of a pest in Table 1 does not constitute technical justification for its regulation. When determining whether to regulate a pest listed in this commodity standard, an importing country should base its decision on technical justification using either a pest risk analysis or, where applicable, another comparable examination and evaluation of available scientific information.

**Table 1.** Pests considered to be associated with fresh *Mangifera indica* fruit\*

| Pest group                                      | Family         | Species (scientific name and authority) <sup>†</sup> |
|---|----------------|--|
| Weevils (Coleoptera)                            | Curculionidae  | <i>Sternochetus frigidus</i> (Fabricius, 1787)       |
|   |                | <i>Sternochetus mangiferae</i> (Fabricius, 1775)     |
|   |                | <i>Sternochetus olivieri</i> (Faust, 1892)           |
| Fruit flies (Diptera)                           | Tephritidae    | <i>Anastrepha distincta</i> Greene, 1934             |
|   |                | <i>Anastrepha fraterculus</i> (Wiedemann, 1830)      |
|   |                | <i>Anastrepha ludens</i> (Loew, 1873)                |
|   |                | <i>Anastrepha obliqua</i> (Macquart, 1835)           |
|   |                | <i>Anastrepha serpentina</i> (Wiedemann, 1830)       |
|   |                | <i>Anastrepha striata</i> Schiner, 1868              |
|   |                | <i>Bactrocera aquilonis</i> (May, 1965)              |
|   |                | <i>Bactrocera carambolae</i> Drew & Hancock, 1994    |
|   |                | <i>Bactrocera caryeae</i> (Kapoor, 1971)             |
|   |                | <i>Bactrocera correcta</i> (Bezzi, 1916)             |
|   |                | <i>Bactrocera curvipennis</i> (Froggatt, 1909)       |
|   |                | <i>Bactrocera dorsalis</i> (Hendel, 1912)            |
|   |                | <i>Bactrocera facialis</i> (Coquillett, 1909)        |
|   |                | <i>Bactrocera frauenfeldi</i> (Schiner, 1868)        |
|   |                | <i>Bactrocera jarvisi</i> (Tryon, 1927)              |
|   |                | <i>Bactrocera kirki</i> (Froggatt, 1911)             |
|   |                | <i>Bactrocera melanotus</i> (Coquillett, 1909)       |
|   |                | <i>Bactrocera neohumeralis</i> (Hardy, 1951)         |
|   |                | <i>Bactrocera occipitalis</i> (Bezzi, 1919)          |
|   |                | <i>Bactrocera passiflorae</i> (Froggatt, 1911)       |
|   |                | <i>Bactrocera psidii</i> (Froggatt, 1899)            |
|   |                | <i>Bactrocera tryoni</i> (Froggatt, 1897)            |
|   |                | <i>Bactrocera tuberculata</i> (Bezzi, 1916)          |
|   |                | <i>Bactrocera umbrosa</i> (Fabricius, 1805)          |
|   |                | <i>Bactrocera xanthodes</i> (Broun, 1904)            |
|   |                | <i>Bactrocera zonata</i> (Saunders, 1842)            |
|   |                | <i>Ceratitis capitata</i> (Wiedemann, 1824)          |
| <i>Ceratitis cosyra</i> (Walker, 1849)          |                |  |
| <i>Ceratitis rosa</i> Karsch, 1887              |                |  |
| <i>Zeugodacus cucurbitae</i> (Coquillett, 1899) |                |  |
| <i>Zeugodacus tau</i> (Walker, 1849)            |                |  |
| Mealybugs (Hemiptera)                           | Pseudococcidae | <i>Dysmicoccus neobrevipes</i> Beardsley, 1959       |

| Pest group                                    | Family                | Species (scientific name and authority) <sup>†</sup>  |
|---|-----------------------|---|
|   |                       | <i>Ferrisia malvastra</i> (McDaniel, 1962)  |
|   |                       | <i>Formicococcus robustus</i> (Ezzat & McConnell, 1956)   |
|   |                       | <i>Maconellicoccus hirsutus</i> (Green, 1908)   |
|   |                       | <i>Nipaecoccus nipae</i> (Maskell, 1893)  |
|   |                       | <i>Planococcus lilacinus</i> (Cockerell, 1905)  |
|   |                       | <i>Planococcus minor</i> (Maskell, 1897)  |
|   |                       | <i>Pseudococcus cryptus</i> Hempel, 1918  |
|   |                       | <i>Pseudococcus jackbeardsleyi</i> Gimpel & Miller, 1996  |
|   |                       | <i>Pseudococcus solenedyos</i> Gimpel & Miller, 1996  |
|   |                       | <i>Rastrococcus iceryoides</i> (Green, 1908)  |
|   |                       | <i>Rastrococcus invadens</i> Williams, 1986   |
|   |                       | <i>Rastrococcus rubellus</i> Williams, 1989   |
| <i>Rastrococcus spinosus</i> (Robinson, 1918) |                       |   |
| Whiteflies (Hemiptera)                        | Aleyrodidae           | <i>Aleurodicus dispersus</i> Russell, 1965  |
| Other Hemipterans                             | Coreidae              | <i>Acanthocoris scabrator</i> (Fabricius, 1803)   |
|   |                       | <i>Amblypelta nitida</i> Stål, 1873   |
|   | Pentatomidae          | <i>Bathycoelia thalassina</i> (Herrich-Schäffer, 1844)  |
| Moths (Lepidoptera)                           | Crambidae             | <i>Deanolis sublimbalis</i> Snellen, 1899   |
|   | Geometridae           | <i>Biston suppressaria</i> (Guenée, 1858)   |
|   | Limacodidae           | <i>Darna trima</i> (Moore, 1859)  |
| Thrips (Thysanoptera)                         | Thripidae             | <i>Retithrips syriacus</i> (Mayet, 1890)  |
|   |                       | <i>Rhipiphorothrips cruentatus</i> Hood, 1919   |
|   |                       | <i>Scirtothrips aurantii</i> Faure, 1929  |
|   |                       | <i>Thrips palmi</i> Karny, 1925   |
| Fungi   | <i>Incertae sedis</i> | <i>Cytosphaera mangiferae</i> Died., 1916   |
| Bacteria                                      | Lysobacteraceae       | <i>Xanthomonas citri</i> pv. <i>mangiferaeindicae</i> (Patel, Moniz & Kulkarni, 1948) Constantin <i>et al.</i> , 2016 |

Notes: \* Information used to compile this list was supplied by at least one contracting party and may be provided by the IPPC Secretariat upon request.

<sup>†</sup> Scientific names used in this table are based on the submissions by contracting parties, except for *Zeugodacus cucurbitae* and *Zeugodacus tau* (submitted as *Bactrocera cucurbitae* and *Bactrocera tau*, respectively) and *Bactrocera dorsalis* (which includes submissions for *Bactrocera philippinensis*).

#### 4. Options for phytosanitary measures

This section provides options for phytosanitary measures that may be relevant for the pests listed in Table 1. The options presented are not exhaustive and contracting parties may consider other options.

[Contracting parties shall institute only phytosanitary measures that are technically justified (Article VII.2 (g) of the IPPC).

Table 2 provides some options for phytosanitary measures that may be relevant to pests considered to be associated with the international movement of fresh *M. indica* fruit.

Table 3 provides some pest-specific options for phytosanitary measures that may be relevant for the pests listed in Table 1, with further details being provided in Table 4 to Table 8. When applying

phytosanitary measures, NPPOs should consider the parameters that are critical for the successful application of the measures. The NPPOs of importing countries should determine the level of risk reduction required to manage the general pest risk posed by regulated pests and evaluate whether options provided in this commodity standard meet this level before instituting these options as phytosanitary measures. National plant protection organizations should also consider whether applying a measure to manage the pest risk posed by a specific pest may manage the pest risk posed by other pests.

When considering the use of methyl bromide (Table 7), NPPOs should refer to the Commission on Phytosanitary Measures (CPM) recommendation on the *Replacement or reduction of the use of methyl bromide as a phytosanitary measure* (R-03). Where possible, alternative options to methyl bromide fumigation that are more environmentally friendly should be selected and applied by NPPOs.

Measures included in this commodity standard may be effective at managing pest risk when used alone or may only be effective when integrated with other measures in a systems approach as described in ISPM 14 (*The use of integrated measures in a systems approach for pest risk management*).

Options for phytosanitary measures included in this commodity standard meet the criteria in the core text of ISPM 46 (*Commodity-specific standards for phytosanitary measures*). Phytosanitary treatments (PTs) that have been adopted by the CPM as annexes to ISPM 28 (*Phytosanitary treatments for regulated pests*) are shown in bold in Table 3 to Table 8.

**Table 2.** General options for phytosanitary measures

| Options for phytosanitary measures                            | References   |
|---|--|
| Pest free areas   | ISPM 4 ( <i>Requirements for the establishment of pest free areas</i> )<br>ISPM 26 ( <i>Establishment of pest free areas for fruit flies (Tephritidae)</i> ) |
| Pest free places of production and pest free production sites | ISPM 10 ( <i>Requirements for the establishment of pest free places of production and pest free production sites</i> )                                       |
| Areas of low pest prevalence                                  | ISPM 22 ( <i>Requirements for the establishment of areas of low pest prevalence</i> )  |
| Systems approaches  | ISPM 14 ( <i>The use of integrated measures in a systems approach for pest risk management</i> )   |
| Phytosanitary treatments                                      | ISPM 28 ( <i>Phytosanitary treatments for regulated pests</i> )  |
| Inspection  | ISPM 23 ( <i>Guidelines for inspection</i> )   |
| Testing and pest identification                               | ISPM 27 ( <i>Diagnostic protocols for regulated pests</i> )  |
| Phytosanitary certification                                   | ISPM 7 ( <i>Phytosanitary certification system</i> )<br>ISPM 12 ( <i>Phytosanitary certificates</i> )  |

**Table 3.** Pest-specific options for phytosanitary measures

| Pest species                   | Options for phytosanitary measures |
|--------------------------------|------------------------------------|
| <b>Weevils</b>                 |                                    |
| <i>Sternochetus frigidus</i>   | IRDN 6; SA 1                       |
| <i>Sternochetus mangiferae</i> | IRDN 9; SA 1                       |
| <i>Sternochetus olivieri</i>   | IRDN 9; SA 1                       |
| <b>Fruit flies</b>             |                                    |
| <i>Anastrepha distincta</i>    | HWIT 2; IRDN 1; SA 2               |
| <i>Anastrepha fraterculus</i>  | HWIT 1, 2; IRDN 1; SA 2; VHT 2     |
| <i>Anastrepha ludens</i>       | HWIT 1; IRDN 1; SA 2               |
| <i>Anastrepha obliqua</i>      | HWIT 1, 2; IRDN 1; SA 2; VHT 2     |



| <b>Pest species</b>                | <b>Options for phytosanitary measures</b>                           |
|------------------------------------|---|
| <i>Anastrepha serpentina</i>       | HWIT 1, 2; <b>IRDN1</b> ; SA 2                                      |
| <i>Anastrepha striata</i>          | HWIT 1, 2; <b>IRDN 1</b> ; SA 2; VHT 2                              |
| <i>Bactrocera aquilonis</i>        | <b>IRDN 5</b> ; SA 2; <b>VHT 5, 6</b>                               |
| <i>Bactrocera carambolae</i>       | HWIT 4; <b>IRDN 5</b> ; SA 2; VHT 4, 7, 9                           |
| <i>Bactrocera caryeae</i>          | HWIT 4; <b>IRDN 5</b> ; SA 2  |
| <i>Bactrocera correcta</i>         | HWIT 4; <b>IRDN 5</b> ; <b>SA 2</b> ; VHT 4, 7, 9                   |
| <i>Bactrocera curvipennis</i>      | <b>IRDN 5</b> ; SA 2; VHT 7   |
| <i>Bactrocera dorsalis</i>         | HWIT 3, 4, 5, 6; <b>IRDN 4</b> ; MB 1; <b>SA 2</b> ; VHT 1, 4, 7, 9 |
| <i>Bactrocera facialis</i>         | <b>IRDN 5</b> ; SA 2; VHT 8   |
| <i>Bactrocera frauenfeldi</i>      | <b>IRDN 5</b> ; SA 2; <b>VHT 5, 6</b>                               |
| <i>Bactrocera jarvisi</i>          | <b>IRDN 3</b> ; SA 2; <b>VHT 5, 6</b>                               |
| <i>Bactrocera kirki</i>            | <b>IRDN 5</b> ; SA 2; VHT 8   |
| <i>Bactrocera melanotus</i>        | <b>IRDN 5</b> ; SA 2; VHT 8   |
| <i>Bactrocera neohumeralis</i>     | <b>IRDN 5</b> ; SA 2; VHT 4, 5                                      |
| <i>Bactrocera occipitalis</i>      | <b>IRDN 5</b> ; SA 2; VHT 1   |
| <i>Bactrocera passiflorae</i>      | <b>IRDN 5</b> ; SA 2; VHT 8   |
| <i>Bactrocera psidii</i>           | VHT 8; <b>IRDN 5</b> ; SA 2   |
| <i>Bactrocera tryoni</i>           | <b>IRDN 3</b> ; SA 2; <b>VHT 5, 6, 8</b>                            |
| <i>Bactrocera tuberculata</i>      | <b>IRDN 5</b> ; SA 2; VHT 4, 7, 9                                   |
| <i>Bactrocera umbrosa</i>          | VHT 6   |
| <i>Bactrocera xanthodes</i>        | <b>IRDN 5</b> ; SA 2; VHT 8   |
| <i>Bactrocera zonata</i>           | HWIT 4; <b>IRDN 5</b> ; SA 2; VHT 4, 7, 9;                          |
| <i>Ceratitis capitata</i>          | HWIT 1, 2, 3, 6; <b>IRDN 3</b> ; MB 1; SA 2; <b>VHT 2, 3, 5</b>     |
| <i>Ceratitis cosyra</i>            | HWIT 3, 6; <b>IRDN 5</b> ; MB 1; SA 2                               |
| <i>Ceratitis rosa</i>              | HWIT 3, 6; <b>IRDN 5</b> ; MB 1; SA 2                               |
| <i>Zeugodacus cucurbitae</i>       | <b>IRDN 5</b> ; SA 2; VHT 2, 4, 7, 9                                |
| <i>Zeugodacus tau</i>              | <b>IRDN 2</b> ; SA 2; VHT 4, 7 9                                    |
| <b>Mealybugs</b>                   |   |
| <i>Dysmicoccus neobrevipes</i>     | <b>IRDN 8</b> ; export inspection*                                  |
| <i>Ferrisia malvastra</i>          | IRDN 10; export inspection*   |
| <i>Formicococcus robustus</i>      | IRDN 10; SA 1; export inspection*                                   |
| <i>Maconellicoccus hirsutus</i>    | SA 1; export inspection;* official laboratory analysis <sup>†</sup> |
| <i>Nipaecoccus nipae</i>           | Export inspection*  |
| <i>Planococcus lilacinus</i>       | <b>IRDN 8</b> ; SA 1; export inspection*                            |
| <i>Planococcus minor</i>           | <b>IRDN 8</b> ; SA 1; export inspection*                            |
| <i>Pseudococcus cryptus</i>        | IRDN 10; SA 1; export inspection*                                   |
| <i>Pseudococcus jackbeardsleyi</i> | <b>IRDN 7</b> ; SA 1; export inspection*                            |
| <i>Pseudococcus solenedyos</i>     | IRDN 10; SA 1; export inspection*                                   |
| <i>Rastrococcus iceryoides</i>     | IRDN 10; SA 1; export inspection*                                   |

| <b>Pest species</b>                                    | <b>Options for phytosanitary measures</b> |
|--|---|
| <i>Rastrococcus invadens</i>                           | IRDN 10; SA 1; export inspection*         |
| <i>Rastrococcus rubellus</i>                           | IRDN 10; SA 1; export inspection*         |
| <i>Rastrococcus spinosus</i>                           | IRDN 10; SA 1; export inspection*         |
| <b>Whiteflies</b>                                      |   |
| <i>Aleurodicus dispersus</i>                           | Export inspection*                        |
| <b>Other hemipterans</b>                               |   |
| <i>Acanthocoris scabrator</i>                          | Export inspection*                        |
| <i>Amblypelta nitida</i>                               | Export inspection*                        |
| <i>Bathycoelia thalassina</i>                          | Export inspection*                        |
| <b>Moths</b>   |   |
| <i>Biston suppressaria</i>                             | Export inspection*                        |
| <i>Darna trima</i>                                     | Export inspection*                        |
| <i>Deanolis sublimalis</i>                             | IRDN 10; export inspection*               |
| <b>Thrips</b>  |   |
| <i>Retithrips syriacus</i>                             | Export inspection*                        |
| <i>Rhipiphorothrips cruentatus</i>                     | Export inspection*                        |
| <i>Scirtothrips aurantii</i>                           | Export inspection*                        |
| <i>Thrips palmi</i>                                    | Export inspection*                        |
| <b>Fungi</b>   |   |
| <i>Cytosphaera mangiferae</i>                          | SA 1                                      |
| <b>Bacteria</b>  |   |
| <i>Xanthomonas citri</i> pv. <i>mangiferae</i> indicae | SA 1                                      |

Notes: Options in bold are annexes to ISPM 28 (*Phytosanitary treatments for regulated pests*): these annexes are adopted by the Commission on Phytosanitary Measures (CPM); other treatments included in the table meet the criteria in ISPM 46 (*Commodity-specific standards for phytosanitary measures*) but are not adopted by the CPM.

\* Export inspection targeting the pest of concern and the application of a remedial action if the pest is detected.

† Samples taken during inspection are sent to an official laboratory for analysis and identification to species. If the pest is detected, a remedial action is applied to the affected consignment or the consignment is rejected for export.

HWIT, hot water immersion treatment (see Table 4); IRDN, irradiation (see Table 6); MB, methyl bromide fumigation (see Table 7); SA, systems approach (see Table 8); VHT, vapour heat treatment (see Table 5).

**Table 4.** Options for hot water immersion treatment (HWIT)

| <b>Measure number</b> | <b>Fruit weight (g)</b> | <b>Water temperature (°C)</b> | <b>Immersion time (minutes)</b> | <b>References*</b>                         |
|-----------------------|-------------------------|-------------------------------|---------------------------------|--|
| HWIT 1                | 0–375                   | 46.1                          | 65                              | APHIS-PPQ-ISMU (2023)                      |
|                       | 376–500                 | 46.1                          | 75                              |  |
|                       | 501–700                 | 46.1                          | 90                              |  |
|                       | 701–900                 | 46.1                          | 110                             |  |
| HWIT 2                | 0–425                   | 46.1                          | 75                              | MERCOSUR (2006)<br>MPI (n.d.)              |
|                       | 426–650                 | 46.1                          | 90                              |  |
| HWIT 3                | 0–500                   | 46.1                          | 75                              | Armstrong and Mangan (2007)<br>DAFF (n.d.) |
|                       | 501–700                 | 46.1                          | 90                              |  |
|                       | 701–900                 | 46.1                          | 110                             |  |

| HWIT 4         | 0–500<br>501–700<br>701–900 | 48.0<br>48.0<br>48.0        | 60<br>75<br>90              | APQA (2012, 2016)<br>DAFF (n.d.)     |
|----------------|-----------------------------|-----------------------------|-----------------------------|--------------------------------------|
| Measure number | Fruit weight (g)            | Fruit pulp temperature (°C) | Time (minutes) <sup>†</sup> | References                           |
| HWIT 5         | All                         | 46.0                        | 10                          | Srikachar, Damrak and Promkum (2018) |
| HWIT 6         | All                         | 50.0                        | 11                          | Zakariya and Alhassan (2014)         |

Notes: National plant protection organizations should also refer to ISPM 42 (*Requirements for the use of temperature treatments as phytosanitary measures*).

\* For each option, references listed in alphabetical order. Specific supporting information is not publicly available for all options listed. Where this information is not publicly available, related references are provided.

<sup>†</sup> Length of time that fruit pulp temperature should be maintained regardless of fruit size.

**Table 5.** Options for vapour heat treatment (VHT)

| Measure number | Minimum pulp temperature (°C) | Minimum relative humidity (%) | Minimum exposure time (minutes) | References  |
|----------------|-------------------------------|-------------------------------|---------------------------------|---|
| VHT 1          | 46.0                          | 95                            | 10                              | APHIS-PPQ-ISMU (2023)   |
| VHT 2          | 46.0                          | 90                            | 20                              | MAFF (2021)   |
| <b>VHT 3</b>   | <b>46.5</b>                   | <b>95</b>                     | <b>10</b>                       | <b>PT 30 (Vapour heat treatment for <i>Ceratitidis capitata</i> on <i>Mangifera indica</i>)</b> |
| VHT 4          | 46.5                          | 95                            | 30                              | APPPC (2021)  |
| VHT 5          | 47.0                          | 90                            | 15                              | DAFF (n.d.)   |
| <b>VHT 6</b>   | <b>47.0</b>                   | <b>95</b>                     | <b>15</b>                       | <b>PT 31 (Vapour heat treatment for <i>Bactrocera tryoni</i> on <i>Mangifera indica</i>)</b>    |
| VHT 7          | 47.0                          | 95                            | 20                              | APPPC (2021)<br>APQA (2019)   |
| VHT 8          | 47.2                          | 60                            | 20                              | APPPC (2021)<br>MPI (n.d.)<br>Waddell <i>et al.</i> (1993)                                      |
| VHT 9          | 47.5                          | 95                            | 20                              | APPPC (2021)  |

Notes: **PT**, phytosanitary treatment (annex to ISPM 28 (*Phytosanitary treatments for regulated pests*)): PTs are adopted by the Commission on Phytosanitary Measures (CPM); other treatments included in the table meet the criteria in ISPM 46 (*Commodity-specific standards for phytosanitary measures*) but are not adopted by the CPM.

National plant protection organizations should also refer to ISPM 42 (*Requirements for the use of temperature treatments as phytosanitary measures*).

For VHT 1–6 and VHT 8, fruit is treated in a vapour heat chamber, whereas for VHT 7 fruit is treated in a high temperature forced air chamber.

**Table 6.** Options for irradiation (IRDN)

| Measure number | Minimum absorbed dose (Gy) | References   |
|----------------|----------------------------|--|
| IRDN 1         | 70                         | PT 39 (Irradiation treatment for the genus <i>Anastrepha</i> ) |
| IRDN 2         | 72 or 85                   | PT 42 (Irradiation treatment for <i>Zeugodacus tau</i> )       |

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| IRDN 3   | 100 | PT 4 (Irradiation treatment for <i>Bactrocera jarvisi</i> )<br>PT 5 (Irradiation treatment for <i>Bactrocera tryoni</i> )<br>PT 14 (Irradiation treatment for <i>Ceratitis capitata</i> ) |
| IRDN 4   | 116 | PT 33 (Irradiation treatment for <i>Bactrocera dorsalis</i> )   |
| IRDN 5   | 150 | PT 7 (Irradiation treatment for fruit flies of the family Tephritidae (generic))  |
| IRDN 6   | 165 | PT 43 (Irradiation treatment for <i>Sternochetus frigidus</i> )   |
| IRDN 7   | 166 | PT 45 (Irradiation treatment for <i>Pseudococcus jackbeardsleyi</i> )   |
| IRDN 8   | 231 | PT 19 (Irradiation treatment for <i>Dysmicoccus neobrevipes</i> ,<br><i>Planococcus lilacinus</i> and <i>Planococcus minor</i> )  |
| IRDN 9   | 300 | APHIS-PPQ-ISMU (2023)   |
| IRDN 10* | 400 | APPPC (2021)  |

Notes: PT, phytosanitary treatment (annex to ISPM 28 (*Phytosanitary treatments for regulated pests*)): PTs are adopted by the Commission on Phytosanitary Measures (CPM); other treatments included in the table meet the criteria in ISPM 46 (*Commodity-specific standards for phytosanitary measures*) but are not adopted by the CPM.

National plant protection organizations should also refer to ISPM 18 (*Requirements for the use of irradiation as a phytosanitary treatment*).

\*IRDN 10 treatment excludes pupae and adults of the order Lepidoptera.

**Table 7.** Options for methyl bromide fumigation (MB) (applied under normal atmospheric pressure)

| Measure number | Minimum temperature (°C) | Minimum dose (g/m <sup>3</sup> ) | Minimum time (hours) | Reference  |
|----------------|--------------------------|----------------------------------|----------------------|------------|
| MB 1           | 21                       | 32                               | 2                    | DAC (2003) |

Note: National plant protection organizations should also refer to ISPM 43 (*Requirements for the use of fumigation as a phytosanitary measure*).

**Table 8.** Options for systems approaches based on ISPM 14 (*The use of integrated measures in a systems approach for pest risk management*)

| Systems approach number | Independent measures  | Reference   |
|-------------------------|---|---|
| SA 1                    | <i>Pre-harvest control measures</i> (e.g. pest-specific field management using pest control, disposal of fallen and infested fruit)<br><i>Harvest control measures</i> (e.g. field sanitation such as removal of infested fruit)<br><i>Post-harvest control measures</i> (e.g. washing and brushing; chemical dipping; treatment, targeted inspection and remedial action to remove external pests)   | APQA (2016)   |
| SA 2                    | <i>Pre-planting control measures</i> (e.g. area of low pest prevalence)<br><i>Growing period control measures</i> (e.g. chemical controls, sterile insect technique, mass trapping)<br><i>Harvest control measures</i> (e.g. harvest at mature green stage)<br><i>Post-harvest and handling control measures</i> (e.g. activities to prevent infestation, treatments)<br><i>Transportation and distribution control measures</i> (e.g. activities to prevent infestation) | ISPM 35 ( <i>Systems approach for pest risk management of fruit flies (Tephritidae)</i> ) |

|  |   |  |
|--|---|--|
|  | Control measures applied at several or all stages (e.g. community awareness programme, control on movement of host fruit into the area) |  |
|--|---|--|

Note: National plant protection organizations should also refer to ISPM 14.

## 5. References

The present annex may refer to ISPMs. ISPMs are available on the International Phytosanitary Portal (IPP) at <https://www.ippc.int/core-activities/standards-setting/ispms>.

### 5.1 Main text

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## Appendix 5: Draft annex to ISPM 39 (*International movement of wood*): Use of systems approaches in managing the pest risk associated with the movement of wood (2015-004), priority 3

### Status box

|  |   |
|--|---|
| This is not an official part of the standard and it will be modified by the IPPC Secretariat after adoption. |   |
| <b>Date of this document</b>   | 2024-06-07  |
| <b>Document category</b>   | Draft annex to ISPM 39  |
| <b>Current document stage</b>  | To second consultation  |
| <b>Major stages</b>  | 2017-04 CPM-12 added topic <i>Use of systems approaches in managing risks associated with the movement of wood commodities</i> (2015-004), priority 3.<br>2018-11 Standards Committee (SC) approved Specification 69 ( <i>Use of systems approaches in managing the pest risks associated with the movement of wood</i> ).<br>2022-06 Expert working group drafted the annex.<br>2023-05 SC revised and approved for consultation.<br>2023-07 First consultation.<br>2024-05 SC-7 revised and approved for second consultation. |
| <b>Steward history</b>   | 2021-11 SC Steve CÔTÉ (CA, Lead Steward)<br>2022-05 SC Harry ARIJS (EU, Assistant Steward)<br>2021-11 SC Sophie PETERSON (AU, Assistant Steward)<br>2019-05 SC Rajesh RAMARATHNAM (CA, Lead Steward)  |
| <b>Notes</b>   | 2022-07 Edited<br>2023-05 Edited<br>2024-06 Edited  |

This annex was adopted by the XXX Session of the Commission on Phytosanitary Measures in XXX 20XX.

The annex is a prescriptive part of the standard.

## INTRODUCTION

### Scope

This annex provides guidance to national plant protection organizations (NPPOs) on the use, within the context of a wood-commodities systems approach, of specific integrated measures that, when applied together, reduce the pest risk posed by quarantine pests associated with the international movement of wood. This annex applies to the wood of gymnosperms and angiosperms as described in the core text of this standard.

This annex relates to quarantine pests associated with wood and to specific locations within the wood. It identifies examples of specific practices, procedures and regulatory actions that may be applied as integrated measures in a systems approach, from pre-planting to post-import of wood, to meet phytosanitary import requirements. It also details the documentation required to demonstrate that measures have been applied. The responsibilities of NPPOs and participating entities in developing the systems approach, implementing the systems approach and supervising the implementation are described.

### Background

Countries predominantly rely on treatments and processing to manage the pest risk associated with the movement of wood commodities across their borders. A systems approach is an alternative to a single phytosanitary measure, such as a treatment, or can replace more restrictive phytosanitary measures, such

as prohibition. A systems approach may also provide countries with additional opportunities to facilitate or expand trade while effectively managing pest risk.

Any systems approach for wood should be developed in accordance with ISPM 14 (*The use of integrated measures in a systems approach for pest risk management*).

## REQUIREMENTS

### 1. Developing a wood-commodities systems approach

Development of a wood-commodities systems approach requires knowledge of the biology of the pest or pests associated with the wood commodity or commodities (Appendix 1 to this annex), the production chain of the commodity or commodities, any post-harvest treatments or processing that have been applied, and the associated pest risk. Specific practices, procedures and regulatory actions to be included as measures in the systems approach should be effective and feasible. The selection of the measures in the systems approach should be agreed between the NPPO of the importing country and the NPPO of the exporting country.

During the long production cycle of wood, the pest status of the relevant area can change. This means that some measures (e.g. those applied before planting or during a plant's early growth) may be less relevant in a systems approach for wood commodities than in systems approaches for other commodities. Therefore, good forestry practice should be one of the basic requirements for implementing a wood-commodities systems approach. Pest free areas established to manage one pest on the pathway may not manage all pests for which the pest risk needs to be reduced. However, pest free areas may be components of a wood-commodities systems approach (see also ISPM 14) to meet the phytosanitary import requirements of an importing country.

### 2. Practices, procedures and regulatory actions that can reduce pest risk

Practices, procedures and regulatory actions that can reduce pest risk, relating to activities in an exporting country from pre-planting to transport, are described in Table 1. These may be included in a systems approach.

**Table 1.** Examples of pre-import practices, procedures and regulatory actions that may be used in a wood-commodities systems approach

| <b>Pre-planting</b>   |   |
|---|---|
| <b>Site selection</b>   | Pre-planting assessments, including determining the site suitability for the host species and pests of concern, may be used to avoid planting in unsuitable conditions.   |
| <b>Drainage</b>   | Tillage to improve drainage before planting can reduce pest populations and soil-borne diseases.  |
| <b>Species selection</b>  | Planting species and cultivars of trees that are appropriate for the particular geographical region, soil and climatic conditions can reduce plant stress and susceptibility to pests. Planting forests with mixed species rather than using pure stands or clonal trees can reduce the vulnerability of forests to pests.  |
| <b>Use of resistant genotypes</b>   | Planting genotypes that are resistant to certain pests, selected for the environmental conditions of the planting location, can reduce infestation.   |
| <b>Pest free areas or areas of low pest prevalence (section 2.5 of this standard)</b> | Pest risk can be reduced by establishing pest free areas or areas of low pest prevalence as described in ISPM 4 ( <i>Requirements for the establishment of pest free areas</i> ), ISPM 10 ( <i>Requirements for the establishment of pest free places of production and pest free production sites</i> ) and ISPM 22 ( <i>Requirements for the establishment of areas of low pest prevalence</i> ). |
| <b>Pre-harvest</b>  |   |
| <b>Silvicultural practices</b>  | Planning and operational practices that can result in pest risk reduction may be applied to both planted and naturally regenerated forests. Post-planting   |



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|   | assessments may be conducted to regularly review the progress of planted seedlings. Pruning may be carried out to remove unhealthy or infested branches. Thinning may be used to improve spacing, reduce competition and improve plant health. Similarly, roguing (routine removal of trees that exhibit evidence of pest infestation, off-type characteristics or undesirable traits) reduces pest levels, improves harvest quality and reduces the risk of exporting infested wood. Well-planned and managed forests provide an opportunity to improve and monitor tree health while optimizing timber production.   |
| <b>Field inspection (section 2.4 of this standard)</b>                                | Data from field inspections (e.g. observations of pests or signs of pests) may be used to identify infested trees and guide harvest-planning decisions and to help ensure that infested trees are not selected for export.   |
| <b>Surveillance</b>   | Surveillance may be used in the establishment and recognition of pest free areas and allows for early detection and intervention in case of an event of pest outbreak. Surveillance should be conducted in accordance with ISPM 6 ( <i>Surveillance</i> ).   |
| <b>Application of semiochemicals</b>  | Semiochemicals may be used to reduce pest populations (via techniques such as trapping as well as pest-mating disruption) or to check for pest presence to ensure early detection. Anti-aggregation pheromones (chemical substances that interrupt pest aggregation on a host) may be used to reduce pest populations or protect healthy tree stands that may be susceptible to pests.   |
| <b>Pesticides</b>   | Pesticides may be used to reduce pest-population density.  |
| <b>Biological control</b>   | Biological control agents may be used to reduce pest-population density.   |
| <b>Pest free areas or areas of low pest prevalence (section 2.5 of this standard)</b> | To confirm the maintenance of a pest free area or area of low pest prevalence, the pest status in the area should be verified in accordance with ISPM 4 (for pest free areas), ISPM 10 (for pest free places of production and pest free production sites) or ISPM 22 (for areas of low pest prevalence).  |
| <b>Harvest</b>  |  |
| <b>Timing of harvest</b>  | In some situations, infestation by a particular pest can be reduced by altering the timing of the harvest. To find out whether this is possible, the risk analyst needs to understand the biology of the pest. Some pests, such as bark beetles and ambrosia beetles, are seasonal in temperate forests. For a seasonal pest, it may be feasible to identify the ideal timing of harvest to reduce levels of attack by the pest and therefore infestation. This may not be possible in tropical forests. In tropical forests, pests can have multiple overlapping generations throughout the year or year-round activity with peak levels of activity in the dry or wet season. The age of the trees at harvest can also be a factor that affects pest levels. |
| <b>Post-harvest</b>   |  |
| <b>Rapid removal and timely transport of harvested round wood</b>                     | Round wood can be susceptible to infestation after it has been harvested. The season of harvest, the length of time that the round wood remains in the forest after harvesting, and the length of time that it takes to transport the wood to the processing facility or holding yard can influence post-harvest infestation. Rapid removal and timely transport can therefore reduce infestation. In geographical regions where the temperature during harvest, post-harvest, transport and storage is below –15 °C, the cold temperature may reduce the pest risk. This may be considered a treatment during storage.  |
| <b>Examination for pests during volume and quality determination</b>                  | To reduce the quantity of infested wood entering the production chain, round wood may be examined for evidence of pests during the process of scaling and grading.   |
| <b>Application of semiochemicals</b>  | Anti-aggregation pheromones, if available, may be used to repel pests from places of natural disturbance (e.g. windthrows) or logging and storage areas.   |
| <b>Protection of round wood after harvest</b>   | Protection of round wood after harvest (e.g. storing in water, sprinkling with water, insect nets) may be used to prevent post-harvest infestations by bark beetles and wood borers.   |
| <b>Removal of bark (section 2.1 of this standard)</b>                                 | Removal of bark substantially reduces the number of pests inhabiting the outer surface and those found directly beneath the bark. Bark removal can prevent post-harvest infestation by some wood-pest species.   |
| <b>Removal of branches (or boughs)</b>  | Branch (or bough) removal can be an effective method to reduce infestation by pests of foliage and twigs, preventing the movement of those pests.  |

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| <b>Washing or water-blasting</b>  | Washing or water-blasting can remove pests and soil.   |
| <b>Processing and treatment</b>   |  |
| <b>Rapid processing of round wood</b>   | Rapid processing of wood after harvest can reduce infestation.   |
| <b>Removal of bark (section 2.1 of this standard)</b>                                 | Removal of bark substantially reduces the number of pests inhabiting the outer surface and those found directly beneath the bark. Bark removal can also prevent post-harvest infestation by some wood-pest species.  |
| <b>Sawing and planing wood (section 1.2 of this standard)</b>                         | Sawing removes most of the bark as well as some of the outer wood, eliminating pests living in or just under the bark. Sawn wood with rounded edges resulting from the curvature of the round wood poses a greater pest risk than square-edged sawn wood, as a larger percentage of the wood just below the surface of the bark is included. The process of sawing wood can destroy insect pests present in the wood and render it less suitable for pest survival. The presence or absence of bark and the thickness of a piece of sawn wood affect pest risk. Planing reduces the dimensions of sawn wood and may be used to remove residual bark.   |
| <b>Quality control of sawn wood</b>   | During grading of sawn wood and quality control, wood with insect galleries or fungal infection may be removed from the production chain or marked for treatment.  |
| <b>Inventory and contamination management</b>   | Post-harvest inventory management and keeping storage and processing areas free of pests, wood debris and soil play an important role in reducing infestation. Segregation of wood into different pest risk categories at appropriate stages of the production chain may be an important component of a systems approach.  |
| <b>Pest free areas or areas of low pest prevalence (section 2.5 of this standard)</b> | Pest risk can be reduced by processing wood commodities in pest free areas or areas of low pest prevalence. To confirm the maintenance of a pest free area or an area of low pest prevalence, the pest status in the area should be verified in accordance with ISPM 4 (for pest free areas), ISPM 10 (for pest free places of production and pest free production sites) or ISPM 22 (for areas of low pest prevalence).   |
| <b>Surveillance</b>   | Surveillance using traps may be conducted within and around a storage and processing facility. Surveillance should be conducted in accordance with ISPM 6.   |
| <b>Lighting</b>   | Lighting used in storage areas can be very attractive to wood pests. Use of lighting frequencies that are less attractive to wood pests or push-pull lighting to divert pests can reduce infestation.  |
| <b>Visual examination of wood commodities</b>   | Visual examination may be used to identify specific signs or symptoms of pests and determine if measures applied have been effective. The size and disposition of the wood commodities and the cryptic nature of some pests can, however, make visual examination challenging.   |
| <b>Chipping (section 1.3.1 and section 2.3 of this standard)</b>                      | <p>The pest risk associated with wood chips varies depending on the tree species, presence of pests in the original material, bark content, chip size and intended use (i.e. fuel, landscape mulch, or pulp for fibre production). Commercial specifications for chip quality related to specific intended uses may be used to reduce pest risk. For example, chips for fibre production have minimal bark, consistent moisture content and uniform shape and size, resulting in low pest risk for some pests compared with chips used as a bioenergy source that can have greater variation in size and can contain bark.</p> <p>The process of wood chipping or grinding is lethal to many insect pests; the process can destroy living organisms or disrupt the host material so that the insect cannot complete its life cycle. Chipping into small pieces is an effective method of reducing populations of wood borers (e.g. cerambycids) in wood chips. Chip piles can generate heat to destroy pests if managed correctly.</p> |
| <b>Heat treatment (section 2.2 of this standard)</b>                                  | Heat treatment involves heating wood to kill, or otherwise cause sublethal effects. Heat treatment does not necessarily involve moisture reduction. Types of heat treatments include, but are not limited to, steam, hot-water bath and vacuum-steam heating, kiln-heating, solar heating, joule heating and dielectric (microwave or radio-frequency) heating.  |

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|   | Technical standards for heat treatment schedules should be established and facilities approved by NPPOs in accordance with ISPM 42 ( <i>Requirements for the use of temperature treatments as phytosanitary measures</i> ).   |
| <b>Air-drying (section 2.2 of this standard)</b>                    | Air-drying wood to the equilibrium moisture content can prevent some pests from completing their life cycle and make it unattractive for some pests, because of the reduction in moisture content.  |
| <b>Kiln-drying (section 2.2 of this standard)</b>                   | Kiln-drying can prevent some pests from completing their life cycle in wood commodities, because of the heat exposure and reduction in moisture content.  |
| <b>Irradiation (section 2.2 of this standard)</b>                   | Irradiation may be used as a pest risk reduction measure during or after processing of wood commodities. Irradiation should be applied in accordance with ISPM 18 ( <i>Requirements for the use of irradiation as a phytosanitary measure</i> ).  |
| <b>Fumigation (section 2.2 of this standard)</b>                    | Fumigation may be used as a pest risk reduction measure to treat wood commodities. Some phytosanitary treatments using fumigants are described in ISPM 28 ( <i>Phytosanitary treatments for regulated pests</i> ) and some are described in ISPM 15 ( <i>Regulation of wood packaging material in international trade</i> ). Fumigation should be applied in accordance with ISPM 43 ( <i>Requirements for the use of fumigation as a phytosanitary measure</i> ).  |
| <b>Spraying or dipping</b>  | Wood commodities may be treated with anti-fungal sap-stain chemical spray or dips to prevent the growth of stain fungi on logs or sawn wood (see Appendix 2 of this standard).  |
| <b>Modified atmosphere treatment (section 2.2 of this standard)</b> | Wood commodities may be exposed to a modified atmosphere as a pest risk reduction measure (see Appendix 2 of this standard). Modified atmosphere treatment should be applied in accordance with ISPM 44 ( <i>Requirements for the use of modified atmosphere treatments as phytosanitary measures</i> ).  |
| <b>Pre-dispatch</b>   |   |
| <b>Limiting the storage time</b>                                    | Dispatching wood commodities within a specified time frame that limits the storage time reduces opportunities for post-harvest infestation.   |
| <b>Storage-area segregation</b>                                     | Wood commodities may be segregated or stored in a manner designed to prevent infestation. This may be achieved by covering, containerizing, or storing in buildings where pheromone traps are deployed.   |
| <b>Storage-area cleanliness</b>                                     | Keeping storage areas free from pests, wood debris and soil can help to prevent infestation of commodities and may therefore be included as a component of a systems approach.  |
| <b>Pre-dispatch protection</b>                                      | A storage enclosure can be very effective at protecting wood commodities from infestation before dispatch. As contact with the ground can risk commodities becoming infested with soil-borne pests, storing commodities on cement pads or raised platforms can be beneficial. Surveillance, or regular checks for pests combined with measures to prevent or deter pests (e.g. host removal, reduction or altering of facility lighting, pesticide application, use of nets (including those treated with insecticide), wrapping in protective material), may be used to protect wood commodities during storage and loading. |
| <b>Water application</b>  | Round wood may be sprinkled with water in storage areas (where appropriate) to reduce insect infestation and water pressure-washing may be used to remove pests, soil and debris.   |
| <b>Timing of dispatch</b>   | Dispatching wood commodities only when pests are inactive and applying a pest risk reduction measure upon arrival in the importing country can be effective in reducing pest risk. The timing of dispatch should be based on biological data and technical justification.   |
| <b>Verification of pest presence or absence</b>                     | Outer perimeter push-pull systems with anti-aggregation and aggregation pheromones and traps may be used to verify pest presence or absence in a storage area and to manage some insect pests. With NPPO oversight, this may be considered surveillance and should be conducted in accordance with ISPM 6.  |
| <b>Packaging</b>  | Packaging (including wrapping) may be used to prevent infestation, contamination and damage by the weather before and during transport.   |

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| <b>Pre-dispatch sampling and inspection (section 2.4 of this standard)</b> | To ensure that the phytosanitary import requirements of the importing country are met, sampling and inspection may be conducted at various points within a systems approach.   |
| <b>Chemical treatment</b>  | To prevent pests from infesting processed wood commodities, chemical treatments may be applied.  |
| <b>Sampling and laboratory testing (section 2.4 of this standard)</b>      | When the identity of microscopic organisms such as fungi and nematodes on the outer surfaces of wood, or within the wood, cannot be confirmed through inspection, wood tissues may be collected according to methods approved by NPPOs and the pest species determined in the laboratory.  |
| <b>Transport</b>   |  |
| <b>Protection during transport</b>   | Wood commodities may be protected during transport (e.g. by covering them, wrapping them, or sealing them in closed containers) to reduce infestation by pests during transport.   |
| <b>Phytosanitary treatment during transport</b>                            | Wood commodities may be treated in either containers or ship holds while in transit. The type of treatment that is appropriate depends on the type of container required or available, the expertise needed, shipping laws (including occupational and health requirements), the wood commodities being transported and the importing country's phytosanitary import requirements. |
| <b>Planned transport routes</b>  | The choice of transport route can affect pest risk. Pest risk may be reduced by choosing a route based on the known distribution and phenology of pests associated with the wood commodities being transported and the weather and climatic conditions during transit.   |
| <b>Cleaning conveyances</b>  | Conveyances may be cleaned before loading or after unloading to reduce infestation of wood commodities by pests from previous cargoes.   |

Notes: NPPO, national plant protection organization.

ISPMs are available at <https://www.ippc.int/core-activities/standards-setting/ispm>.

When applicable and feasible, some of the practices, procedures or regulatory actions described in Table 1 may be applied as post-import measures. In addition, practices, procedures or regulatory actions that are specific to the post-import part of the production chain may be employed as components of the systems approach, if agreed by the NPPO of the importing country and the NPPO of the exporting country (Table 2).

**Table 2.** Examples of post-import practices, procedures and regulatory actions that may be used in a wood-commodities systems approach

|   |   |
|---|---|
| <b>Storage in an importing country</b>                    | A systems approach may include provisions for wood-commodity storage that are designed to prevent pest escape, infestation, and contamination of storage areas.   |
| <b>Treatment on arrival</b>                               | Treatment on arrival may be included as part of a systems approach.   |
| <b>Inspection on arrival</b>                              | Inspection on arrival may be used to verify that wood commodities meet the phytosanitary import requirements of the importing country. Inspections should be conducted in accordance with ISPM 23 ( <i>Guidelines for inspection</i> ).   |
| <b>Limiting intended use (section 3 of this standard)</b> | The intended uses of the wood commodities being imported may be stipulated in a systems approach. The systems approach may be set up for a particular intended use, such as wood chipping (as wood chipping effectively reduces potential infestation by wood borers), and this intended use may determine the measures to be applied along the production chain and result in a different pest risk compared to other intended uses.<br><br>The wood commodity may be suitable for storage and processing within a certain time frame on arrival via an NPPO-approved system for a particular pest (e.g. chipping and pelleting of wood on arrival). |
| <b>Limiting points of entry and distribution</b>          | Specific points of entry or restrictions on the distribution of wood commodities after import (e.g. permitting initial movement only to a treatment facility) may be stipulated in a systems approach. The importing country shall publish a list of such points of entry (Article VII.2(d) of the IPPC).   |

### **3. Designing a wood-commodities systems approach**

When designing a systems approach, the NPPO of the exporting country should select appropriate practices, procedures and regulatory actions, for example from those described in Table 1 and Table 2, and propose these to the NPPO of the importing country along with an explanation of how these practices, procedures and regulatory actions would reduce the pest risk associated with wood commodities to meet the phytosanitary import requirements of the importing country. The NPPO of the importing country should evaluate whether the proposed measures meet their phytosanitary import requirements. The NPPO of the importing country may request scientific evidence from the NPPO of the exporting country regarding the effectiveness and feasibility of the proposed measures.

Consideration of best practices and standards used by industry to produce wood commodities may promote the development of the systems approach in a way that is feasible for, and acceptable to, both the exporting and the importing country. Industry has experience and an in-depth understanding of the wood production chain, and NPPOs are encouraged to engage industry in the early stages of the development of the systems approach.

### **4. Responsibilities for implementation of a wood-commodities systems approach**

#### **4.1 Responsibilities of NPPOs**

The responsibilities of the NPPOs participating in a systems approach are described in ISPM 14. In addition, for a wood-commodities systems approach the responsibilities should include, but are not limited to, the following:

- communicating the phytosanitary import requirements of the importing country and the requirements, specifically, of the wood-commodities systems approach, to all participating entities;
- documenting and agreeing to compliance procedures;
- determining the necessary corrective actions and conducting follow-up audits when nonconformities have been detected;
- reviewing the requirements or the design of the systems approach to address nonconformities, in order to prevent recurrence of the failures identified;
- confirming whether the importing country requires entities to be authorized to participate in the systems approach;
- ensuring that entities participating in the systems approach are authorized in accordance with ISPM 45 (*Requirements for national plant protection organizations if authorizing entities to perform phytosanitary actions*), if authorization is required by the importing country; and
- ensuring that the systems approach is audited in accordance with ISPM 47 (*Audit in the phytosanitary context*).

#### **4.2 Responsibilities of entities participating in the systems approach**

The authorized entities participating in the systems approach, whether in the importing or exporting country, should conform with the requirements of ISPM 45.

### **5. Documentation**

To facilitate the successful implementation and effective communication of a wood-commodities systems approach, documents should include a description of the NPPOs' requirements for the systems approach, the procedures for implementing the systems approach and the records of its implementation.

## 5.1 Description of systems approach requirements

National plant protection organizations should produce a description of the requirements for the systems approach. This description should cover aspects including, but not limited to:

- the scope and purpose of the systems approach;
- the measures to be applied;
- the responsibilities of the NPPOs and participating entities; and
- traceability.

## 5.2 Implementation procedures documented by participating entities and NPPOs

Documented procedures, for example production manuals or standard operating procedures, should describe the actions, elements, processes and operational systems that make up the measures applied by participating entities and NPPOs. The documented procedures should include:

- a description of the organizational structure and responsibilities of the personnel involved in implementing the systems approach;
- training procedures used to ensure the competency of personnel responsible for implementing the systems approach;
- a description of the measures (e.g. measures selected from Table 1 and Table 2), how they will be applied as part of the systems approach, and how they meet the phytosanitary import requirements of the importing country;
- procedures associated with maintaining records of the measures applied in the systems approach and ensuring traceability; and
- procedures used to record, address and correct nonconformities that may occur (e.g. corrective actions).

## 5.3 Records that demonstrate implementation

National plant protection organizations and participating entities should record the measures that have been applied in implementing the systems approach and should retain these records to demonstrate the implementation of the systems approach. The retention time of these records should be agreed between the NPPO of the importing country and the NPPO of the exporting country.

## 6. Traceability

Participating entities in a systems approach should ensure that adequate records are retained to allow traceability in relation to all critical control points along the wood-commodities production chain. These records should be retained in the exporting country for those measures that are applied pre-export or during transit, and in the importing country for the measures undertaken in the importing country.

## 7. Evaluating the effectiveness of a wood-commodities systems approach and its component measures

Guidance on evaluation methods can be found in ISPM 14.

## 8. Further reading

Information to support the implementation of this standard may be available on the IPP at <https://www.ippc.int/en/about/core-activities/capacity-development/guides-and-training-materials/>.

**NAPPO (North American Plant Protection Organization)**. 2018. *Use of systems approaches to manage pest risks associated with the movement of forest products*. Regional Standard for Phytosanitary Measures (RSPM) No. 41. Raleigh, USA, NAPPO Secretariat. 54 pp. [https://nappo.org/application/files/8715/8352/3001/RSPM\\_41-10-22-18-e.pdf](https://nappo.org/application/files/8715/8352/3001/RSPM_41-10-22-18-e.pdf)

This appendix is for reference purposes only and is not a prescriptive part of the standard.

## APPENDIX 1 TO ANNEX [X]: Major wood pests grouped according to where they live and reproduce

Pests associated with trees can be grouped according to the plant tissues they use to live and reproduce. They include pests that live and reproduce in the following locations: on, in or just under the surface bark; in wood tissue under the bark; and in foliage and twigs.

### Pests on or in the bark or just under the bark in the cambium

Certain species of insects, fungi and nematodes live on or in the bark or immediately under the bark in the cambium:

- **Bark beetles** (Coleoptera: Curculionidae: Scolytinae, except Corthylini, Xyleborini and Xyloterini) – The members of this highly diverse subfamily spend most of their life cycle under the bark of their host trees, foraging on the inner bark and phloem.
- **Scale insects, mites, aphids, adelgids, non-woodboring moths and wasps** – These pests may be present on or in the bark or immediately under the bark in the cambium.
- **Fungi and oomycetes** (e.g. *Phytophthora* species) – Many fungal pests, including stem rusts and canker fungi, grow and sporulate in close association with bark and phloem tissues. These pests may be present on the outer surfaces of some wood commodities.
- **Nematodes** – Pathogenic nematodes may be found just under the bark (e.g. phoretic nematodes associated with beetles may be found in the inner bark layer).

### Pests associated primarily with wood tissue under the bark

Certain species of insects, fungi and nematodes live primarily in wood tissue under the bark:

- **Ambrosia beetles** (Coleoptera: Curculionidae: Scolytinae (Corthylini, Xyleborini, Xyloterini) and Platypodinae) – These beetles may be found in the inner bark, phloem and xylem.
- **Wood borers** (Coleoptera: Cerambycidae, Curculionidae, Buprestidae; Diptera: Pantophthalmidae; Hymenoptera: Siricidae; Lepidoptera: Cossidae and Sesiiidae; and Isoptera) – Most of the life stages of these insects occur in the phloem and xylem.
- **Fungi** – Many species of fungi inhabit the woody portion (xylem) of tree stems. The success, location and extent of fungal colonization is largely governed by the nutritional requirements of the fungi, the physical characteristics of the wood (chemical composition, cell structure, etc.), the wood moisture, the temperature and the presence of competing organisms. Decay fungi and vascular wilt fungi may be present throughout the xylem or, depending on the species, may be restricted to the sapwood or heartwood. Most canker and rust infections of stem wood are restricted to the outer several centimetres of wood.
- **Nematodes** – Pathogenic nematodes (Nematoda: e.g. *Bursaphelenchus cocophilus* (Cobb, 1919) Baujard, 1989, *Bursaphelenchus xylophilus* (Steiner & Bühner, 1934) Nickle, 1970) live primarily in the sapwood, specifically in the xylem.

### Pests primarily associated with foliage and twigs

Although foliage and twigs are not a major wood commodity, many forest pests live and reproduce in these plant tissues, either exclusively or at certain points in their life cycle:

- Pests that live in and on foliage may include, but are not limited to, adelgids, ants, aphids, flies, moths, nematodes, scale insects and wasps.
- Twig borers may be found in small branches that are large enough to allow these pests to complete their life cycle.
- Spores of fungi and fungus-like organisms may be present on outer surfaces, as on all other forest commodities.