



REPORT

Standards Committee Meeting

**Rome, Italy
08–12 May 2023**

IPPC Secretariat

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1. Opening of the meeting

1.1 Welcome by the IPPC Secretariat

- [1] The IPPC Standard Setting Unit (SSU) lead, Avetik NERSISYAN, opened the Standards Committee (SC) meeting and welcomed all participants. Later in the meeting, the IPPC Secretary, Osama EL-LISSY, addressed the SC and thanked them for their contribution towards the mission of the IPPC.
- [2] The SC noted the absence of Abdelmoneem Ismael ADRA ABDETAM (Sudan), Xiaodong FENG (China), Matías GONZALEZ BUTTERA (Argentina), Maryam Jalili MOGHADAM (Islamic Republic of Iran) and Theophilus Mwendwa MUTUI (Kenya).

2. Meeting arrangements

2.1 Election of the rapporteur

- [3] The SC elected Steve CÔTÉ (Canada) as rapporteur.

2.2 Adoption of the agenda

- [4] The SC adopted the agenda (Appendix 1), agreeing to consider agenda item 8.1 (CPM-17 outcomes relevant to the SC) immediately before agenda item 4 and to confirm SC-7 participation under agenda item 10 (Any other business). The SC agreed that the agenda would be adjusted on the final day, 12 May, to allow SC members to attend the celebration of the International Day of Plant Health.

3. Administrative matters

- [5] The IPPC Secretariat (hereafter referred to as “the secretariat”) introduced the documents list (Appendix 2) and the participants list (Appendix 3), and invited participants to notify the secretariat of any information that required updating in the latter or was missing from it.
- [6] The secretariat provided a document on local information.¹ Members of the SC members were invited to refresher training at lunchtime.
- [7] The SSU lead introduced the SSU staff and explained some changes in staffing.² He thanked Australia for their in-kind contribution starting in October 2022.

4. Draft ISPMs for approval for first consultation

4.1 Reorganization and revision of pest risk analysis standards (2020-001), priority 1

- [8] The Steward, Masahiro SAI (Japan), introduced the draft ISPM and supporting documentation.³ The standard drafted by the expert working group (EWG) had been reviewed by the SC via the Online Comment System (OCS) from 1 March to 22 March 2023. The steward outlined the issues that had been highlighted for consideration by the SC during the OCS review and explained that he had revised the draft ISPM based on the comments received.
- [9] The SC reviewed the draft standard, considering Annex 3 in more detail than the other parts of the draft standard as this was not derived from adopted standards and had never been subjected to consultation.

¹ Local information for participants: www.ippc.int/en/work-area-publications/91735

² Standard Setting Unit staff (2023-02-28): www.ippc.int/en/publications/2463

³ 2020-001_intoOCS_TC; 2020-001; 04_SC_2023_May; 09_SC_2023_May; Specification 72: www.ippc.int/en/publications/90498; EWG meeting report: www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/expert-working-groups

Review of core text

- [10] **Documentation.** The SC agreed that the documentation of procedures need not be an obligation on national plant protection organizations (NPPOs), because NPPOs may simply use the pest risk analysis (PRA) standard itself.

Review of Annex 1 (Initiation) and Annex 2 (Pest risk assessment)

- [11] **Level of revision.** The SC recalled their discussion in 2021, where they had approved Specification 72 (*Reorganization and revision of pest risk analysis standards*).⁴ At that meeting, the level of revision to text drawn from ISPM 2 (*Framework for pest risk analysis*) and ISPM 11 (*Pest risk analysis for quarantine pests*) had been discussed but it had been agreed, for pragmatic reasons, that the scope of the specification should not extend to substantial revisions, although the EWG could identify parts of the text requiring greater clarity or improvement. The secretariat confirmed that the EWG had taken care to stay within the scope of the specification.
- [12] **Pest categorization criteria.** The SC moved the criteria for a quarantine pest from the end of Annex 1 to the pest categorization section of Annex 2, as this was a more logical place for it.

Review of Annex 3 (Pest risk management)

- [13] **Examples of phytosanitary measures.** The SC had an extensive discussion on the section providing examples of phytosanitary measures, including inter-sessional discussions for interested SC members to progress the text. Much of the discussion centred around how best to structure the section and what constituted a treatment.
- [14] The SC agreed that the heading for the section should refer to “pest risk management options” rather than “phytosanitary measures”, as the measures concerned were only options at this stage in the PRA process. The SC considered whether to separate pre-harvest options from post-harvest options or official measures from non-official measures but noted that there was no need to distinguish between official and non-official measures because pest risk management options were all measures that would, if selected, be official. The SC therefore restructured the section to follow the various steps of the production process, based on the structure used in ISPM 14 (*The use of integrated measures in a systems approach for pest risk management*) for pest risk management options but with some additional subsections pertinent to this draft standard. The SC moved some text, deleted other text, and added some new options. They added a heading for “Other options relevant for all steps”, to cover measures such as testing and treatments that may apply to all production steps.
- [15] **Testing.** The SC agreed to avoid referring to consignments in relation to testing, as consignments are associated with a phytosanitary certificate but not all plant material tested (e.g. mother plants) has a phytosanitary certificate. The steward clarified that sampling was mentioned in the section on testing but not in the section on inspection, as the latter referred to ISPM 23 (*Guidelines for inspection*), which in turn referred to sampling. The SC agreed that “may be required” was a suitable level of obligation in relation to testing.
- [16] **Treatments.** The SC considered whether to refer to treatments as “phytosanitary treatments”, as the pest risk management stage of PRA (Annex 3) was concerned only with treatments as phytosanitary measures, whereas treatments in the broader sense were assessed in the pest risk assessment stage of PRA (Annex 2), in which the probability of the pest surviving existing pest management options is assessed. The SC concluded, however, that it was appropriate to simply refer to “treatments” in Annex 3, to encompass all treatments that could affect the presence of pests, and because it would be clear from the context that the treatments were being considered as phytosanitary measures, either singly or in combination.
- [17] **Biological control.** The SC noted that some biological control methods were applied in the same way as a chemical treatment and could be considered treatments. They agreed, however, that it was better to

⁴ SC 2021-11, agenda item 5.1.

refer to “biological control” rather than “biological control agents”, as the latter may imply that the phrase referred solely to insects.

- [18] **Pest freedom.** The SC noted that it was important to distinguish between measures that have been adopted in ISPMs (pest free areas, pest free places of production and pest free production sites) and those that have not (pest free growing periods and harvest and dispatch windows).
- [19] **Prohibition.** The steward noted that this section had been moved from the section on examples of phytosanitary measures following comments during the OCS review that countries only used prohibition when there was no effective phytosanitary measure available.
- [20] **Potential impact of the measure.** The SC agreed that “should” was the appropriate level of obligation to use when referring to the requirements for NPPOs of importing countries to identify and consider the impacts of potential measures and to discuss these impacts with the NPPOs of exporting countries. The SC noted the importance of assessing impacts, as a measure may not, for example, be economically feasible to implement. The SC also recalled that the IPPC is clear that contracting parties should consider environmental impacts.
- [21] **Feasibility.** The SC discussed whether to elaborate on the nature of the feasibility (e.g. economic feasibility, feasibility in terms of environmental impacts) but agreed that it was better to allow “feasibility” to be used in the broadest sense and that the examples given of factors to consider would suffice. The SC noted that timing, which was listed as one of the operational and technical considerations to consider, would cover the timing of methyl bromide applications, which was an important aspect to consider when evaluating the feasibility of this treatment as it can only be used above a certain temperature. The SC agreed that the word “should” was the appropriate level of obligation for these examples of factors but the list was not an exhaustive one. They also noted that an obligation to *consider* something is not necessarily an onerous commitment.
- [22] The SC noted that, where the list of examples referred to cost-effectiveness, this was referring to situations where there is more than one pest risk management option. In these situations, contracting parties should select the most cost-effective option, as this is cheapest for exporters.
- [23] **Selection of appropriate phytosanitary measures.** The SC agreed that the last step of pest risk management was the selection of phytosanitary measures from the pest risk management options identified. The regulatory decision follows this and may involve, for example, bilateral negotiations. The SC noted that it was not necessary to distinguish in a standard between tasks undertaken by different personnel within an NPPO (e.g. risk analysts and those taking regulatory decisions), as this may differ between NPPOs.
- [24] The SC agreed that there was no need to provide any detail about proposals from exporting countries on equivalent measures, as this was already provided in ISPM 24 (*Guidelines for the determination and recognition of equivalence of phytosanitary measures*).
- [25] **Conclusion of pest risk management.** The SC considered whether a regulated area could be larger than the PRA area, for example if the PRA is a part of a country but the regulation is at national level. They recalled a comment made during the OCS review that there would not be technical justification to apply measures to an area larger than the PRA area. However, they agreed that there was no need to provide guidance on this in the standard, or on whether the regulated area may be the whole PRA area or part of it.
- [26] **Phytosanitary certificates and other compliance measures.** The SC agreed that this section was not necessary and so deleted it.
- [27] **Monitoring and re-evaluation of phytosanitary measures.** The SC modified this section to avoid it being mistakenly assumed that, if an exporting country proposed an alternative measure, it would be automatically considered by the importing country, and to restrict the proposals considered to those proposed in accordance with ISPM 24 (to avoid establishing new obligations). The SC also recognized

that a review of phytosanitary measures may be triggered by a change in pest status in the importing country, not just by a change in pest status in an exporting country.

Review of Annex 4 (Environmental risks), Annex 5 (Living modified organisms as pests) and Annex 6 (Pest risk analysis for plants as quarantine pests)

- [28] **Annex 4.** The SC considered a suggestion that the whole annex be deleted, given that there were not equivalent annexes on economic and social risks, and another suggestion that the final section on communication be deleted. The SC noted, however, that the annex added value as every ISPM must now contain a statement on the impacts on biodiversity and the environment, and it would be outside the scope of Specification 72 to delete either the whole annex or the final section, as the text in this annex was derived from ISPM 11.
- [29] The SC noted that the requirement for NPPOs to “notify relevant competent authorities responsible for national biodiversity policies, strategies and action plans” was only “as appropriate”, so it was not taking away any sovereign authority and NPPOs would not need to do it when it was not appropriate. The SC also noted that the verb “notify” did not imply an obligation but merely meant “inform”. They agreed that although the competent authority for biodiversity may differ between countries, and it may not be the NPPO, the text was sufficiently general to be applicable to all situations.
- [30] The SC considered whether to integrate Annex 4 into the core text of the draft standard, as it consisted of general remarks that may be more suited to the core text. The secretariat explained that the EWG had recognized that consequences beyond economic consequences needed to be addressed better in the standard, but the EWG had been constrained in doing this by the specification, which did not allow the EWG to consider substantial revision of the original text. The SC recognized that integrating the text into the core text may unintentionally raise the prominence of environmental risks in relation to the issues covered in Annex 5 and Annex 6, and therefore agreed to keep Annex 4 as an annex.
- [31] **Annex 5 and Annex 6.** The SC made no changes to these annexes.

Generic issues and next steps

- [32] **Levels of obligation.** The SC noted the inconsistencies in the draft standard in the use of “should” and “may”, which may derive from differences between the source ISPMs, and the ambiguity of the phrase “should preferably”. The latter had been changed to “should” during the OCS review, to remove the ambiguity, with one instance subsequently changed to “may” at this meeting. With regard to the distinction between “should” and “may”, the SC noted that there was sufficient guidance in the *IPPC style guide* and that it was up to contracting parties to judge which term was appropriate to use in each instance and comment accordingly during consultation. However, the SC also recalled the request by the Seventeenth Session of the Commission on Phytosanitary Measures (CPM-17 (2023)) that the secretariat consult the FAO Legal Office regarding the legal status of ISPMs, and the SC member on the CPM Bureau offered to provide feedback on this to the SC.
- [33] **Title and position of the new standard.** The SC noted that there was no need to decide at this stage whether the standard, when adopted, would have a new ISPM number or would directly replace ISPM 2 or ISPM 11, but it was important to at least have a working title for the draft standard. The secretariat clarified that the style for recent ISPMs was to avoid use of the words “guidance” and “guidelines” in the title of ISPMs. The SC recognized that the content of the draft standard went beyond a framework, so agreed that the title should be *Pest risk analysis for quarantine pests*, as this encapsulated the content of the standard and allowed it to be distinguished from ISPM 21 (*Pest risk analysis for regulated non-quarantine pests*).
- [34] **Consultation.** Given the large size of the draft standard, and the resulting volume of consultation comments it was likely to generate, the SC considered how best to submit the text to first consultation, recognizing that this may need to be a staged process. Options considered ranged from opening the whole text for consultation to opening only Annex 3, or an intermediate solution of opening the core text and the first three annexes to consultation. They agreed that, as substantial revision to the text of

ISPM 2 and ISPM 11 was outside the scope of the specification, it was best to encourage those submitting comments to focus on new text and modifications to the text of ISPM 2 and ISPM 11 and to encourage only general comments to be made on unmodified text. They also agreed that the text submitted for consultation should be colour-coded to indicate the source of the text.

[35] The SC chairperson, Sophie PETERSON (Australia), informed the SC that, because of the large size of the draft standard and the tight schedule for preparing documents for consultation, it would not be possible for it to be edited to the same level as usual.

[36] The SC noted that, should it become clear that a revision to the whole text was required, then there would need to be a new specification and a new EWG. It could not be done under Specification 72. They noted, however, that they would be in a better position to judge the need for such a revision once the consultation comments have been reviewed.

Introductory text to accompany the draft standard

[37] The SC revised draft text prepared by the secretariat that provided an outline of the approach taken to the restructuring of the PRA standards. The text explained the colour coding used to distinguish the source of the various parts of the draft standard and provided guidance on what types of comments were being sought during the first consultation.

Potential implementation issues

[38] In his notes for the SC, the steward had listed the following potential implementation issues, which had been suggested by the EWG:

- the future development of implementation material to highlight that PRA should consider more than just the economic (monetary) consequences of the introduction of a pest, including in the definition of endangered area, in line with the concept in Supplement 2 of ISPM 5 (*Glossary of phytosanitary terms*);
- the future development of implementation material to consider the time frame for which the PRA is relevant, as this would facilitate the consideration of climate-change impacts in PRAs;
- the development of a matrix on the strength of measures as part of implementation material;
- whether to retain the guidance on risk communication in Annex 6 of the draft ISPM (plants as pests), depending on whether it is repeated in the *IPPC guide to pest risk communication*;
- the need to describe the various exit points (places to stop the PRA process) in detail in implementation guidance (e.g. if it was unlikely for a pest to transfer to the host, it was justified to stop the PRA).

[39] In addition, the SC noted that guidance for NPPOs of exporting countries on consulting with stakeholders, and for NPPOs of importing countries on assessing feasibility in general, could be provided in implementation material.

[40] The SC:

- (1) noted the meeting report of the EWG on *Reorganization and revision of pest risk analysis standards* (2020-001);
- (2) agreed that the title of the new ISPM would be *Pest risk analysis for quarantine pests*;
- (3) approved the draft ISPM on *Pest risk analysis for quarantine pests* (2020-001) as modified in this meeting for submission to first consultation (Appendix 4) and agreed that an introductory paper would accompany the draft ISPM when submitted for consultation (Appendix 5);
- (4) requested that the secretariat archive the implementation issues identified for the draft ISPM on *Pest risk analysis for quarantine pests* (2020-001) until after the first consultation, for consideration by the SC and potential forwarding to the Implementation and Capacity Development Committee (IC); and

- (5) *thanked* Samuel BISHOP (CPM Bureau member for Europe) for his offer to provide feedback following the request by CPM-17 (2023) that the secretariat consult the FAO Legal Office regarding the legal status of ISPMs.

4.2 Draft annex to ISPM 46 (*Commodity-based standards for phytosanitary measures*): International movement of mango (*Mangifera indica*) fruit (2021-011), priority 1

[41] The Steward, Joanne WILSON (New Zealand), introduced the draft Annex to ISPM 46 and supporting documentation.⁵ The annex had been drafted by the Technical Panel on Commodity Standards (TPCS) at its meeting in January 2023 (see also agenda item 6.4) and refined in subsequent virtual meetings. It was based upon information submitted in response to a call for information and followed the structure specified in ISPM 46.

Review of draft annex

[42] **Table of pests associated with fresh *Mangifera indica* fruit.** The steward informed the SC that the pests were ordered alphabetically by taxonomic Order.

[43] **Options for phytosanitary measures.** The SC agreed that it was not necessary to say that the relevance of measures should be evaluated for each country of origin, as this was repeating text from the core text of ISPM 46. However, they agreed that it was worth retaining a reminder that measures have to be technically justified, even though this was also repeating core text.

[44] The SC agreed that the integrated measures mentioned in this section were those described in ISPM 14 (i.e. integrated measures in a systems approach).

[45] The SC agreed that there was no need to include traceability when listing examples of integrated measures, as although traceability was important, it was not a measure that reduced pest risk and is covered by other ISPMs. The SC agreed that although some of the other examples of integrated measures were also covered in other ISPMs (e.g. measures to prevent contamination and infestation), they should be listed as they did reduce pest risk.

[46] The SC acknowledged that the examples of integrated measures were not specific to this annex and may apply to other annexes of ISPM 46 in the future. They recognized, however, that until a few annexes had been adopted, it would not be possible to determine whether there was text that was common to all that would be better placed in the core text of ISPM 46.

[47] **Table of pest-specific options for phytosanitary measures.** The SC corrected some entries and noted some other potential errors in the table. The steward undertook to check all the entries after the meeting.

[48] **Detailed tables of measures.** The SC agreed to distinguish between measures that are adopted by the CPM (in this case, phytosanitary treatments (PTs)) and those that are not by applying bold to the former and including a note below the table.

[49] The SC also agreed that, where there is a reference to a PT and another source or sources, the other sources would be omitted if the measure was exactly the same as in the PT. Where there was more than one reference but none of the references was a PT, then multiple references could be retained. The SC adjusted the text accordingly and the steward agreed to check other entries and amend as appropriate.

[50] **References.** The secretariat explained that full bibliographic references were provided below each table as this was the new FAO style for referencing.

[51] **Table of schedules for methyl bromide fumigation.** The SC discussed whether a commodity standard should list methyl bromide treatments, given the CPM Recommendation on *Replacement or reduction*

⁵ 2021-011; 08_SC_2023_May; Specification 73: www.ippc.int/en/publications/91861; TPCS meeting reports: www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/technical-panels/technical-panel-on-commodity-standards

of the use of methyl bromide as a phytosanitary measure (R-03). However, the SC recognized that sometimes there is no suitable alternative to methyl bromide, that countries have the sovereign right to use methyl bromide, and if the treatment schedule met the criteria given in ISPM 46 then it would have been beyond the scope of the TPCS to exclude the treatment from the commodity standard.

[52] The SC therefore agreed to keep the methyl bromide treatment in the commodity standard but to refer to CPM Recommendation R-03 using some text derived from ISPM 15 (*Regulation of wood packaging material in international trade*).

[53] **Table of systems approaches.** The SC noted that the table of systems approaches, which included only one entry, did not detail the specific components of the systems approach in question and so added little value to the general guidance on systems approaches already available in ISPM 14. The steward explained, however, that such detail was not included in the national regulations that specified this systems approach and that the detail of systems approaches was likely to be given in bilateral agreements that may not be publicly available. The TPCS steward informed the SC that the TPCS had recommended that an online database of measures be developed. He commented that, once this was available, the details of a published systems approach could be available via the database. The SC therefore agreed to retain the table, with some modification, as this would provide contracting parties with the opportunity to propose the inclusion of additional systems approaches.

Potential implementation issues

[54] The steward explained that the TPCS had not, at this stage, raised any potential implementation issues in relation to the draft annex.

[55] The SC:

(6) *approved* the draft annex *International movement of Mangifera indica fruit* (2021-011) to ISPM 46 (*Commodity-based standards for phytosanitary measures*) as modified in this meeting for submission to first consultation (Appendix 6); and

(7) *encouraged* contracting parties to use the template form developed by the TPCS when submitting comments on this draft and proposing the addition of pests or measures.

4.3 Draft 2023 amendments to ISPM 5 (*Glossary of phytosanitary terms*) (1994-001)

[56] The Steward for the Technical Panel for the Glossary (TPG), Álvaro SEPÚLVEDA LUQUE (Chile), introduced the draft 2023 amendments to ISPM 5 and supporting documentation.⁶

Draft 2023 amendments to ISPM 5

[57] The SC discussed the following terms.

[58] **“emerging pest” (2018-003) (addition).** The SC had an extensive discussion about this term, the need for it, and the proposed draft definition for it.

[59] The SC noted that the TPG’s work on the term had been resumed at the request of the SC, who in turn had been invited to do this by CPM-16 (2022) in response to the work of the CPM Focus Group on Pest Outbreak Alert and Response Systems (POARS). However, some SC members still expressed strong reservations about the inclusion of the term in ISPM 5, as this may unduly restrict the use of it. Another SC member suggested that it might be better for a POARS-specific term to be used for POARS purposes (e.g. pandemic plant pest, POARS pest), leaving “emerging pest” to be used as currently.

[60] Some SC members thought that it would be better to wait until the POARS Steering Group had developed criteria for emerging pests before developing a definition, so that the concept was established first and a definition then developed to describe the concept. This would better fit the role of the SC in terms of drafting standards. The SC representative on the POARS focus group, Mariangela CIAMPITTI

⁶ 1994-001; TPG meeting reports: www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/technical-panels/technical-panel-glossary-phytosanitary-terms-isp-5

(Italy), explained that the focus group had worked on developing criteria, as it was one of their tasks, but their progress had stalled because, in the absence of an IPPC definition, there was too much discrepancy between other definitions. The focus group had therefore requested that an IPPC definition be developed as this would help in the development of the criteria. The TPG had worked closely with the members of the focus group in developing the definition and the SC representative commented that even if the definition was not sent for consultation, it would still be helpful for the work of the POARS Steering Group, as the elements of the definition could form the criteria for pests to be considered for the POARS.

[61] One SC member suggested that, as it was not the role of the SC to decide what an emerging pest is, the POARS Steering Group should perhaps take the matter to the Strategic Planning Group (SPG) for the SPG to make a recommendation to the CPM.

[62] Specific concerns expressed by SC members about the content of the proposed definition included the following (which are in no particular order, except for the first one which was the main concern):

- the word “pandemic” was more associated with human diseases than plant pests;
- the definition was very dense;
- restricting the definition to quarantine pests and to an area is perhaps too restrictive;
- the verb “deemed” is problematic in a definition, as it is not clear who is doing the deeming and one person may come to a different conclusion than another;
- the intended meaning of the phrase “characteristics of a quarantine pest” may not be clear from the definition;
- if the “characteristics” mentioned in the definition referred to the elements in the glossary definition of “quarantine pests” (e.g. pest not yet present there, or present but not widely distributed and being officially controlled), are these the elements that should be covered in the definition of “emerging pest”;
- it was not clear whether the definition would still apply if a pest moved out of an area;
- the definition would probably exclude *Spodoptera frugiperda* (fall armyworm) from being considered an emerging pest, as quarantine pests have to be under official control, and may exclude *Fusarium oxysporum* f. sp. *cubense* Tropical Race 4, as bananas are not grown worldwide (although one SC member also commented that this did not mean that a lack of bananas would not be of global concern); and
- do all the elements in the definition have to be met for a pest to be an emerging pest?

[63] Suggestions made to amend the definition included the following:

- focusing on the economic impact, as that was the most important element; and
- adding “of global concern” in parentheses after the term, so that the definition only applied when the pest was of global concern.

[64] Given the concerns expressed by SC members, the SC agreed that the definition was not yet ready to be sent for consultation.

[65] **“visual examination” (2022-001) (revision).** The steward explained that the TPG had not had a problem with the current definition of this term but had reviewed it in response to a request from the SC and had proposed inserting the word “only” for greater clarity. The SC were of the opinion, however, that the insertion of “only” did not aid clarity and so preferred to retain the currently adopted definition.

[66] The SC:

- (8) *recommended* to the CPM Bureau that the POARS Steering Group continue the work of the CPM POARS Focus Group in developing criteria for what constitutes an emerging pest, with input as necessary from the TPG and taking account of the comments made at this meeting on the definition drafted by the TPG, and *invited* the CPM Bureau to advise on the next steps;

- (9) *requested* that the secretariat include this recommendation in the SC update to the June meeting of the CPM Bureau;
- (10) *removed* “visual examination” (2022-001) from the TPG’s work programme and *requested* that the secretariat update the *List of topics for IPPC standards* accordingly.

4.4 Draft annex to ISPM 38 (*International movement of seeds*): Design and use of systems approaches for phytosanitary certification of seeds (2018-009), priority 1

[67] The Steward, Marina ZLOTINA (United States of America), introduced the draft ISPM and supporting documentation.⁷ Further to the SC meeting in November 2022, the steward and the small group of SC members assigned to work on the draft had further revised the draft annex to take account of the SC’s comments and also some comments submitted to the steward and SC chairperson by one region in January 2023 (provided in Appendix 1 of the steward’s notes to this meeting).

Review of draft annex

[68] **Title.** The SC welcomed the new proposed title, *Arrangements for designing and authorizing systems approaches by NPPOs as an option for phytosanitary certification of seeds*, which had been suggested to reflect the non-binding nature of participation by NPPOs in seed systems approaches. One SC member suggested that “authorizing” be changed to avoid confusion with the authorization of entities described in ISPM 45 (*Requirements for national plant protection organizations if authorizing entities to perform phytosanitary actions*) and the SC considered “recognizing” as a possible alternative.

[69] **Introduction.** The steward explained that there had been a concern that seed companies would be authorized by NPPOs, but the systems approaches described in the annex relied on the *accreditation* of entities to recognize their practices and quality systems, not the *authorization* of entities to perform phytosanitary actions on behalf of the NPPO. She confirmed that the seed industry would not be issuing phytosanitary certificates, which would still be issued by the NPPO, and that a systems approach is an optional, alternative measure and there would be no requirement to use it. She suggested adding a sentence to the Introduction to this effect.

[70] **General comments on the content.** Members of the SC expressed diverging views about whether the draft annex was ready for consultation.

[71] Some SC members felt that, as the small group of SC members working on the draft had tried to address the concerns raised about the annex, it would be better to submit the draft for consultation to give contracting parties the opportunity to comment.

[72] Some other SC members thought that the draft was not ready for consultation. These members expressed concern that the standard appeared to be written from an industry perspective rather than being addressed to NPPOs; it provided implementation guidance rather than being written as a standard; and it did not contain the necessary detail in terms of describing the independent measures that an NPPO could use to build a systems approach. They also noted that there were diverging conceptual views between countries and regions over what constituted a systems approach. One SC member expressed the view that the text needed to be rewritten from an NPPO perspective, but that the elements were there and so a rewrite was feasible. This member also commented that the role of industry is something for countries to agree upon and should not be in the annex. Another SC member commented that if a country wanted to develop a multilateral systems approach for seeds, then it could already do that and does not need a standard to do it.

[73] Regarding concerns about standards referring to industry, the steward pointed out that in ISPM 36 (*Integrated measures for plants for planting*) there is a requirement for NPPOs to work with industry, so it should be acceptable to do the same in this annex. She also explained that the intention of the annex was to provide a general framework rather than detailed requirements, as it would be for individual

⁷ 2018-009; 15_SC_2023_May; Specification 70: www.ippc.int/en/publications/89274; EWG meeting report: www.ippc.int/en/publications/90591

NPPOs to determine the detail, and where the detail of systems approaches was contained in other ISPMs, citations to those ISPMs had been given in the annex rather than repeating the information.

[74] On behalf of SC members from the Latin American and Caribbean region, one SC member highlighted the pilot systems approach for maize that was being developed in the region, and commented that sending the draft annex for consultation would be helpful for this process.

[75] As the SC failed to reach consensus, the SC agreed to establish a small working group of SC members to develop a paper for the SPG on how a common understanding might be achieved in the IPPC community about what systems approaches are and how they are developed (including the respective roles of industry and NPPOs). The secretariat advised that the tentative timeline for development and submission of the paper would need to be as follows: draft to be completed by 18 August; SC e-forum, 21 August to 2 September; posted on the International Phytosanitary Portal for SPG by 11 September; SPG meeting, 11–13 October 2023.

[76] The SC:

- (11) *agreed* that a small working group of SC members would develop a paper for the SPG on how a common understanding may be achieved within the IPPC community about what systems approaches are and how they are developed; and
- (12) *agreed* that the working group would comprise Harry ARIJS (European Commission), Steve CÔTE (Canada), Nader ELBADRY (Egypt), Matías GONZALEZ BUTTERA (Argentina), David KAMANGIRA (Malawi), Glenn PANGANIBAN (Philippines) and Sophie PETERSON (Australia), and *requested* that the secretariat arrange the first virtual meeting of the group, at which a lead would be selected.

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

[77] The Steward, Steve CÔTÉ (Canada), introduced the draft annex and supporting documentation.⁸ The annex had been drafted by the EWG at their meeting in Canada in June 2022.

Review of draft annex

[78] **Background.** The SC agreed to avoid using the abbreviation for a wood-commodities systems approach (“WCSA”) throughout the annex, for greater clarity.

[79] One SC member queried whether it was acceptable to say that quarantine pests were “hereafter referred to as ‘pests’”, as this would then conflict with the ISPM 5 definition of “pest”. The secretariat explained that it had been done this way to avoid unnecessary repetition of “quarantine pest” but acknowledged that there were other solutions to this.

[80] **Major wood pests grouped according to where they live and reproduce.** The SC agreed to move this section into an appendix, as it did not provide any requirements.

[81] **Organisms on or in the bark or just under the bark in the cambium.** The SC noted that fungi were represented in two of the bullet points in this subsection: one on “fungi” and the other on “fungi and fungi-like organisms”. The SC considered whether the latter could be changed to “fungi-like organisms” given that the only example given (*Phytophthora*) was a fungus-like organism rather than a fungus, or whether the two bullet points could be combined. They also noted, however, that “fungi and fungi-like organisms” is the term used in forestry. The SC therefore left the text unchanged to await consultation comments from forestry experts.

⁸ 2015-004; 10_SC_2023_May; Specification 69: www.ippc.int/en/publications/86853; EWG meeting report: www.ippc.int/en/publications/91746

- [82] **Pest free areas.** The SC recognized that, given the longevity of trees, pest freedom measures were applicable at various stages of the production process, with establishment of pest free areas or areas of low pest prevalence being relevant to the pre-planting stage and confirmation of the pest status of such areas being relevant to some later stages.
- [83] **Field inspection vs surveillance.** The SC agreed that “field inspection” was a more appropriate term to use than “surveillance” in the context of harvest-planning decisions to help ensure that infested trees are not selected for export. They acknowledged that “field” may not be consistent with the ISPM 5 definition of “field”, as a forest may not have boundaries, but used it in the absence of a better term.
- [84] **Maximum size of wood chips.** The steward explained that although there was a discrepancy between the maximum size of wood chips specified in this draft annex (2.5 cm) and the size specified in the core text of ISPM 39 (3 cm), this was intentional and was the consensus opinion of the experts at the EWG meeting, based on scientific evidence that had become available since the adoption of ISPM 39. The SC considered whether to add a footnote to explain the discrepancy, but agreed instead to omit the actual size of the wood chips, to avoid confusion between the annex and the core text until such time that the core text could be updated. The secretariat advised that the size given in the core text could not be amended by ink amendment, as this was a substantive change, but that the SC could, if it wished, recommend a focused revision of ISPM 39 to make this amendment. The SC accepted the offer from the steward to confirm the relevant scientific references, so that these could be added at a later stage if and when it became possible to do so.
- [85] **Certification.** The SC recognized that certification was a pre-dispatch practice and, as such, should be added to the table. They agreed that this certification covered more than phytosanitary certification, as some countries accepted alternative documentation for certification in their phytosanitary import requirements.
- [86] **Containers vs cargo transport units.** The SC considered whether to refer to “cargo transport units” rather than “containers”, but noted that the *Code of practice for packing of transport units* (published by the International Maritime Organization, the International Labour Organization and the United Nations Economic Commission for Europe) gave a very specific definition of a cargo transport unit and this would unduly restrict the types of containers that would fall within the scope of this draft annex. The SC therefore agreed to retain the broader term “containers”.
- [87] **Responsibilities for implementation of a wood-commodities systems approach.** The SC discussed whether all participants in a systems approach needed to be authorized by the NPPO. The steward explained that non-authorized entities were included in the annex because an NPPO may consider that it was not necessary or expedient to authorize every single player involved in the systems approach, provided there were entities that could be held accountable if there was a breakdown in the systems approach. For example, an NPPO may need to be able to identify a company transporting the finished commodity but may not consider it necessary to authorize them. One SC member suggested that other countries may only accept a systems approach if all participants in it were authorized by the NPPO, but the NPPO could decide at what point in the production chain a systems approach started. The SC therefore agreed not to refer specifically to “non-authorized entities” but recognized that a systems approach may include participants that were not authorized.
- [88] **Responsibilities of NPPOs.** For clarity about the level of obligation, the SC used “should” in the introductory stem of the list of responsibilities and then adjusted the list of responsibilities to exclude anything that related to a lower level of obligation (i.e. responsibilities that were optional or not always applicable).
- [89] **Responsibilities of entities.** The SC considered the two lists of responsibilities – one for entities participating in the exporting country and one for those in the importing country – and discussed the level of obligation pertaining to the various responsibilities. Recalling, however, that ISPM 45 included all of the responsibilities listed, they replaced these two lists with one sentence referring to ISPM 45.

[90] **Evaluating the effectiveness of a wood-commodities systems approach and its component measures.** The SC agreed to delete the whole of this section, as it was written more like implementation guidance than a standard. The SC noted, however, that it may be useful material to use in the development of implementation material.

[91] **Contaminating pests.** The steward explained that the specification had specifically excluded contaminating pests, because these were excluded from the scope of ISPM 39, but the EWG had noted the importance of contaminating pests and had urged the SC to consider recommending to the CPM that the scope of ISPM 39 be modified. The SC noted that, although ISPM 39 related only to quarantine pests, the concepts of “quarantine pests” and “contaminating pests” were not mutually exclusive, as a pest could be both of these. They also noted that there were measures in the draft annex that, while not specifically targeted at contaminating pests, may be effective at reducing the likelihood of contamination with contaminating pests. The SC discussed whether text to this effect could be included in the annex but agreed that this would be better left as a comment for contracting parties or regions to submit during consultation.

Potential implementation issues

[92] The steward explained that the EWG had agreed that they could not identify any operational or technical implementation issues that could arise specifically from implementation of the annex.

[93] During their review of the draft annex, the SC had identified one former section of the draft (on “Evaluating the effectiveness of a wood-commodities systems approach and its component measures”) as potentially being useful for the development of implementation material.

[94] The SC:

- (13) *noted* the meeting report of the EWG on the draft annex *Use of systems approaches in managing the pest risks associated with the movement of wood* (2015-004) to ISPM 39 (*International movement of wood*);
- (14) *approved* the draft annex *Use of systems approaches in managing the pest risks associated with the movement of wood* (2015-004) to ISPM 39 (*International movement of wood*) as modified in this meeting for submission to first consultation (Appendix 7); and
- (15) *requested* that the secretariat archive the implementation issues identified by the SC for the draft annex *Use of systems approaches in managing the pest risks associated with the movement of wood* (2015-004) to ISPM 39 (*International movement of wood*) until after the first consultation, for forwarding to the IC.

5. Draft ISPMs pending approval for adoption by the Commission on Phytosanitary Measures

5.1 Draft revision of ISPM 4 (*Requirements for the establishment of pest free areas*) (2009-002), priority 4

[95] The Steward, Marina ZLOTINA (United States of America), introduced the draft ISPM and supporting documentation.⁹ She recalled the discussion at the SC meeting in November 2022,¹⁰ where the SC had not been able to reach consensus on the wording about pest absence status in the section on determination of pest status in the area. The SC had therefore agreed to consult within their respective regions on two possible alternatives and to submit suggestions for consideration at this meeting. The steward explained that two regions had subsequently submitted comments.¹¹

[96] The SC reviewed the proposals and chose to use the one that suggested a simplification of the text in question. They considered whether to keep it in its original location, in the Requirements section, or

⁹ 2009-002; 05_SC_2023_May; 06_SC_2023_May; 07_SC_2023_May.

¹⁰ SC 2022-11, agenda item 4.4.

¹¹ 17_SC_2023_May; 19_SC_2023_May.

move it earlier in the standard so that NPPOs who had declared a pest status of “absent” would not need to read very far into the standard to realize that they did not need it. However, to make it clear that the text was referring to a requirement, rather than being simply background information, it was retained in the Requirements section.

- [97] The SC considered the paragraph that followed to check for any consequential changes but decided that the information contained in the paragraph, which related to surveillance, was covered elsewhere and so the paragraph was not needed.

Potential implementation issues

- [98] The secretariat recalled that comments had been made on potential implementation issues at the SC meeting in November 2022, which the secretariat had archived for future consideration by the SC.¹² These had indicated the need for assistance for developing countries in implementing the revised ISPM, ongoing training to meet its requirements, and for contracting parties to be aware of the *IPPC guide on Establishing and maintaining pest free areas* and other existing IPPC implementation tools.

- [99] The SC:

- (16) *thanked* the steward and assistant steward for their efforts in revising this draft standard;
- (17) *recommended* the draft revision of ISPM 4 (*Requirements for the establishment of pest free areas*) (2009-002) as modified in this meeting for submission to CPM-18 (2024) for adoption (Appendix 8); and
- (18) *requested* that the secretariat forward implementation issues identified for this draft standard to the Implementation Facilitation Unit of the secretariat for consideration by the IC.

6. Review of technical panels

- [100] The SC received reports from the technical panels.

6.1 Technical Panel on Phytosanitary Treatments

- [101] The Steward, David OPATOWSKI (Israel), presented a report on membership of the Technical Panel on Phytosanitary Treatments (TPPT), an overview of the TPPT’s activities since May 2022 and the tentative workplan for 2023–2024.¹³

- [102] The SC reviewed the recommendations from the TPPT.

- [103] **IAEA representation.** The secretariat confirmed that the representative from the Joint FAO/International Atomic Energy Authority (IAEA) Centre of Nuclear Techniques in Food and Agriculture was nominated by the IAEA but the decision on whether the nominee was selected to join the TPPT rested with the SC.

- [104] **Enhancing submission of PTs.** The steward explained that the TPPT had considered ways to facilitate the submissions of phytosanitary treatments, which may benefit smaller countries that do not have the capacity to research and write submissions in the manner required by the TPPT. The SC supported the proposal that the TPPT actively seek out appropriate treatments for submission, but agreed that it was not appropriate for TPPT members to submit these themselves. It was better that the treatments be submitted through the usual channels – either through an NPPO or regional plant protection organization (RPPO).

- [105] **Treatment manuals for wood packaging material.** The steward recalled the objection that had been received to the draft PT Heat treatment of wood using dielectric heating (2007-114) before CPM-12

¹² SC 2022-11, agenda item 4.4.

¹³ 22_SC_2023_May; TPPT meeting reports: www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/technical-panels/technical-panel-phytosanitary-treatments; Call for phytosanitary treatments: www.ippc.int/en/core-activities/standards-setting/calls-treatments

(2017), and explained that this impasse may be resolved by the publication of two treatment manuals that were currently being developed to complement the *Guide to regulation of wood packaging material*.¹⁴ The Implementation and Facilitation Unit of the secretariat had suggested that the TPPT may input to the review and finalization of these manuals. The SC asked whether the current workload of the TPPT allowed time for the TPPT to do this and the steward confirmed that it did. The secretariat clarified that this would not be setting a precedent of technical panels commenting on implementation material: the justification for TPPT involvement in this instance was that it may help resolve the objection to the draft PT and hence allow adoption of that PT.

[106] The next face-to-face TPPT meeting will be held in Rome, Italy, on 9–13 October 2023.

[107] The SC:

- (19) *noted* the reports from the TPPT meetings in September 2022 (face-to-face meeting), May 2022 (virtual meeting) and October 2022 (virtual meeting);
- (20) *noted* the work accomplished by the TPPT from May 2022 to May 2023;
- (21) *agreed* to extend the term of Scott MYERS as a TPPT member for another five-year period;
- (22) *agreed* that Vanessa SIMOES DIAS DE CASTRO will replace Walther ENKERLIN as the TPPT member delegated by the Joint FAO/IAEA Centre;
- (23) *acknowledged* the contribution of Walther ENKERLIN (IAEA) who left the TPPT in 2022 and *thanked* him for the services he rendered to the panel;
- (24) *agreed* that TPPT members can actively seek out appropriate treatments and submit them as subjects for approval by the SC through an NPPO or RPPO;
- (25) *agreed* that the TPPT could take part in reviewing and finalizing the treatment manuals to be attached to the *Guide to regulation of wood packaging material – Understanding the phytosanitary requirements for the movement of wood packaging material in international trade*;
- (26) *noted* that the TPPT will start work on the topic *Requirements for the use of chemical treatments as a phytosanitary measure* (2014-003), priority 3, once higher priority topics on their work programme are completed; and
- (27) *noted* the TPPT tentative workplan for May 2023 to May 2024.

6.2 Technical Panel for the Glossary

[108] The SC chairperson recalled that CPM-17 (2023) had been informed that a coordinator for the Language Review Group for French was needed because this position had been vacant for some years.

[109] The TPG Steward, Álvaro SEPÚLVEDA LUQUE (Chile), then presented an update on membership of the TPG, an overview of TPG activities carried out since June 2022 and the tentative workplan for 2023–2024.¹⁵

[110] The SC reviewed the recommendations from the TPG.

[111] **Brochure on phytosanitary terminology.** The steward informed the SC that the TPG had revised the IPPC brochure *Introduction to international phytosanitary terminology*. The secretariat clarified that the brochure had been drafted by the TPG many years ago but was now out of date, and the revisions to it had all been done during available time at the TPG's meeting in November 2022.

[112] **Consistency issues in ISPM 23.** The steward explained that, following the adoption of revised definitions for “compliance procedure (with a consignment)”, “identity (of a consignment)” and “integrity (of a consignment)” by the CPM, amendments were needed to ISPM 23 to correct

¹⁴ Guide to regulation of wood packaging material: www.fao.org/documents/card/en/c/cc5059en

¹⁵ 12_SC_2023_May; 13_SC_2023_May; 14_SC_2023_May; TPG meeting reports: www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/technical-panels/technical-panel-glossary-phytosanitary-terms-isp-5

inconsistencies and the TPG had drawn up concrete proposals for text amendments for the SC to consider.¹⁶ The SC agreed, however, that the proposed amendments represented too big a change to make by ink amendment and could only be done through a revision or focused revision of ISPM 23.

[113] **“entry (of a consignment)”**. The steward explained that the TPG had recommended that the words “of a consignment” be added as an ink amendment to the definition of this term to provide parallelism with the definition of “entry (of a pest)” and hence reduce potential confusion. The SC agreed to the TPG’s proposal.

[114] **Streamlining technical-panel processes**. The steward explained that, further to the SC’s invitation to technical panels to recommend ways of streamlining technical-panel processes, the TPG had drawn up some proposals for the SC to consider.¹⁷ Among the proposals was a suggestion that the TPG have the opportunity to comment on draft ISPMs after drafting by the EWG and to work on consequential terms not yet on the TPG’s work programme but expected to become approved by the SC.

[115] With regard to work on consequential terms, the secretariat explained that the proposal was aimed at reducing unnecessary delay in the development of terms, as the TPG already has to consider associated terms when working on terms in their work programme. The SC considered whether they could add terms via e-decision to reduce the delay, but they concluded that a delay of one year before a term was added was not a problem and that it was more appropriate for the SC to determine when the TPG started to work on a term, to avoid wasting the TPG’s time on terms that may not subsequently be added to the programme by the SC. One SC member suggested that the SC consider, as a generic issue, how to streamline the addition of subjects onto the work programmes of technical panels.

[116] With regard to the proposal for additional, earlier commenting on draft ISPMs, the secretariat explained that the rationale was to reduce the number of consistency comments submitted during the first consultation period. The SC were of the opinion, however, that input from the TPG should not happen before the text is considered by the SC and that contracting parties should be the first parties to make comments. The SC noted that TPG members can submit consistency comments during consultations through the usual channels.

[117] **Selection of an additional TPG member for the Spanish language**. The secretariat recalled the decision of the SC at its previous meeting to select the additional TPG member for the Spanish language at the SC May 2023 meeting.¹⁸ The SC considered the two nominations received but agreed that there was insufficient information to make a decision.

[118] The SC agreed that it was essential that the information submitted to support nominations was provided in English to allow it to be reviewed by the SC, but that this needed to be clear when the call for experts was opened.

[119] The next TPG meeting will be held on 27 November to 1 December 2023.

[120] The SC:

- (28) *renewed* the membership of Shaza Roshdy OMAR (Egypt) as a TPG member for the Arabic language, beginning in 2023;
- (29) *renewed* the membership of Laurence BOUHOT-DELDUC (France) as a TPG member for the French language beginning in 2024;
- (30) *noted* that, following the decision of the SC in November 2022 to add the terms “general surveillance” (2018-046), “specific surveillance” (2018-047), and “surveillance” (2020-009) to the SC-7’s agenda for review, the TPG, in its meetings in December 2022 and March 2023, had

¹⁶ 13_SC_2023_May.

¹⁷ 14_SC_2023_May, Appendix 3.

¹⁸ SC 2022-07, agenda item 4.1; SC 2022-11, agenda item 8.1.

- recommended that SC-7 approve the definitions for third consultation as part of the 2022 *Draft amendments to ISPM 5*;
- (31) *noted* the revised definitions of “phytosanitary action” (2020-006) and “phytosanitary procedure” (2020-007) recommended by the TPG to the SC-7 in May 2023 for approval for second consultation as part of the 2022 *Draft amendments to ISPM 5*;
 - (32) *noted* that the draft definition of “release (of a consignment)” (2021-007), as presented to the SC in November 2022, had been retained unchanged and that it had been sent to the SC-7 to be recommended to the SC for approval for adoption as part of the 2022 *Draft amendments to ISPM 5*;
 - (33) *noted* that, following the invitation of the SC in November 2022 to the TPG to review “inspection” (2017-005), the TPG submitted the term to the SC-7 to be recommended to the SC for approval for adoption as part of the 2022 *Draft amendments to ISPM 5*;
 - (34) *noted* that, following the invitation of the SC in November 2022 to the TPG to review “test” (2021-005), the TPG submitted the term to the SC-7 to be approved for third consultation as part of the 2022 *Draft amendments to ISPM 5*;
 - (35) *noted* that recommendations on consistency regarding the diagnostic protocol (DP) for Genus *Ceratitis* (2016-001) were transmitted to the TPDP steward for consideration;
 - (36) *noted* that the TPG recommendations on consistency regarding the draft annex *Criteria for evaluation of available information for determining host status of fruit to fruit flies* (2018-011) to ISPM 37 (*Determination of host status of fruit to fruit flies (Tephritidae)*) were transmitted to the steward for consideration;
 - (37) *agreed* that the appropriate mechanism for addressing the consistency issues regarding ISPM 23 (*Guidelines for inspection*) was for a proposal to be submitted during a call for topics for a new topic on the revision of ISPM 23, and *noted* that the amendments proposed by the TPG could be considered during the development of that revision, if the topic was added to the work programme by the CPM;
 - (38) *agreed* to apply an ink amendment to the definition of “entry (of a consignment)” in ISPM 5 and *requested* that the secretariat implement this (Appendix 9);
 - (39) *noted* that the updated *Explanatory document on ISPM 5* (“Annotated Glossary”) would be published in 2024;
 - (40) *noted* the paper on “TPG work on consistency with ISPMs: achievements and status” (14-SC_2023_May, Appendix 1) as decided by the TPG during its meeting in December 2022, *recognized* the achievements and current status of the TPG consistency work and *noted* the supporting documents available for that work;
 - (41) *noted* the TPG’s suggestions on how to streamline the work of the TPG;
 - (42) *agreed* that work on consequential ISPM 5 terms should not proceed until they are approved by the SC;
 - (43) *agreed* that it would not be appropriate for TPG input on inconsistency issues in draft ISPMs to take place before first consultation;
 - (44) *requested* that the secretariat highlight, to FAO Translation Services, the importance of continuity in the use of translators for draft ISPMs to ensure translators are familiar with ISPM terminology and in particular glossary terms in all FAO languages;
 - (45) *noted* the TPG workplan for 2023–2024 (Appendix 8 of the report of the TPG meeting in December 2022);
 - (46) *noted* the secretariat plan to revise the brochure *Introduction to international phytosanitary terminology* as revised by the TPG;
 - (47) *requested* that the secretariat seek additional information from the candidates nominated as an expert for the Spanish language for the TPG, to ensure that each candidate has submitted a CV in English and a CV in Spanish;

- (48) *noted* that the secretariat would proactively seek suggestions or nominations for a coordinator for the Language Review Group for French, starting with RPPOs in regions containing French-speaking countries; and
- (49) *thanked* Chile for hosting the TPG meeting in November 2022 and Brazil for offering to host the TPG's meeting in 2023.

6.3 Technical Panel on Diagnostic Protocols

- [121] The Steward, Álvaro SEPÚLVEDA LUQUE, presented an update on membership of the Technical Panel on Diagnostic Protocols (TPDP), an overview of TPDP activities carried out since July 2022 and the tentative workplan for 2023–2024.¹⁹
- [122] The SC reviewed the recommendations from the TPDP.
- [123] **TPDP members for botany.** The TPDP noted that, following the recent resignation of one of the two TPDP members for botany and the forthcoming end of the term of the other, there was now a pressing need to select at least one new TPDP member for botany. The SC agreed that it was better to wait until after the 2023 call for topics before making a decision on whether to select one or two members for botany, as this may depend on the proposals received during the call. The secretariat confirmed that there were only two botanical subjects currently on the programme.
- [124] **Call for topics.** The steward outlined a proposal by the TPDP for the panel to participate in the selection of subjects following a call for topics, to assess the feasibility of DP subjects. The SC recognized the potential value of this proposal but also the fact that submissions could only be shared with the TPDP once the Task Force on Topics had forwarded their recommendations to the SC. The SC noted that this would not leave much time for the TPDP to provide their input, and one SC member suggested that, after the 2023 call for topics, the task force could perhaps recommend to the CPM that the process for the call for topics be adjusted to allow more time.
- [125] **Selection of DP authors.** The steward explained the problems experienced by the TPDP in securing sufficient authors to be able to form drafting groups. The SC considered the draft procedure proposed by the TPDP to address this and the secretariat suggested that the secretariat be allowed to open calls for authors without having to seek approval from the SC each time, although the SC would still be notified. The secretariat confirmed that, according to the proposed procedure, the decision about whether a drafting group would be formed with fewer than three authors would be made by the TPDP, not the SC.
- [126] **Specification TP 1 (Technical Panel on Diagnostic Protocols).** The secretariat explained that the TPDP had proposed some draft amendments to the specification for the panel to bring it up to date. Although the SC agreed to these amendments, they did not discuss the associated proposal that the specification be revised to include the expert consultation step of DP development so that the specification is more accurate regarding the stages and steps to develop a DP.
- [127] **Volume of DPs under development.** The steward explained that, because of the increase in the number of draft DPs under development, the TPDP had strongly recommended that an additional consultation period be held, for DPs only, as had been done before.
- [128] **Master mix composition in DPs.** One of the SC members from Europe informed the SC of a suggestion from the European and Mediterranean Plant Protection Organization's technical panel on diagnostic protocols that more detail be provided in DPs about the composition of polymerase chain reaction master mixes. The secretariat confirmed that they would forward this suggestion to the TPDP.
- [129] The SC:
- (50) *noted* the TPDP update and the work accomplished from July 2022 to April 2023;

¹⁹ 16_SC_2023_May; TPDP meeting reports: www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/technical-panels/technical-panel-diagnostic-protocols

- (51) *thanked* Liping YIN (China) and Colette JACONO (United States of America) for their work throughout the years as TPDP members for botany;
- (52) *requested* that the secretariat open a call for at least one TPDP member for botany and *agreed* that the number of experts selected would be agreed by the SC at a later date, depending on submissions during the 2023 call for topics;
- (53) *agreed* to share proposals for DPs, forwarded to the SC by the Task Force on Topics, with the TPDP to allow the TPDP to advise the SC on the feasibility of developing the DPs proposed;
- (54) *noted* the following four SC e-decisions:
 - proposal for scope adjustment to subject Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028),
 - proposal for removal from the work programme: Begomoviruses transmitted by *Bemisia tabaci* (2006-023),
 - proposal for pending status: Revision of DP 5 (*Phyllosticta citricarpa* (McAlpine) Aa) (2019-011), and
 - proposal for removal from the work programme: *Puccinia graminis* f. sp. UG 99 (2019-004);
- (55) *noted* that the secretariat would be opening a call for authors for each of the following subjects and *agreed* to seek nominations of relevant experts to be submitted via these calls by 16 June 2023:
 - *Microcyclus ulei* (2019-003),
 - *Spodoptera frugiperda* (2021-016), and
 - *Moniliophthora roreri* (2019-005);
- (56) *approved* the proposed procedure for DP drafting groups without sufficient authors, subject to it being modified to allow the secretariat to open calls for authors without seeking approval from the SC (Appendix 10), and *requested* that the secretariat include the procedure in the *IPPC procedure manual for standard setting* under the TPDP procedures at the next revision;
- (57) *agreed* to undertake an additional consultation period for DPs only in January 2024 and requested that the secretariat open the consultation period via the OCS (tentative dates: 30 January to 30 June 2024);
- (58) *noted* the reports from the TPDP meetings in July 2022 (virtual meeting), November 2022 (face-to-face meeting) and March 2023 (virtual meeting);
- (59) *thanked* EPPO for hosting the 2022 TPDP face-to-face meeting;
- (60) *noted* the TPDP discussions on “ways of improving the TPDP’s work”;
- (61) *approved* the revision of Specification TP 1 (*Technical Panel on Diagnostic Protocols*) (Appendix 11);
- (62) *noted* the Implementation Review and Support System/IPPC Observatory *Study on the use of International Plant Protection Convention diagnostic protocols*;
- (63) *noted* that the next face-to-face meeting of the TPDP is tentatively planned for the third or fourth quarter of 2023 and that EPPO had offered to host the meeting;
- (64) *noted* the TPDP tentative workplan for April 2023 to May 2024, with the potential increase in the volume of TPDP work; and
- (65) *thanked* Álvaro SEPÚLVEDA LUQUE (Chile) for his work as steward of both the TPDP and the TPG.

6.4 Technical Panel on Commodity Standards

[130] The Steward, Samuel BISHOP (United Kingdom) presented the paper from the TPCS, which provided an update on membership of the TPCS, an overview of TPPC activities carried out since July 2022 and

the tentative work plan for 2023–2025.²⁰ He thanked Japan for hosting the TPCS meeting in January 2023, the secretariat for their support and the Assistant Steward, Joanne WILSON (New Zealand).

[131] The SC reviewed the recommendations from the TPCS.

[132] **Consultation on draft specifications.** The steward explained that the TPCS had recommended that a standard specification be developed for draft specifications for commodity standards and that such specifications be revised by the SC and the TPCS without the need for a consultation period. The rationale for this proposal was that the specifications would all be almost the same, except for the name of the commodity. The secretariat confirmed that there were no specifications for draft PTs or draft DPs.

[133] **Form for submitting information on pests and measures.** The steward presented a template form developed by the TPCS for the submission of information on pests and measures. He emphasized the importance of the form being submitted but recognized the difficulties that some countries may experience in providing full information and so noted that contracting parties and RPPOs would only be expected to complete the form to the best of their ability.

[134] **Criteria for inclusion of pests in a commodity standard.** The steward explained that the TPCS had drafted a list of subsidiary criteria to use when selecting which pests to include in commodity standards, in addition to the main criterion described in ISPM 46 – that the pest is regulated by at least one contracting party based on technical justification. He commented, however, that in his own view the criterion specified in ISPM 46 should be the only criterion, as this had been agreed by contracting parties when adopting ISPM 46 and it was not the role of the TPCS to evaluate the technical justification used by contracting parties to regulate pests. The SC agreed with the steward and so agreed that the part of the draft TPCS working procedures that related to these subsidiary criteria should be deleted. One SC member suggested, however, that the criteria used to select pests be considered by the SC in greater depth at a future meeting.

[135] **Commodity standards database.** The SC noted that the development of this database may provide an opportunity for collaboration with the IC and that there were synergies with the plans for a centre of excellence to be created within the secretariat.

[136] **Revision of TPCS specification.** The SC considered the proposals by the TPCS for some changes to Specification TP 6 (*Technical Panel on Commodity Standards*) but agreed to defer any changes until after agreement is reached by the CPM on the changes to the Standards Setting Procedure proposed by the TPCS.

[137] **Call for topics.** The SC agreed that, as agreed for DPs and the TPDP, it may be helpful to seek input from the TPCS on proposals for commodity standards submitted in response to the 2023 call for topics.

[138] The SC:

- (66) *noted* the TPCS update and the work accomplished from July 2022 to April 2023;
- (67) *noted* the TPCS tentative work programme for 2023–2025;
- (68) *recommended* to CPM-18 (2024) that the Standard Setting Procedure be changed so that any new topics proposed for commodity standards during an IPPC call for topics are revised by the SC and the TPCS without the need for a consultation period for the draft specification;
- (69) *recommended* to CPM-18 (2024) that commodity standards be “subjects” in the hierarchy of terms, like DPs, PTs and ISPM 5 terms, instead of “topics”;
- (70) *invited* the TPCS to develop an annotated template for draft commodity standards once the first commodity standard has been adopted and *requested* that the secretariat archive this decision for future action by the TPCS;
- (71) *approved* the form for submitting information on pests and measures (Appendix 12);

²⁰ 21_SC_2023_May; TPCS meeting reports: www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/technical-panels/technical-panel-on-commodity-standards

- (72) *agreed* that the form for submitting information on pests and measures be used in the following circumstances:
- when submitting a proposal for a commodity standard in response to a call for topics,
 - when responding to a call for information for a topic that has been accepted onto the work programme, and
 - when submitting a consultation comment on a draft commodity standard, suggesting the addition of a pest or measure to the draft standard;
- (73) *encouraged* contracting parties to submit the form when proposing a topic for a commodity standard in a call for topics;
- (74) *noted* the following conclusions of the TPCS regarding the categorization of options for phytosanitary measures according to confidence:
- the criteria listed in section 3 of ISPM 46 are used by the TPCS to identify candidate measures for inclusion and the criteria listed in section 4 are used to select which of these candidate measures to actually include,
 - the confidence categories are not included in commodity standards,
 - there is no need for the TPCS to develop the criteria in section 4 of ISPM 46 any further, and
 - transparency regarding the selection of measures will be achieved by the publication of working procedures for the panel and the recording of the rationale for including or excluding pests and measures;
- (75) *approved* the TPCS working procedures, modified to exclude Part 5 (Appendix 13), and *requested* that the secretariat include them in the *IPPC procedure manual for standard setting*, pending those parts relating to the Standard Setting Procedure that require CPM approval;
- (76) *agreed* that, when there is evidence that a phytosanitary measure included in a commodity standard may no longer be effective, or when there is a taxonomic change concerning a pest that is included in a commodity standard, a footnote to this effect be added to the annex as a variation of the ink-amendment process, as an interim solution until the commodity standard is revised;
- (77) *invited* the secretariat and the TPCS to explore options on how to build a database on commodity standards, and present proposals on this to the SC at a future meeting;
- (78) *agreed* that all draft specifications for commodity standards would follow a standard format and *requested* that the TPCS and secretariat prepare a template;
- (79) *noted* the reports from the TPCS meetings in December 2022 (virtual meeting), January 2023 (face-to-face meeting), February 2023 (virtual meeting) and April 2023 (virtual meeting);
- (80) *thanked* Japan for hosting the first face-to-face meeting of the TPCS in January 2023;
- (81) *noted* the summary update paper from the TPCS;²¹
- (82) *agreed* to defer any revision to Specification TP 6 (*Technical Panel on Commodity Standards*) until the outcome of potential adjustments to the Standards Setting Procedure is known; and
- (83) *agreed* to share proposals for commodity standards, forwarded to the SC by the Task Force on Topics, with the TPCS to allow the TPCS to advise the SC on the feasibility of developing the commodity standards.

7. Review of the *List of topics for IPPC standards*

[139] This item was deferred.

²¹ 21_SC_2023_May, Attachment 3.

8. Standards Committee

8.1 CPM-17 (2023) outcomes relevant to the Standards Committee

[140] The SC chairperson referred the SC to a summary of outcomes from CPM-17 (2023) that were relevant to the SC and invited comments.²²

[141] There were no comments.

[142] The SC:

(84) *noted* the outcomes of CPM-17 (2023) and its key issues; and

(85) *noted* the CPM decision to create focus groups for the development agenda items on global research coordination and on diagnostic laboratory networking.

8.2 Review of the e-decision process for the selection of technical panel members

[143] Further to the SC's discussions at their meeting in November 2022,²³ Steve CÔTÉ (Canada) presented a review of the e-decision process for the selection of technical panel members.²⁴ This included two options for consideration by the SC: in one, a decision was made only if there were no objections (as per the current process); in the other, the most preferred candidate was selected without proceeding to a further e-forum or e-poll.

[144] The SC discussed the relative merits of the two options. They noted that it may be more difficult to achieve adequate regional representation with the "preferred candidate" option but SC members could take regional representation into account when expressing their preference, especially if the current membership of the technical panel was listed in the background information for the e-decision. They also recognized that the recent problems experienced in the selection process were largely a result of having to make decisions entirely by e-decision during the COVID-19 pandemic, whereas the current selection process had worked well before that.

[145] The secretariat recalled the advice from the FAO Legal Office that it was preferable to seek consensus rather than conducting a vote. The secretariat offered to confirm the rules about voting with the FAO Legal Office, if needed.

[146] Considering the options, the SC agreed to retain the current process, but the SC chairperson acknowledged that it would be helpful to clarify the rules about voting in case they were ever needed.

[147] The SC:

(86) *agreed* that the process for the selection of Technical Panel members via e-decision should remain as currently, with a decision made only if there are no objections (i.e. only when there is consensus) (Appendix 14);

(87) *requested* that the secretariat update the *Procedures for conducting discussions and making decisions by electronic means* accordingly; and

(88) *requested* that the secretariat seek legal advice on the rules about reaching decisions in the absence of face-to-face meetings and about voting.

8.3 Summary of polls and fora discussed on the e-decision site (from to November 2022 to May 2023)

[148] The secretariat presented a paper listing the e-decision fora and polls conducted from November 2022 to May 2023.²⁵

²² 20_SC_2023_May; CPM-17 (2023) meeting report: www.ippc.int/en/cpm-sessions

²³ SC 2022-11, agenda item 8.1.

²⁴ 11_SC_2023_May.

²⁵ 23_SC_2023_May.

[149] Following the inconclusive outcome of the e-forum to select an EWG to develop the draft annex *Field inspection* (2021-018) to ISPM 23, the SC agreed to reopen the call. They also agreed that nominees who had made a submission during the first call did not need to reapply, and that the SC would consider these nominees along with any new nominees when selecting the EWG.

[150] Tentative forthcoming SC e-decisions are as follows:

- draft DPs and PTs for approval for consultation 1 July to 30 September 2023:
 - revision of DP 27: *Ips* spp. (2021-004), priority 1,
 - revision of DP 25: *Xylella fastidiosa* (2021-003), priority 2, and
 - draft PT: Cold treatment *Thaumatotibia leucotreta* on *Citrus sinensis* (2017-029);
- draft DPs for adoption, for DP notification period 1 July to 15 August 2023:
 - *Mononychelus tanajoa* (2018-006), priority 1, and
 - genus *Ceratitidis* (2016-001), priority 1;
- adoption of the 2023 May SC meeting report;
- approval of SPG paper on systems approaches;
- selection of TPG member for Spanish;
- selection of new TPDP member – botanist;
- draft DPs for consultation 30 January to 30 June 2024:
 - revision of DP 9: Genus *Anastrepha* Schiner (2021-002), priority 2,
 - pospiviroid species (except *Potato spindle tuber viroid* (DP 7)) (2018-031), priority 2,
 - *Heterobasidion annosum sensu lato* (2021-015), priority 3, and
 - *Meloidogyne mali* (2018-019), priority 3.

[151] The SC:

- (89) *agreed* that the “Summary of Standard Committee e-decisions between November 2022 and May 2023” accurately reflected the outcome of the SC e-decisions (Appendix 15); and
- (90) *agreed* to reopen a call for experts for the EWG on Field Inspection (annex to ISPM 23 (*Guidelines for inspection*)) (2021-018) for three weeks.

9. Update and enhancing synergies

[152] This item was deferred.

10. Any other business

[153] The SC did not consider any other business. Participation at this year’s SC-7 had been addressed outside of the SC meeting.

11. Recommendations to CPM Bureau, Strategic Planning Group or CPM-18 (2024)

[154] The SC noted that the following would be recommended to CPM-18 (2024):

- draft revision of ISPM 4 (*Requirements for the establishment of pest free areas*) (2009-002) for adoption; and
- changes to the Standard Setting Procedure regarding commodity standards (see agenda item 6.4).

[155] The SC noted that the following issues would be forwarded to CPM-18 (2024):

- to *note* the ink amendments to ISPM 5 (*Glossary of phytosanitary terms*) (see section 6.2 of this report).

[156] The SC noted that the following issues would be forwarded to the CPM Bureau:

- to *consider* the recommendation of the SC regarding the development of criteria for what constitutes an emerging pest and to *advise* on the next steps (see section 4.3 of this report);
- to *note* that there will be an additional consultation period for DPs only in January 2024 (see section 6.3 of this report);
- to *note* the revision to Specification TP 1 (*Technical Panel on Diagnostic Protocols*) (see section 6.3 of this report);
- to *note* the proposals for a commodity standards database (see section 6.4 of this report);
- to *note* that a footnote to adopted commodity standards will be added as an ink amendment when there is evidence that a phytosanitary measure may no longer be effective or when there is a taxonomic change concerning a pest (see section 6.4 of this report); and
- to *note* that contracting parties are encouraged to use the template form developed by the TPCS when proposing a commodity standard in a call for topics (see section 6.4 of this report).

[157] The SC noted that papers on the following would be prepared for the CPM Bureau:

- SC update.

[158] The SC noted that a paper on the following would be prepared for the Strategic Planning Group:

- systems approaches (see section 4.4 of this report).

12. Agenda items deferred to future SC meetings

[159] The following items were deferred to the November 2023 meeting of the SC:

- review of the *List of topics for IPPC standards* (agenda item 7 of this meeting); and
- update and enhancing synergies (agenda item 9 of this meeting).

14. Date and venue of the next SC meeting

[160] The next SC meeting is scheduled for 13–17 November 2023 in Rome, Italy, as a face-to-face meeting.

15. Evaluation of the meeting process

[161] The SC chairperson encouraged all SC members to complete the evaluation of the meeting, via the link provided to SC members during this meeting.

16. Review and adoption of the decisions

[162] The SC reviewed and adopted the decisions from this meeting.

[163] For ease of reference, a list of action points arising from the meeting is attached as Appendix 16.

[164] The SC:

- (91) *requested* that the secretariat open an e-decision to approve the meeting from this report, following approval of the text by the rapporteur.

17. Close of the meeting

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

Appendix 1: Agenda

	AGENDA ITEM	DOCUMENT NO.	PRESENTER/ SECRETARIAT SUPPORT
1.	Opening of the Meeting		
1.1	Welcome by the IPPC Secretariat	---	El-Lissy neRSISYAN
2.	Meeting Arrangements		
2.1	Election of the Rapporteur	---	Chairperson (PETERSON)
2.2	Adoption of the Agenda	01_SC_2023_May	Chairperson
3.	Administrative Matters		
3.1	Documents List	02_SC_2023_May	KRAH
3.2	Participants List	03_SC_2023_May SC membership list	KRAH
3.3	Local Information	Link to local information	KRAH
3.4	Standard Setting Unit staff	Link to standard setting staff	NERSISYAN
4.	Draft ISPMs for approval for the first consultation		
4.1	Reorganization and revision of pest risk analysis standards (2020-001), Priority 1 Steward: Mr Masahiro SAI Assistant stewards : Ms Joanne WILSON, Mr Hernando MORERA-GONZÁLEZ <ul style="list-style-type: none"> ❖ Specification 72 (for information) ❖ Steward's notes ❖ EWG meeting report ❖ Summary of SC comments from OCS ❖ Introduction to the reorganization and revision of the PRA standards 	2020-001_intoOCS_TC 2020-001 Specification 72 04_SC_2023_May EWG meeting report 09_SC_2023_May 01_CRP_SC_2023_May	SAI/KISS

	AGENDA ITEM	DOCUMENT NO.	PRESENTER/ SECRETARIAT SUPPORT
4.2	<p>Draft Annex International Movement of Mango (<i>Mangifera indica</i>) Fruit to ISPM 46 (Commodity-specific standards for phytosanitary measures (2021-011), Priority 1</p> <p>Steward: Ms. Joanne WILSON</p> <p>Assistant steward: Mr Hernando MORERA-GONZÁLEZ</p> <ul style="list-style-type: none"> ❖ Specification 73 (for information) ❖ Steward's notes ❖ TPCS meeting report 	<p>2021-011</p> <p>Specification 73</p> <p>08_SC_2023_May</p> <p>TPCS meeting report</p>	<p>WILSON/MOREIRA</p>
4.3	<p>2023 Draft Amendments to ISPM 5 (Glossary of phytosanitary terms) (1994-001), Priority 1</p> <p>Steward: Mr Álvaro SEPÚLVEDA LUQUE</p> <p>Assistant steward: Mr Ebbe NORDBO</p> <ul style="list-style-type: none"> ❖ TPG meeting report 	<p>1994-001</p> <p>TPG meeting report</p>	<p>SEPULVEDA/SHAMILOV</p>
4.4	<p>Draft Annex Design and use of systems approaches for phytosanitary certification of seeds to ISPM 38 (International movement of seeds) (2018-009), Priority 1</p> <p>Steward: Ms Marina ZLOTINA</p> <p>Assistant steward: Mr Hernando Morera GONZÁLEZ</p> <ul style="list-style-type: none"> ❖ Specification 70 (for information) ❖ Steward's notes ❖ EWG meeting report 	<p>2018-009</p> <p>Specification 70</p> <p>15_SC_2023_May</p> <p>EWG meeting report</p>	<p>ZLOTINA/SHAMILOV</p>
4.5	<p>Draft Annex Use of systems approaches in managing the pest risks associated with the movement of wood to ISPM 39 (International movement of wood) (2015-004), Priority 3</p> <p>Steward: Mr Steve CÔTÉ</p> <p>Assistant steward: Mr Harry ARIJS</p> <ul style="list-style-type: none"> ❖ Specification 69 (for information) ❖ Steward's notes ❖ EWG meeting report 	<p>2015-004</p> <p>Specification 69</p> <p>10_SC_2023_May</p> <p>EWG meeting report</p>	<p>CÔTÉ/SHAMILOV</p>
5.	Draft ISPMs pending approval for adoption by CPM		

	AGENDA ITEM	DOCUMENT NO.	PRESENTER/ SECRETARIAT SUPPORT
5.1	<p>DRAFT ISPM: Revision of ISPM 4 (Requirements for the establishment of pest free areas) (2009-002), Priority 4</p> <p>Steward: Ms Marina ZLOTINA</p> <p>Assistant steward: Mr David KAMANGIRA</p> <ul style="list-style-type: none"> ❖ Background document ❖ Compiled comments (including Steward's response) ❖ Steward's summary and potential implementation issues ❖ Comments from APPPC members (SAI) ❖ Comments from European members (ARIJS) 	<p>2009-002</p> <p>05_SC_2023_May</p> <p>06_SC_2023_May</p> <p>07_SC_2023_May</p> <p>17_SC_2023_May</p> <p>19_SC_2023_May</p>	<p>ZLOTINA/MOREIRA</p>
6.	Review of technical panels (from May 2022 to April 2023)		
6.1	<p>Technical Panel on Phytosanitary Treatments (TPPT)</p> <p>Steward: Mr David OPATOWSKI</p> <ul style="list-style-type: none"> ❖ Call for treatments ❖ TPPT meeting reports ❖ Update on activities of the TPPT 	<p>Call for Phytosanitary Treatments page</p> <p>TPPT meeting reports</p> <p>22_SC_2023_May</p>	<p>OPATOWSKI/KISS</p>
6.2	<p>Technical Panel for the Glossary (TPG)</p> <p>Steward: Mr Alvaro SEPÚLVEDA</p> <ul style="list-style-type: none"> ❖ TPG meeting reports (2022 December and 2023 March, virtual) ❖ Update on activities of the TPG ❖ Consistency issue in ISPM 23 ❖ Selection of TPG members for Spanish language 	<p>TPG Reports</p> <p>14_SC_2023_May</p> <p>13_SC_2023_May</p> <p>12_SC_2023_May</p>	<p>SEPÚLVEDA/SHAMILOV</p>
6.3	<p>Technical Panel for Diagnostic Protocols (TPDP)</p> <p>Steward: Mr Alvaro SEPÚLVEDA</p> <p>Assistant steward: -</p> <ul style="list-style-type: none"> ❖ TPDP meeting reports ❖ Update on activities of the TPDP 	<p>TPDP meeting reports</p> <p>16_SC_2023_May</p>	<p>SEPÚLVEDA/MOREIRA</p>

AGENDA ITEM		DOCUMENT NO.	PRESENTER/ SECRETARIAT SUPPORT
6.4	Technical Panel on Commodity Standards (TPCS) Steward: Mr Sam Bishop Assistant Steward: Ms Joanne Wilson <ul style="list-style-type: none"> ❖ TPCS meeting reports ❖ Update on activities of the TPCS 	TPCS meeting reports 21_SC_2023_May	BISHOP/MOREIRA
7.	Review of the List of Topics for IPPC standards (LOT)		
7.1	Review of: <ul style="list-style-type: none"> ❖ Adopted List of Topics by CPM-17 	18_SC_2023_May Link to List of Topics for IPPC standards	KRAH
8.	Standards committee		
8.1	CPM-17 (2023) outcomes relevant to the SC	20_SC_2023_May CPM 17 Report	Chairperson/KRAH
8.2	Review of the e-decision process for the selection of technical panel members	11_SC_2023_May	CÔTÉ/KISS
8.3	Summary of polls and forums discussed on the e-decision site (from November 2022 to May 2023)	23_SC_2023_May	KISS
9.	Update and enhancing synergies		NERSISYAN
10.	Any other business		Chairperson
11.	Recommendations to CPM Bureau, SPG, or CPM-18 (if any)		Chairperson
12.	Agenda items deferred to future SC Meetings		Chairperson
13.	Date and venue of the next SC Meeting	13-17 Nov 2023 (FAO HQ, Rome)	Chairperson
14.	Evaluation of the meeting process	Link to survey	Chairperson
15.	Review and Adoption of the report (Decisions)		Chairperson
16.	Close of the meeting		Chairperson

Appendix 2: Documents list

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	DATE POSTED / DISTRIBUTED
Draft ISPMs			
(2020-001)	4.1	Draft ISPM Reorganization and revision of pest risk analysis standards (2020-001)	2023-02-28 2023-04-06
(2021-011)	4.2	Draft Annex International Movement of Mango (<i>Mangifera indica</i>) Fruit to ISPM 46 (Commodity- specific standards for phytosanitary measures (2021-011)	2023-03-07
1994-001	4.3	2023 Draft Amendments to ISPM 5 (1994-001)	2023-03-14
(2018-009)	4.4	Draft Annex Design and use of systems approaches for phytosanitary certification of seeds to ISPM 38 (International movement of seeds) (2018-009)	2023-04-14
(2015-004)	4.5	Draft Annex Use of systems approaches in managing the pest risks associated with the movement of wood to ISPM 39 (International movement of wood) (2015-004)	2023-03-14
(2009-002)	5.1	DRAFT ISPM: Revision of ISPM 4 (Requirements for the establishment of pest free areas) (2009-002)	2023-03-20
Other Documents			
01_SC_2023_May	2.2	Provisional Agenda	2023-03-01 2023-03-20 2023-04-14 2023-04-18 2023-04-24 2023-04-25 2023-04-27 2023-05-03
02_SC_2023_May	3.1	Documents List	2023-04-14 2023-04-18 2023-04-24 2023-04-25 2023-04-27 2023-05-03
03_SC_2023_May	3.2	Participants List	2023-04-13
04_SC_2023_May	4.1	Stewards Notes Reorganization and revision of pest risk analysis standards	2023-02-28 2023-04-06
05_SC_2023_May	5.1	Background document: DRAFT Revision of ISPM 4: Requirements for the establishment of pest free areas (2009-002)	2023-03-20
06_SC_2023_May	5.1	Compiled comments (including Steward's response) to DRAFT ISPM: Revision of ISPM 4 (Requirements for the establishment of pest free areas) (2009-002)	2023-03-20
07_SC_2023_May	5.1	Steward's summary and potential implementation issues to DRAFT ISPM: Revision of ISPM 4	2023-03-20
08_SC_2023_May	4.2	Steward's notes Annex to ISPM 46: International movement of fresh <i>Mangifera indica</i> fruit (2021-11)	2023-03-20
09_SC_2023_May	4.1	Reconciliation report for 2020-001_Draft ISPM_PRA_intoOCS_clean.docx (2020-001_Draft ISPM_PRA_intoOCS_clean.docx)	2023-04-06
10_SC_2023_May	4.5	Steward's note to draft ISPM: Annex to ISPM 39 (International movement of wood) on the use of Systems Approaches in managing pest risk associated with the movement of wood	2023-04-14

DOCUMENT NO.	AGENDA ITEM	DOCUMENT TITLE	DATE POSTED / DISTRIBUTED
11_SC_2023_May	8.2	Review of the procedure for e-decisions for the selection of Technical Panel members	2023-04-13
12_SC_2023_May	6.2	Selection of expert for the Spanish language for the Technical Panel for the Glossary	2023-04-14
13_SC_2023_May	6.2	Consistency issue in ISPM 23	2023-04-14
14_SC_2023_May	6.2	Update on activities of the Technical Panel for the Glossary from June 2022 to May 2023	2023-04-14
15_SC_2023_May	4.4	Steward's notes: Annex to ISPM 38: Design and use of systems approaches for phytosanitary certification of seeds (2018-009)	2023-04-18
16_SC_2023_May	6.3	Update on activities of the Technical Panel on Diagnostic Protocols (TPDP) from July 2022 to April 2023	2023-04-20
17_SC_2023_May	5.1	Comments from APPPC members on paragraphs 78 and 79 of the draft revision of ISPM 4: Requirements for the establishment of pest free areas (2009-002)	2023-04-24
18_SC_2023_May	7.1	Review and adjustments to the List of topics for IPPC standards	2023-04-25
19_SC_2023_May	5.1	Comments from standards committee European members on paragraph 79 of the draft revision of ISPM 4: Requirements for the establishment of pest free areas (2009-002)	2023-04-27
20_SC_2023_May	8.1	CPM-17 (2023) outcomes relevant to the SC	2023-04-27
21_SC_2023_May	6.4	Update on activities of the Technical Panel on Commodity Standards (TPCS)	2023-05-03
22_SC_2023_May	6.1	Update on activities of the Technical Panel on Phytosanitary Treatments (TPPT)	2023-05-03
23_SC_2023_May	8.3	Summary of polls and forums discussed on the e-decision site (from November 2022 to May 2023)	2023-05-03

IPP LINKS:	Agenda item
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Appendix 3: Participants list

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Appendix 4: DRAFT REORGANIZATION AND REVISION OF PEST RISK ANALYSIS STANDARDS: Pest risk analysis for quarantine pests (2020-001)

Status box

This is not an official part of the standard and it will be modified by the IPPC Secretariat after adoption.	
Date of this document	2022-05-17
Document category	Draft ISPM
Current document stage	To first consultation
Major stages	2020-07 CPM Bureau added topic <i>Reorganization of pest risk analysis standards (2020-001)</i> to the <i>List of topics for IPPC standards</i> (subsequently confirmed by CPM-15 (2021), with SC 2021/04 recommending priority 1). 2021-11 SC approved Specification 72. 2022-11 Expert working group met and drafted the standard. 2023-05 SC revised the draft and approved it for consultation.
Steward history	2020-09 SC Masahiro SAI (JP, Lead Steward) 2020-09 SC Joanne WILSON (NZ, Assistant Steward) 2020-09 SC Hernando Moreira GONZÁLES (CR, Assistant Steward)
Notes	2018-03 Annex 3 edited (draft ISPM on <i>Guidance on pest risk management (2014-001)</i>) 2023-01 Edited (<i>Reorganization and revision of pest risk analysis standards (2020-001)</i>) 2023-05 Light edit

Adoption

[Text in this section will be added following adoption.]

INTRODUCTION

Scope

This standard describes the overall structure and concepts underlying the process of pest risk analysis (PRA) for quarantine pests within the scope of the IPPC. It covers the integrated processes of the three stages of PRA – initiation, pest risk assessment and pest risk management. Uncertainty, information gathering, documentation, pest risk communication, consistency and avoidance of undue delay are addressed. Specific guidance is also provided on the analysis of risks posed by pests to the environment and biological diversity, risks posed by plants that are living modified organisms (LMOs), and PRA for plants as quarantine pests.

This standard does not cover PRA for regulated non-quarantine pests, guidance for which is provided in ISPM 21 (*Pest risk analysis for regulated non-quarantine pests*).

References

The present standard refers to ISPMs. ISPMs are available on the International Phytosanitary Portal (IPP) at www.ippc.int/core-activities/standards-setting/ispms.

CBD. 2000. *Cartagena Protocol on Biosafety to the Convention on Biological Diversity*. Montreal, Secretariat of the Convention on Biological Diversity.

ICPM. 2001. *Report of the Third Interim Commission on Phytosanitary Measures*, Rome, 2–6 April 2001. Rome, IPPC Secretariat, FAO. www.ippc.int/en/publications/144

- ICPM.** 2005. *Report of the Seventh Interim Commission on Phytosanitary Measures*, Rome, 4–7 April 2005. Rome, IPPC Secretariat, FAO. www.ippc.int/en/publications/442
- IPPC Secretariat.** 1997. *International Plant Protection Convention*. Rome, IPPC Secretariat, FAO. www.ippc.int/en/core-activities/governance/convention-text
- WTO (World Trade Organization).** 1994. *Agreement on the Application of Sanitary and Phytosanitary Measures*. Geneva.

Definitions

Definitions of phytosanitary terms used in this standard can be found in ISPM 5 (*Glossary of phytosanitary terms*).

Outline of requirements

The PRA is an appropriate tool to: identify pests and pathways of potential phytosanitary concern for a specified area and evaluate their pest risk; identify endangered areas; and, if appropriate, identify pest risk management options and determine the most appropriate phytosanitary measures, commensurate with the identified risk, to reduce the risk of introduction and spread of the pests concerned. Pest risk analysis for quarantine pests consists of three stages: 1: Initiation; 2: Pest risk assessment; and 3: Pest risk management.

BACKGROUND

Pest risk analysis provides the rationale for phytosanitary measures for a specified PRA area. In a PRA, scientific evidence is evaluated to determine whether an organism is a pest. If it is a pest, the analysis evaluates the probability of introduction and spread of the pest and the magnitude of potential economic consequences in a defined area, using biological or other scientific and economic evidence. For some organisms, it is known beforehand that they are pests, but for others, the question of whether or not they are pests should initially be resolved. If the pest risk is deemed unacceptable, the analysis may continue by suggesting pest risk management options that could reduce the pest risk to an acceptable level. Subsequently, these pest risk management options may be used to establish phytosanitary regulations.

The pest risk posed by the introduction of organisms associated with a particular pathway, such as a commodity, should also be considered in a PRA. The commodity itself may not pose a pest risk but may harbour organisms that are pests. Lists of such organisms are compiled during the initiation stage. Specific organisms may then be analysed individually, or in groups where individual species share common biological characteristics.

Less commonly, the commodity itself may pose a pest risk. When organisms imported as commodities (such as plants for planting, biological control agents and other beneficial organisms, and LMOs) are deliberately introduced and established in intended habitats in new areas, there is a risk that they may accidentally spread to unintended habitats, causing injury to plants or plant products. Such risks may also be analysed using the PRA process.

The PRA process is applied to pests of cultivated plants and wild flora, in accordance with the scope of the IPPC. It does not cover the analysis of risks beyond the scope of the IPPC.

Provisions of other international agreements may address risk assessment (e.g. the Convention on Biological Diversity and the Cartagena Protocol on Biosafety to that convention (CBD, 2000)).

The principles of necessity, managed risk, minimal impact, transparency harmonization, non-discrimination, technical justification, cooperation, and equivalence, as described in ISPM 1 (*Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade*) and the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) (WTO, 1994), are all essential considerations in pest risk analysis.

IMPACTS ON BIODIVERSITY AND THE ENVIRONMENT

The standard provides guidance on how to determine whether a pest satisfies the criteria to be considered a quarantine pest and pest risk management options to manage the associated pest risk. The identification of these options takes account of the degree of uncertainty and the options are designed in proportion to the risk. The process includes analysis of risks to biodiversity and the environment posed by pests. The resulting phytosanitary measures may help protect the environment and preserve biodiversity by managing the pest risk posed by commodities that are moved internationally, while avoiding phytosanitary actions that are not technically justified.

REQUIREMENTS

1. Framework for PRA

The PRA process may be used for organisms not previously recognized as pests (such as plants, biological control agents and other beneficial organisms, and LMOs), recognized pests, pathways, and review of phytosanitary policy. The process can be summarized as follows:

- The PRA process is initiated in Stage 1, which involves identifying the pest (or pests) and pathways that are of potential concern and that should be considered for pest risk assessment in relation to the identified PRA area. If no pests are identified in this stage, the analysis may stop.
- Stage 2 (pest risk assessment) begins with the categorization of individual pests to determine whether the criteria for a quarantine pest are satisfied. If no pests meet the criteria, the analysis may stop. Pest risk assessment continues with an evaluation of the probability of pest entry, establishment and spread, and of their potential consequences.
- Stage 3 (pest risk management) involves identification, evaluation and selection of appropriate phytosanitary measures to reduce the pest risk posed by the quarantine pests identified at Stage 2.

Pest risk analysis, however, is not necessarily a linear process because, in conducting the entire analysis, it may be necessary to go back and forth between various stages. Information gathering, documentation and pest risk communication are carried out throughout the PRA process.

General requirements for the PRA process and aspects common to all PRA stages (e.g. information, gathering, documentation, pest risk communication) are provided in the core text of this standard and detailed guidance on each stage of PRA is given in Annexes 1, 2 and 3, respectively. Detailed guidance on environmental risks, LMOs and plants as pests is given in Annexes 4, 5 and 6, respectively.

An overview of the full PRA process is illustrated in Appendix 1.

This standard is not a detailed operational or methodological guide for assessors.

2. Aspects common to all PRA stages

2.1 Information gathering

Throughout the process, information should be gathered and analysed as required to reach recommendations and conclusions. Scientific publications as well as technical information such as data from surveys and interceptions may be relevant. As the analysis progresses, information gaps may be identified necessitating further enquiries or research. Where information is insufficient or inconclusive, expert judgement may be used if appropriate.

Cooperation in the provision of information and responding to requests for information made via the official contact point are IPPC obligations (Articles VIII.1(c) and VIII.2). When requesting information from other contracting parties, requests should be as specific as possible and limited to information essential to the analysis. Other agencies may be approached for information appropriate to the analysis.

2.2 Uncertainty

Uncertainty is a component of risk and therefore it is important to recognize and document uncertainty when performing PRAs. Sources of uncertainty with a particular PRA may include missing, incomplete, inconsistent or conflicting data; natural variability of biological systems; subjectiveness of analysis; and sampling randomness. Symptoms of uncertain causes and origin and asymptomatic carriers of pests may pose particular challenges.

The nature and degree of uncertainty in the analysis should be documented and communicated, and the use of expert judgement should be clearly indicated. If adding or strengthening of phytosanitary measures is recommended to compensate for uncertainty, this should be recorded. Documentation of uncertainty contributes to transparency and may also be useful for the identification of research needs or priorities.

As uncertainty is an inherent part of PRA, it is appropriate to monitor the phytosanitary situation resulting from the regulation based on any particular PRA and to re-evaluate previous decisions.

2.3 Documentation

The principle of transparency requires that contracting parties should, on request, make available the technical justification for phytosanitary import requirements. Thus, the PRA should be sufficiently documented. This may be achieved by documenting PRA at two levels:

- documenting the general PRA process; and
- documenting each analysis made.

2.3.1 Documenting the general PRA process

Each national plant protection organization (NPPO) may document the procedures and criteria of its general PRA process.

2.3.2 Documenting each specific PRA

For each particular analysis, the entire process from initiation to pest risk management should be sufficiently documented so that the sources of information and the rationale for management decisions can be clearly demonstrated. However, a PRA does not necessarily need to be long and complex. A short and concise PRA may be sufficient provided justified conclusions can be reached after completing only a limited number of steps in the PRA process.

The main elements that should be documented are:

- purpose of the PRA;
- identity of the organism;
- PRA area;
- biological attributes of the organism and evidence of ability to cause injury;
- pest, pathways, endangered area;
- sources of information;
- nature and degree of uncertainty and measures envisaged to compensate for uncertainty;
- commodity description and categorized pest list (in the case of pathway-initiated analysis);
- evidence of economic impact, which includes environmental impact;
- conclusions of pest risk assessment (probabilities and consequences);
- decisions and justifications to stop the PRA process;
- phytosanitary measures identified, evaluated and recommended from pest risk management; and
- date of completion and the NPPO responsible for the analysis, including (if appropriate) names of authors, contributors and reviewers.

Other aspects to be documented may include:

- any particular need for monitoring the efficacy or effectiveness of proposed phytosanitary measures; and
- potential dangers identified that are outside the scope of the IPPC and are to be communicated to other authorities (e.g. biological control agents).²⁶

2.4 Pest risk communication

Pest risk communication is important throughout each stage of PRA. It is generally recognized as an interactive process allowing exchange of information between the NPPO that has conducted the PRA and stakeholders. It is not simply a one-way movement of information or about making stakeholders understand the risk situation, but is meant to reconcile the views of scientists, stakeholders, politicians and so on, in order to:

- achieve a common understanding of the pest risk;
- develop credible pest risk management options;
- develop credible and consistent regulations and policies to deal with pest risk; and
- promote awareness of the phytosanitary issues under consideration.

At the end of the PRA, evidence supporting the PRA, the proposed mitigations and the uncertainties should be communicated to the affected NPPOs and may be communicated to other interested parties, including other contracting parties, regional plant protection organizations and NPPOs, as appropriate.

If, subsequent to the PRA, phytosanitary import requirements or prohibitions are adopted, the contracting party shall immediately publish these and notify contracting parties that it believes may be directly affected (according to IPPC Article VII.2(b)) and on request make the rationale available to any contracting party (according to IPPC Article VII.2(c)).

If, subsequent to the PRA, phytosanitary import requirements or prohibitions are not adopted, contracting parties may make this information available.

National plant protection organizations are encouraged to communicate evidence of dangers other than pest risk (such as to animals or human health) to the appropriate authorities.

2.5 Consistency in PRA

National plant protection organizations should strive for consistency in their conduct of PRAs. Consistency offers numerous benefits, including:

- promotion of the principles of non-discrimination and transparency;
- improved familiarity with the PRA process;
- increased efficiency in completing PRAs and managing related data; and
- improved comparability between PRAs conducted on similar products or pests, which in turn aids the development and application of similar or equivalent management measures.

Consistency may be assured through, for example, the elaboration of generic decision criteria and procedural steps, training of individuals conducting PRA, and review of draft PRAs.

2.6 Avoidance of undue delay

Where other contracting parties are directly affected by the outcome of an individual PRA, the NPPO conducting the PRA should, on request, supply information about the completion of it, and if possible the anticipated time frame, taking into account avoidance of undue delay (see ISPM 1).

²⁶ ISPM 3 (*Guidelines for the export, shipment, import and release of biological control agents and other beneficial organisms*) lists additional documentation requirements in relation to biological control agents and other beneficial organisms.

3. Scope of PRA

The range of pests covered by the IPPC extends beyond pests directly affecting cultivated plants. Pests may also include pests indirectly affecting cultivated plants, pests affecting non-cultivated plants, LMOs, and plants as pests.

3.1 Environmental risks

The IPPC applies to the protection of wild and cultivated plants. Therefore, pests affecting all types of plants, directly or indirectly, are within the scope of the IPPC. Information on the scope of the IPPC with regard to environmental risks is provided in Annex 4.

3.2 Living modified organisms

This standard is generally concerned with phenotypic characteristics rather than genotypic characteristics. However, genotypic characteristics may need to be considered when assessing the pest risk posed by an LMO. Information on the scope of the IPPC with regard to PRA for LMOs, together with the factors to consider when determining the potential for an LMO to be a pest, are provided in Annex 5.

3.3 Plants as pests

The number and diversity of plants being moved between and within countries is increasing as opportunities for trade increase and markets develop for new plants. Movements of plants may imply two types of pest risk: the plant (as a pathway) may carry pests, or the plant itself may be a pest. The risk of introducing pests with plants as a pathway has long been recognized and widely regulated. However, the pest risk posed by plants as pests requires specific consideration. Information on the scope of the IPPC with regard to PRA for plants as pests is provided in Annex 6.

This annex is a prescriptive part of the standard.

ANNEX 1: Initiation (PRA Stage 1)

1. Introduction

The purpose of the PRA initiation is to identify pests and pathways that may potentially be considered quarantine pests or pathways for quarantine pests in relation to the identified PRA area.

A PRA process may be triggered in the following situations:

- a request is made to consider a pathway that may require phytosanitary measures;
- a pest is identified that may justify phytosanitary measures;
- a decision is made to review or revise phytosanitary measures or policies; or
- a request is made to determine whether an organism is a pest.

The initiation stage involves four steps:

- determining whether an organism is a pest (section 3 of this annex);
- defining the PRA area (section 4 of this annex);
- evaluating any previous PRA (section 6 of this annex); and
- conclusion (section 7 of this annex).

When the PRA process has been triggered by a request to consider a pathway, the above steps are preceded by assembling a list of organisms of possible regulatory concern because they are likely to be associated with the pathway.

At this stage, information is necessary to identify the organism and its potential economic impact, which includes environmental impact.²⁷ Other useful information on the organism may include its geographical distribution, host plants, habitats and association with commodities. For pathways, information about the commodity, including modes of transport, and its intended use, is essential.

2. Initiation points

2.1 PRA initiated by the identification of a pathway

The need for a new or revised PRA for a specific pathway may arise in situations such as when:

- import is proposed of a commodity not previously imported or a commodity from a new area of origin;
- there is an intention to import for selective breeding or scientific research a plant species or cultivar not yet introduced that could potentially be a host of pests;
- a pathway other than commodity import is identified (natural spread, packing material, mail, garbage, compost, passenger baggage, etc.);
- a change in the susceptibility of a plant to a pest is identified; or
- there is a change in the virulence (i.e. the aggressiveness) or host range of a pest.

These are situations where the commodity itself is not a pest. When the commodity itself may be a pest, it should also be considered under section 2.4 of this annex.

A list of organisms likely to be associated with the pathway should be assembled, including organisms that have not yet been clearly identified as pests. When a PRA is carried out for a commodity for which trade already exists, records of actual pest interceptions should be used as the basis for the listing of associated pests.

²⁷ Further information on this aspect is provided in Supplement 2 (Guidelines on the understanding of “potential economic importance” and related terms including reference to environmental considerations) to ISPM 5.

2.2 PRA initiated by the identification of a pest

The need for a new or revised PRA on a specific recognized pest may arise in situations such as when:

- an infestation or an outbreak of a new pest is discovered within an area (which may be in the exporting country or in another country or countries);
- an emergency arises on discovery of an established infestation or an outbreak of a new pest within a PRA area (see ISPM 1);
- a pest is newly identified by scientific research;
- a pest is reported to be more injurious than previously known;
- an organism is identified as a vector for other recognized pests;
- a pest is introduced into a PRA area;
- there is a change in the status or incidence of a pest in a PRA area;
- a pest that is new to a PRA area is intercepted on an imported commodity;
- a pest is repeatedly intercepted at import;
- a pest is proposed to be imported for research or other purpose; or
- an organism is genetically altered in a way which clearly identifies its potential as a pest (LMO).²⁸

In these situations, the fact that the organism is known to be a pest should be recorded in preparation for PRA Stage 2.

2.3 Review of phytosanitary policies

The need for a new or revised PRA may arise from situations such as when:

- a national review of phytosanitary regulations, requirements or operations is undertaken;
- a proposal made by another country or by an international organization (e.g. a regional plant protection organization, the Food and Agriculture Organization of the United Nations) is reviewed;
- an evaluation of a regulatory proposal of another country or international organization is undertaken;
- a new system, process or procedure is introduced or new information made available that could influence a previous decision (e.g. results of monitoring; a new treatment or withdrawal of a treatment; new diagnostic methods);
- a dispute arises concerning phytosanitary measures; or
- the phytosanitary situation in a country changes, a new country is created, or political boundaries are changed.

In these situations, pests will already have been identified and this fact should be recorded in preparation for PRA Stage 2.

For existing trade, no new phytosanitary measures should be applied until the revision or new PRA has been completed, unless this is warranted by new or unexpected phytosanitary situations that may necessitate emergency measures.

2.4 Identification of an organism not previously known to be a pest

An organism may be considered for PRA in situations such as when:

- a proposal is made to import a new plant species or variety for cropping, amenity or environmental purposes;
- a proposal is made to import or release a biological control agent or other beneficial organism;

²⁸ “Genetically altered” organisms in this context are understood to include organisms obtained through the use of modern biotechnology.

- an emergency arises on interception of a new organism on an imported commodity;
- an organism is found that has not yet been fully named or described or is difficult to identify;
- a proposal is made to import an organism for research, analysis or other purpose; or
- a proposal is made to import or release an LMO.

In these situations, it is necessary to determine if the organism is a pest and thus subject to PRA Stage 2. Section 3 of this annex provides further guidance on this matter.

3. Determining whether an organism is a pest

The initiation points frequently refer to “pests”. The IPPC defines a pest as “any species, strain or biotype of plant, animal or pathogenic agent, injurious to plants or plant products”. When applying these initiation points to the specific case of plants as pests, it is important to note that the plants concerned should satisfy this definition. Pests directly affecting plants satisfy this definition. In addition, many organisms indirectly affecting plants also satisfy this definition (e.g. plants as pests, such as weeds or non-indigenous plants). The fact that they are injurious to plants may be based on evidence of their impact obtained in an area in which they are present. In cases where there is insufficient evidence that they affect plants indirectly, it may nevertheless be appropriate to assess – on the basis of available pertinent information – whether they are potentially injurious in the PRA area by using a clearly documented, consistently applied and transparent system. This is particularly important for plant species or cultivars that are imported for planting.

“Preselection” or “screening” are terms sometimes used to cover the early step of determining whether an organism is a pest or not.

The taxonomic identity of the organism should be defined because any biological and other information used should be relevant to the organism in question. If the organism has not yet been fully named or described, then, to be determined as a pest, it should at least have been shown to be identifiable, consistently to produce injury to plants or plant products (e.g. symptoms, reduced growth rate, yield loss or any other damage) and to be transmissible or able to disperse.

The taxonomic level for organisms considered in PRA is generally the species. The use of a higher or lower taxonomic level should be supported by a scientifically sound rationale. In cases where the level used is below the species, this rationale should include evidence of reported significant variation in factors such as virulence, pesticide resistance, environmental adaptability, host range or its role as a vector.

Predictive indicators of an organism are characteristics that, if found, would suggest the organism may be a pest. The information on the organism should be checked against such indicators, and if none are found, it may be concluded that the organism is not a pest, and the analysis may be ended by recording the basis of that decision.

The following are examples of indicators that may be considered:

- previous history of successful establishment in new areas;
- phytopathogenic characteristics;
- phytophagous characteristics;
- presence detected in connection with observations of injury to plants or to beneficial organisms before any clear causal link has been established;
- belonging to taxa (family or genus) commonly containing known pests;
- capability to act as a vector for known pests; and
- adverse effects on non-target organisms beneficial to plants (such as pollinators or predators of pests).

Particular cases for analysis include plant species, biological control agents and other beneficial organisms (see ISPM 3 (*Guidelines for the export, shipment, import and release of biological control agents and other beneficial organisms*)), organisms which have not yet been fully named or described, or are difficult to identify, intentionally imported organisms and LMOs. The potential of plants as pests should be determined as outlined in Annex 6. The potential of LMOs as pests should be determined as outlined in Annex 5.

3.1 Biological control agents and other beneficial organisms

Biological control agents and other beneficial organisms are intended to be beneficial to plants. Thus, when performing a PRA, the main concern is to look for potential injury to non-target organisms.²⁹ Other concerns may include:

- presence of other species as contaminants of cultures of beneficial organisms, the culture thereby acting as a pathway for pests; and
- reliability of containment facilities when such are required.

3.2 Organisms not yet fully described or difficult to identify

Organisms that have not yet been fully named or described or are difficult to identify (e.g. damaged specimen, unidentifiable life stages) may be detected in imported consignments or during surveillance, in which case a decision as to whether phytosanitary action is justified and recommendations for phytosanitary measures may need to be made. These should be based on a PRA using the information available, even if very limited. It is recommended that, in such cases, specimens are deposited in an accessible reference collection for future further examination.

3.3 Import of organisms for specific uses

When a request is made to import an organism that may be a pest for use in scientific research, education, industry or other purposes, the identity of the organism should be clearly defined. Information on the organism or closely related organisms may be assessed to identify indicators that it may be a pest. For organisms determined to be pests, pest risk assessment may be carried out.

4. Defining the PRA area

The area to which the PRA refers should be clearly defined. It may be the whole or part of a country or several countries. Whereas information may be gathered from a wider geographical area, the analysis of establishment, spread and economic impact should relate only to the defined PRA area.

In PRA Stage 2, the endangered area is identified. In PRA Stage 3, the regulated area may, however, be designated as wider than the endangered area if technically justified and not in conflict with the principle of non-discrimination.

5. Information

Information gathering is an essential element of all stages of PRA. It should be carried out at the initiation stage in order to clarify the identity of the pest (or pests), its present distribution and association with host plants or commodities, and so on. Other information should be gathered as required to reach necessary decisions as the PRA continues.

Information for PRA may come from a variety of sources. The provision of official information necessary for PRA, to the extent that is possible, is an obligation on contracting parties under the IPPC (Article VIII.1(c)), facilitated by official contact points (Article VIII.2).

²⁹ ISPM 3 recommends that NPPOs should conduct a PRA either before import or before release of biological control agents and other beneficial organisms.

6. Previous pest risk analyses

Before performing a new PRA, a check should be made to determine if the organism, pest or pathway has ever been subjected to a previous PRA. The validity of any existing analysis should be verified because circumstances and information may have changed. Its relevance to the PRA area should be confirmed.

The possibility of using a PRA of a similar organism, pest or pathway may also be investigated, particularly when information on the specific organism is absent or incomplete. Information assembled for other purposes, such as environmental impact assessments of the same or a closely related organism, may be useful but cannot substitute for a PRA.

7. Conclusion of initiation

At the end of PRA Stage 1, pests and pathways of concern will have been identified and the PRA area defined. Relevant information will have been collected and pests identified as candidates for further assessment, either individually or in association with a pathway.

Organisms determined not to be pests and pathways not carrying pests need not be further assessed. The decision and rationale should be recorded and communicated, as appropriate.

Where an organism has been determined to be a pest, the process may continue to PRA Stage 2. Where a list of pests has been identified for a pathway, pests may be assessed as groups, if biologically similar, or separately.

Where the PRA is specifically aimed at determining if the pest should be regulated as a quarantine pest, the process may proceed immediately to the pest categorization step of pest risk assessment (PRA Stage 2), described in Annex 2 of this standard.

This annex is a prescriptive part of the standard.

ANNEX 2: Pest risk assessment (PRA Stage 2)

1. Introduction

The process for pest risk assessment can be broadly divided into three interrelated steps:

- pest categorization;
- assessment of the probability of introduction and spread; and
- assessment of potential consequences.

In most cases, these steps will be applied sequentially in a PRA, but it is not essential to follow a particular sequence. Pest risk assessment needs to be only as complex as is technically justified by the circumstances.

2. Pest categorization

At the outset, it may not be clear which pest or pests identified in Stage 1 require a PRA. The categorization process examines, for each pest, whether the criteria in the definition of a quarantine pest are satisfied, namely that the pest:

- is not present in the PRA area or, if present, is of limited distribution and subject to official control or being considered for official control;
- has the potential to cause injury to plants or plant products in the PRA area; and
- has the potential to establish and spread in the PRA area.

In the evaluation of a pathway associated with a commodity, multiple individual PRAs may be necessary for the various pests potentially associated with the pathway. The opportunity to eliminate an organism or organisms from consideration before in-depth examination is undertaken is a valuable characteristic of the categorization process.

An advantage of pest categorization is that it can be done with relatively little information; however, information should be sufficient to adequately carry out the categorization.

2.1 Elements of categorization

The criteria for categorization of a pest as a quarantine pest consist of the following primary elements:

- identity of the pest;
- presence or absence in the PRA area;
- regulatory status;
- potential for establishment and spread in PRA area; and
- potential for consequences in the PRA area.

2.1.1 Identity of pest

The identity of the pest should be clearly defined to ensure that the assessment is being performed on a distinct organism, and that biological and other information used in the assessment is relevant to the organism in question. If this is not possible because the causal agent of particular symptoms has not yet been fully identified, then the organism should have been shown to produce consistent symptoms and to be transmissible or able to disperse.

The taxonomic unit for the pest is generally the species. The use of a higher or lower taxonomic level should be supported by a scientifically sound rationale. In cases where the level used is below the species, this rationale should include evidence demonstrating that factors such as differences in virulence, pesticide resistance, environmental adaptability, host range or vector relationships are significant enough to affect pest risk.

In cases where a vector is involved, the vector may also be considered a pest to the extent that it is associated with the causal organism and is required for transmission of the pest.

Specific guidance on the consideration of LMOs and the identity of plants as pests is provided in Annexes 5 and 6.

2.1.2 Presence or absence in PRA area

The pest should be absent from all or a defined part of the PRA area.

Specific guidance on determining the presence or absence of plants as pests is provided in Annex 6.

2.1.3 Regulatory status

A pest may be regulated if it is present but not widely distributed in the PRA area. However, it should be under official control or expected to be under official control in the near future.

2.1.4 Potential for establishment and spread in PRA area

Evidence should be available to support the conclusion that the pest could become established or spread in the PRA area. The PRA area (taking account also of protected environments such as greenhouses) should have ecological and climatic conditions suitable for the establishment and spread of the pest. Where relevant, host species (or near relatives), alternate hosts and vectors should be present in the PRA area.

2.1.5 Potential consequences in PRA area

There should be clear indications that the pest is likely to have an unacceptable impact in the PRA area.

Unacceptable economic impact is described in Supplement 2 (Guidelines on the understanding of “potential economic importance” and related terms including reference to environmental considerations) to ISPM 5.

2.2 Conclusion of pest categorization

If it has been determined that the pest has the potential to be a quarantine pest, the PRA process should continue. If a pest does not fulfil all of the criteria for a quarantine pest, the PRA process for that pest may stop. In the absence of sufficient information, the uncertainties should be identified and the PRA process should continue.

3. Assessment of the probability of introduction and spread

Pest introduction comprises both entry and establishment. To assess the probability of introduction, an analysis should be conducted of each of the pathways with which a pest may be associated from its origin to its establishment in the PRA area. In a PRA initiated by a specific pathway (usually an imported commodity), the probability of pest entry should be evaluated for the pathway in question. The probabilities for pest entry associated with other pathways should be investigated as well.

For PRAs that have been initiated for a specific pest, with no particular commodity or pathway under consideration, the potential of all probable pathways should be considered.

The assessment of probability of spread should be based primarily on biological considerations similar to those for entry and establishment.

3.1 Probability of entry of a pest

The probability of entry of a pest depends on the pathways from the exporting country to the destination, and the frequency and quantity of pests associated with them. The higher the number of pathways, the greater the probability of the pest entering the PRA area.

Documented pathways for the pest to enter new areas should be noted. Potential pathways, which may not currently exist, should be assessed. Pest interception data may provide evidence of the ability of a pest to be associated with a pathway and to survive in transport or storage.

Specific guidance on assessing the probability of entry for plants as pests is provided in Annex 6.

3.1.1 Identification of pathways for a PRA initiated by a pest

All relevant pathways should be considered. They can be identified principally in relation to the geographical distribution and host range of the pest. Consignments of plants and plant products moving in international trade are the principal pathways of concern and existing patterns of such trade will, to a substantial extent, determine which pathways are relevant. Other pathways, such as other types of commodities, packing materials, persons, baggage, mail, conveyances and the exchange of scientific material, should be considered where appropriate. Entry by natural means should also be assessed, as natural spread is likely to reduce the effectiveness of phytosanitary measures.

3.1.2 Probability of the pest being associated with the pathway at origin

The probability of the pest being associated, spatially or temporally, with the pathway at origin should be estimated. Factors that should be considered are:

- prevalence of the pest in the source area;
- presence of the pest in a life stage that would be associated with commodities, containers or conveyances;
- volume and frequency of movement along the pathway;
- seasonal timing; and
- pest-management, cultural and commercial procedures applied at the place of origin (application of plant-protection products, handling, culling, roguing, grading).

3.1.3 Probability of survival during transport or storage

Examples of factors that may be considered are:

- speed and conditions of transport and duration of the life cycle of the pest in relation to time in transport and storage;
- vulnerability of the life stages during transport or storage;
- prevalence of the pest likely to be associated with a consignment; and
- commercial procedures (e.g. refrigeration) applied to consignments in the country of origin, country of destination, or in transport or storage.

3.1.4 Probability of pest surviving existing pest-management procedures

Existing pest-management procedures (including phytosanitary procedures) applied to consignments against other pests from origin to end use, should be evaluated for effectiveness against the pest in question. The probability that the pest will go undetected during inspection or survive other existing phytosanitary procedures should be estimated.

3.2 Probability of establishment

To estimate the probability of establishment of a pest, reliable biological information (life cycle, host range, epidemiology, survival, etc.) should be obtained from the areas where the pest is currently present. The situation in the PRA area may then be compared with that in the areas where the pest is currently present (taking account also of protected environments such as greenhouses) and expert judgement used to assess the probability of establishment. Case histories concerning comparable pests can usefully be considered. Examples of factors that may be considered are:

- availability, quantity and distribution of hosts in the PRA area;
- probability of transfer to a suitable host;

- environmental suitability in the PRA area; and
- cultural practices and control measures.

Other characteristics of the pest may also affect the probability of establishment. In considering probability of establishment, it should be noted that a pest with the status “present: transient” (see ISPM 8 (*Determination of pest status in an area*)) may not be able to establish in the PRA area (e.g. because of unsuitable climatic conditions) but could still have unacceptable economic consequences (see IPPC Article VII.3).

Specific guidance on assessing the probability of establishment of plants as pests is provided in Annex 6.

3.2.1 Availability of suitable hosts, alternate hosts and vectors in the PRA area

Factors that should be considered are:

- whether hosts and alternate hosts are present and how abundant or widely distributed they may be;
- whether hosts and alternate hosts are present within sufficient geographical proximity to allow the pest to complete its life cycle;
- whether there are other plant species that could prove to be suitable hosts in the absence of the usual host species;
- whether a vector, if needed for dispersal of the pest, is already present in the PRA area or likely to be introduced; and
- whether another vector species is present in the PRA area.

The taxonomic level at which hosts are considered should normally be the species. The use of a higher or lower taxonomic level should be justified by a scientifically sound rationale.

3.2.2 Probability of transfer to a suitable host

Factors that should be considered are:

- dispersal mechanisms, including vectors to allow movement from the pathway to a suitable host;
- whether the imported commodity is to be sent to a few or many destination points in the PRA area;
- proximity of entry, transit and destination points to suitable hosts;
- time of year at which import takes place;
- intended use of the commodity (e.g. for planting, processing, consumption); and
- risks from by-products and waste.

Some uses are associated with a much higher probability of introduction (e.g. planting) than others (e.g. processing). The probability associated with any growth, processing or disposal of the commodity in the vicinity of suitable hosts should also be considered.

3.2.3 Suitability of environment

Factors in the environment (e.g. suitability of climate, soil, pest–host competition) that are critical to the development of the pest, its host and if applicable its vector, and to their ability to survive periods of climatic stress and complete their life cycles, should be identified. It should be noted that the environment is likely to have different effects on the pest, its host and its vector. This needs to be recognized in determining whether the interaction between these organisms in the area of origin is maintained in the PRA area to the benefit or detriment of the pest. The probability of establishment in a protected environment, such as in greenhouses, should also be considered.

Climatic modelling systems may be used to compare climatic data on the known distribution of a pest with that for the PRA area.

3.2.4 Cultural practices and control measures

Where applicable, practices employed during the production (including cultivation) of the host crops should be compared to determine if there are differences in such practices between the PRA area and the origin of the pest that may influence its ability to establish.

Pest control programmes or natural enemies already in the PRA area that reduce the probability of establishment may be considered. Pests for which control is not feasible should be considered to pose a greater pest risk than those for which treatment is easily accomplished. The availability (or lack) of suitable methods for eradication should also be considered.

3.2.5 Other characteristics

Other characteristics of the pest affecting the probability of establishment include the following:

- *Reproductive strategy of the pests and method of pest survival.* Characteristics that enable the pest to reproduce effectively in the new environment, such as parthenogenesis (i.e. self-crossing), duration of the life cycle, number of generations per year, and resting stage, should be identified.
- *Genetic adaptability.* Whether the species is polymorphic and the degree to which the pest has demonstrated the ability to adapt to conditions like those in the PRA area should be considered (e.g. host-specific races or races adapted to a wider range of habitats or to new hosts). This genotypic (and phenotypic) variability facilitates a pest's ability to withstand environmental fluctuations, to adapt to a wider range of habitats, to develop pesticide resistance and to overcome host resistance.
- *Minimum population needed for establishment.* If possible, the threshold population that is required for establishment should be estimated.

3.3 Probability of spread after establishment

A pest with a high potential for spread may also have a high potential for establishment, and possibilities for its successful containment or eradication are more limited. To estimate the probability of spread of the pest, reliable biological information should be obtained from areas where the pest is currently present. The situation in the PRA area may then be carefully compared with that in the areas where the pest is currently present (taking account also of protected environments such as greenhouses) and expert judgement may be used to assess the probability of spread. Case histories concerning comparable pests can usefully be considered. Examples of factors that may be considered are:

- suitability of the natural or managed environment for natural spread of the pest;
- presence of natural barriers;
- the potential for movement with commodities or conveyances;
- intended use of the commodity;
- potential vectors of the pest in the PRA area; and
- potential natural enemies of the pest in the PRA area.

Specific guidance on assessing the probability of spread of plants as pests is provided in Annex 6.

The information on probability of spread is used to estimate how rapidly a pest's potential economic importance may be expressed within the PRA area. This also has significance if the pest is liable to enter and establish in an area where it may be of low potential economic importance and then spread to an area where it may be of high potential economic importance. In addition, it may be important in the risk management stage when considering the feasibility of containment or eradication of an introduced pest.

Certain pests may not cause injurious effects on plants immediately after they establish, and in particular may only spread after a certain time. In assessing the probability of spread, this should be considered, based on evidence of such behaviour.

3.4 Conclusion on the probability of introduction and spread

The overall probability of introduction and spread should be expressed in terms most suitable for the data, the methods used for analysis, and the intended audience. This may be quantitative or qualitative, since either output is in any case the result of a combination of both quantitative and qualitative information. The probability of introduction and spread may be expressed as a comparison with that obtained from PRAs on other pests.

The part of the PRA area where ecological factors favour the establishment of the pest should be identified in order to help define the endangered area. This may be the whole of the PRA area or a part of the area.

4. Assessment of potential consequences

In PRA, consequences should not be interpreted to be only economic market effects. Goods and services not sold in commercial markets can have economic value, and economic analysis encompasses much more than the study of market goods and services. The use of the term “economic effects” provides a framework in which a wide variety of effects (including environmental and social effects) may be analysed. Economic analysis uses a monetary value as a measure to allow policy makers to compare costs and benefits from different types of goods and services. This does not preclude the use of other tools, such as qualitative and environmental analyses, that may not use monetary terms. Economic impact is described in Supplement 2 to ISPM 5.

4.1 Consequences

Requirements described in this step indicate what information relative to the pest and its potential host plants should be assembled, and suggest levels of economic analysis that may be carried out using that information in order to assess all the effects of the pest (i.e. the potential economic consequences). Wherever appropriate, quantitative data that will provide monetary values should be obtained. Qualitative data may also be used. Consultation with an economist may be useful.

In many instances, detailed analysis of the estimated economic consequences is not necessary if there is sufficient evidence or it is widely agreed that the introduction of a pest will have unacceptable economic consequences (including environmental consequences). In such cases, pest risk assessment may primarily focus on the probability of introduction and spread. Economic factors should, however, be examined in greater detail when the level of economic consequences is in question, or when the level of economic consequences needs to be known to evaluate the strength of measures used to manage pest risk or in assessing the cost-benefit of exclusion or control.

Specific guidance on assessing the potential economic consequences of plants as pests is provided in Annex 6.

4.1.1 Pest effects

To estimate the potential economic importance of the pest, information should be obtained from areas where the pest is present naturally or has been introduced. This information should be compared with the situation in the PRA area. Case histories concerning comparable pests can usefully be considered. The effects considered may be direct or indirect.

The basic method for estimating the potential economic importance of pests described in this section also applies to:

- pests affecting uncultivated or unmanaged plants;
- plants as pests; and
- pests affecting plants through effects on other organisms.

The environmental effects and consequences considered should be those that result from the effects of the pest on plants. Such effects on plants, however, may be less significant than the effects or

consequences on other organisms or systems. For example, a plant as a pest that has only a minor impact on other plants may be significantly allergenic for humans or a minor plant pathogen may produce toxins that seriously affect livestock. However, the regulation of plants solely on the basis of their effects on other organisms or systems (e.g. on human or animal health) is outside the scope of this standard. If the PRA process reveals evidence of a potential danger to other organisms or systems, this should be communicated to the appropriate authorities that have the legal responsibility to deal with the issue.

4.1.2 Direct pest effects

For identification and characterization of the direct effects of the pest on each potential host in the PRA area, or those effects that are host-specific, the following are examples of factors that may be considered:

- known or potential host plants (in fields, under protected cultivation, or in the wild);
- types, amount and frequency of damage;
- crop losses, in yield and quality;
- biotic factors (e.g. adaptability and virulence of the pest) affecting damage and losses;
- abiotic factors (e.g. climate) affecting damage and losses;
- rate of spread of the pest;
- rate of reproduction of the pest;
- control measures (including existing measures), their efficacy or effectiveness and their cost;
- effect of the pest on existing production practices for the host plants; and
- environmental effects.

For each of the potential hosts, the total area of the crop and area potentially endangered should be estimated in relation to the elements given above.

4.1.3 Indirect pest effects

For identification and characterization of the indirect effects of the pest in the PRA area, or those effects that are not host-specific, the following are examples of factors that may be considered:

- effects on domestic and export markets, including in particular effects on export-market access;
- changes to producer costs or input demands, including control costs;
- changes to domestic or foreign consumer demand for a product resulting from quality changes;
- environmental and other undesired effects of control measures;
- feasibility and cost of eradication or containment;
- capacity to act as a vector for other pests;
- resources needed for additional research and advice; and
- social and other effects (e.g. on tourism).

When considering effects on domestic and export markets, the potential consequences for market access that may result if the pest becomes established should be estimated. This involves considering the extent of any phytosanitary regulations imposed (or likely to be imposed) by importing countries.

Effects on human and animal health (e.g. toxicity, allergenicity), water tables, tourism and so on could also be considered, as appropriate, by other agencies or authorities.

4.1.4 Assessment of non-commercial and environmental consequences

Some of the direct and indirect effects of the introduction of a pest determined in section 4.1.2 and section 4.1.3 will be of an economic nature, or affect some type of value, but not have an existing market which can be easily identified. As a result, the effects may not be adequately measured in terms of prices in established product or service markets. Examples include, in particular, environmental effects (such as ecosystem stability, biodiversity) and social effects (such as mental well-being or spiritual, religious

and cultural connections) arising from a pest introduction. These impacts may be approximated with an appropriate non-market valuation method. More details on environmental effects are given below.

If quantitative measurement of such consequences is not feasible, qualitative information about the consequences may be provided. An explanation of how this information has been incorporated into decisions should also be provided.

4.2 Analysis of economic consequences

4.2.1 Time and place factors

Estimations made in the previous section could relate to a hypothetical situation where the pest is supposed to have been introduced and to be fully expressing its potential economic consequences (per year) in the PRA area. In practice, however, economic consequences are expressed with time and may concern one year, several years or an indeterminate period. Various scenarios should be considered. The total economic consequences over more than one year may be expressed as net present value of annual economic consequences, and an appropriate discount rate selected to calculate net present value.

Other scenarios could concern whether the pest is present at one, few or many points in the PRA area and the expression of potential economic consequences will depend on the rate and manner of spread in the PRA area. The rate of spread may be envisaged to be slow or rapid; in some cases, it may be supposed that spread can be prevented. Appropriate analysis may be used to estimate potential economic consequences over the period of time when a pest is spreading in the PRA area. In addition, many of the factors or effects considered above could be expected to change over time, with the consequent effects of potential economic consequences. Expert judgement and estimations may be used if appropriate.

4.2.2 Analysis of commercial consequences

As determined above, most of the direct effects of a pest, and some of the indirect effects, will be of a commercial nature or have consequences for an identified market. These effects, which may be positive or negative, should be identified and quantified where possible. The following may usefully be considered:

- effect of pest-induced changes to producer profits that result from changes in production costs, yields or prices; and
- effect of pest-induced changes in quantities demanded or prices paid for commodities by domestic and international consumers (which could include quality changes in products or quarantine-related trade restrictions resulting from a pest introduction).

4.2.3 Analytical techniques

There are analytical techniques that may be used, in consultation with experts in economics, to analyse in more detail the potential economic effects of a quarantine pest. The analysis should incorporate all of the effects that have been identified. The following are examples of such techniques:

- *Partial budgeting.* This may be used if the economic effects, induced by the action of the pest, are generally limited to producers and are considered relatively minor.
- *Partial equilibrium.* This may be used if, under section 4.2.2, there is a significant change in producer profits, or if there is a significant change in consumer demand. Partial equilibrium analysis is necessary to measure welfare changes, or the net changes arising from the pest impacts on producers and consumers.
- *General equilibrium.* If the economic changes are significant to a national economy, and could cause changes to factors such as wages, interest rates or exchange rates, then general equilibrium analysis may be used to establish the full range of economic effects.

The use of analytical techniques is often limited by lack of data, by uncertainties in the data, and by the fact that for certain effects only qualitative information can be provided.

4.2.4 Analysis of non-commercial and environmental consequences

Application of this standard to environmental consequences requires clear categorization of environmental values and the methodologies used to assess them. The environment may be valued using various methodologies, but these methodologies are best used in consultation with experts in economics. Methodologies may include consideration of “use” and “non-use” values. “Use” values arise from consumption of an element of the environment, such as accessing clean water or fishing in a lake, and also those that are non-consumptive, such as use of forests for leisure activities. “Non-use” values may be subdivided into:

- “option values” (values for use at a later date);
- “existence values” (knowledge that an element of the environment exists); and
- “bequest values” (knowledge that an element of the environment is available for future generations).

Whether the element of the environment is being assessed in terms of use or non-use values, methodologies exist for their valuation, such as market-based approaches, surrogate markets, simulated markets, and benefit transfer. Each has advantages, disadvantages and situations where it is particularly useful.

The assessment of consequences may be either quantitative or qualitative; in many cases, qualitative data are sufficient. A quantitative method may not exist to address a situation (e.g. catastrophic effects on a keystone species), or a quantitative analysis may not be possible (no methods available). Useful analyses can be based on non-monetary valuations (number of species affected, water quality), or expert judgement, if the analyses follow documented, consistent and transparent procedures.

4.3 Conclusion of the assessment of consequences

Wherever appropriate, the output of the assessment of consequences described in this step should be in terms of a monetary value. The consequences may also be expressed qualitatively or using quantitative measures without monetary terms. Sources of information, assumptions, uncertainty and methods of analysis should be clearly specified.

4.3.1 Identifying the endangered area

The part of the PRA area where presence of the pest will result in economically important loss should be identified.

5. Degree of uncertainty

Estimation of the probability of introduction of a pest and of its consequences involves many uncertainties. In particular, this estimation is an extrapolation from the situation where the pest is present to the hypothetical situation in the PRA area. The areas of uncertainty and the degree of uncertainty in the assessment should be documented, as should any use of expert judgement. This is important for the purposes of transparency and may also be useful for the identification and prioritization of research needs.

6. Conclusion of the pest risk assessment stage

As a result of the pest risk assessment, all or some of the categorized pests may be considered appropriate for pest risk management. For each pest, all or part of the PRA area may be identified as an endangered area. A quantitative or qualitative estimate of the probability of introduction and spread of a pest or pests, and a corresponding quantitative or qualitative estimate of consequences, have been obtained and documented or an overall rating could have been assigned. These estimates, with associated uncertainties, are used in the pest risk management stage of the PRA.

This annex is a prescriptive part of the standard.

ANNEX 3: Pest risk management (PRA Stage 3)

1. Introduction

Stage 3 involves the identification and evaluation of pest risk management options, and their subsequent selection to be implemented as phytosanitary measures that alone, or in combination, reduce the risk of introduction and spread of a pest to an acceptable level.

The conclusions from pest risk assessment are used to decide whether a pest risk is acceptable or not. Since zero risk is not a reasonable option, pest risk should be managed following the guiding principle of managed risk (see ISPM 1) to achieve the appropriate level of protection that can be justified and is feasible within the limits of available options and resources.³⁰ The uncertainty noted in the pest risk assessments should be taken into account in the selection of a pest risk management option.

Phytosanitary measures are not justified if the pest risk is deemed to be acceptable or if they are not feasible, such as in the case of natural spread. Even in such cases, however, contracting parties may decide to maintain some monitoring or audit regarding the pest risk to detect future changes in that risk.

2. Level of pest risk

In implementing the principle of managed risk, it is recognized that contracting parties have the sovereign right to decide the level of pest risk they deem to be acceptable and they can use phytosanitary measures to provide an appropriate level of protection. Equally, contracting parties should follow the principle of minimal impact when applying phytosanitary measures (see IPPC Article VII.2(g)).

The level of pest risk deemed to be acceptable may be expressed in various ways. It may, for example:

- refer to existing phytosanitary import requirements;
- be indexed to estimated economic losses; or
- be expressed on a scale of risk tolerance.

Specific guidance on pest risk management for plants as pests is provided in Annex 6.

3. Sources of information

A variety of sources of information may be used to support the identification and subsequent selection of pest risk management options, including pest risk assessments, historical records and history of use.

Pest risk assessments identify quarantine pests that may require phytosanitary measures on the assessed pathway. For the formulation of pest risk management options, the pest risk assessment provides relevant information, such as:

- the pathway;
- quarantine pests likely to follow the pathway;
- potential control points along the pathway;
- intended use of the commodity;
- historical records on pest management;
- potential negative effects of measures on commodity quality; and
- any uncertainty associated with the pest (or pests) and the pathway.

³⁰ The appropriate level of sanitary or phytosanitary protection is a concept found in the SPS Agreement. It refers to “the level of protection deemed appropriate by the Member establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory”, which many countries refer to as the “acceptable level of risk”.

4. Identification of appropriate pest risk management options

4.1 Underlying principles

The following four phytosanitary principles described in ISPM 1 should be taken into account when identifying appropriate pest risk management options:

- *Necessity*. Phytosanitary measures should be limited to what is necessary to protect plant health.
- *Minimal impact*. The IPPC (Article VII.2(g)) states that phytosanitary measures shall be consistent with the pest risk involved, and shall represent the least restrictive measures available that result in the minimum impediment to the international movement of people, commodities and conveyances.
- *Equivalence*. If different phytosanitary measures providing the same level of protection are identified, they should be accepted as alternatives.
- *Non-discrimination*. If the pest under consideration is established in the PRA area but is of limited distribution and under official control, the phytosanitary measures in relation to import should not be more stringent than those applied within the PRA area. Likewise, phytosanitary measures should not discriminate between exporting countries where the status of the relevant pest is the same.

4.2 Requirements

Pest risk management options should be based on the risk of the pest on a particular pathway and the intended use (further information is contained in ISPM 32 (*Categorization of commodities according to their pest risk*)). The level of risk may differ according to the pathway: for example, the presence of a pest on nursery stock may pose a very different risk from the same pest being present on fruit for consumption. Pest risk management options for the same pests may therefore vary according to the pathway. Furthermore, the types of measure identified as pest risk management options may vary according to the tolerance of the commodity to the measure.

Depending on the intended use of the commodity, the pest risk may be sufficiently reduced to an acceptable level through basic measures including commercial production, pest-control practices and inspection.

The major risk of introduction of pests is with imported consignments of plants and plant products, but (especially for a PRA performed on a particular pest) it is also necessary to consider the risk of introduction with other types of pathways (e.g. packing materials, conveyances, travellers and their luggage, and the natural spread of a pest).

4.3 Pest risk management options

Pest risk management options should be as precise as possible as to consignment type (hosts, parts of plants) and origin so as not to act as barriers to trade by limiting the import of products where this is not justified. Available measures considered as pest risk management options may be classified into broad categories relating to the pathway and the pest status in the country of origin. Measures may include those:

- applied to ensure the area or place of production or site of production is free from the pest;
- applied to prevent or reduce original infestation in the crop;
- applied to the consignment; or
- concerning the prohibition of commodities.

Other options may arise in the PRA area, such as restrictions on the use of a commodity, introduction of a biological control agent, eradication and containment. Such options should also be evaluated and will apply in particular if the pest is already present but not widely distributed in the PRA area.

The strength of a measure identified as a pest risk management option (i.e. its overall effectiveness) should be consistent with the pest risk that it aims to address.³¹ A stronger phytosanitary measure increases the level of confidence that the pest risk will be lowered. The level of risk reduction sought may be greater for a pest of high economic importance compared to a pest of lower economic importance.

4.4 Specificity in relation to risk

Pest risk management options may be identified and selected on the basis of known and specific activity against a particular pest, or they may be less specific and have a broader spectrum of activity against a group of pests.

Examples of measures with known and specific activity against a particular pest are provided in the annexes to ISPM 28 (*Phytosanitary treatments for regulated pests*).

4.5 Examples of pest risk management options

The following pest risk management options are examples of the measures that are most commonly applied to regulated articles in trade. They are applied to pathways, usually consignments of a host, from a specific origin and can be stand-alone or part of a systems approach. The list of options is not exhaustive and includes measures that may already be considered as part of commercial production practices or imposed as phytosanitary measures to achieve a country's appropriate level of protection at the conclusion of the PRA process.

4.5.1 Pre-planting options

Measures aimed at achieving pest freedom, either spatially or temporally, may be applied before planting.

Requirements for pest free areas, pest free places of production and pest free production sites are described in several ISPMs (e.g. ISPM 4 (*Requirements for the establishment of pest free areas*), ISPM 10 (*Requirements for the establishment of pest free places of production and pest free production sites*), ISPM 22 (*Requirements for the establishment of areas of low pest prevalence*), ISPM 26 (*Establishment of pest free areas for fruit flies (Tephritidae)*)).

In a pest free growing period, monitoring is carried out, based on the life cycle of the pest and the host, to verify that the pest is not detected during the growing period. Pest free growing periods are sometimes also linked to a pest-control programme.

4.5.2 Pre-harvest options

Measures may be applied during production to manage specific pests. These may include the application of agrochemicals, biological control agents, physical pest exclusion measures, mating disruption, surveillance and sanitation methods. Sanitation includes activities that are designed to remove materials that may attract or harbour quarantine pests, for example removing fallen fruit from orchards, destroying or ploughing-under crop residues, weed control or other similar activities.

Physical pest-exclusion measures may include growing in protected conditions (e.g. glasshouse, fruit bagging).

4.5.3 Options at harvest

Examples of measures that may be applied during harvesting include:

- the use of harvest and dispatch “windows” (whereby harvest and dispatch are limited to the period when the pest is seasonally absent or unable to infest the commodity or when the pest and host are asynchronous);

³¹ The strength of measures is a concept found in the the SPS Agreement. It refers to the degree to which a measure is known to reduce the incidence of a viable, regulated pest in a commodity.

- harvesting at a particular stage of ripeness or maturity;
- sanitation (e.g. removal of contaminating articles, waste material, infested products);
- defining the timing of imports (whereby the importing country defines times of the year that a particular quarantine pest cannot survive (e.g. winter) as “arrival windows”, during which the import of goods that may be infested with the pest is permitted).

4.5.4 Post-harvest options

A commodity may be processed and handled after harvest to reduce the pest risk posed by certain pests. Information about processing and handling of commodities and the resulting reduction in pest risk is provided in ISPM 32. Some examples include:

- brushing, washing, disinfection or waxing;
- removal of infested and damaged fruit;
- peeling, dicing, slicing or chopping; and
- removal of leaves, stems or bark.

4.5.5 Post-entry options

Post-entry phytosanitary measures may be applied in the importing country. Examples include:

- post-entry quarantine used for plants for planting (this may be the only option for certain pests not detectable on entry);
- limits on the intended use of the commodity (e.g. limited to processing only);
- entry only permitted for research purposes in containment facilities; and
- limited distribution of the commodity to those areas that are not endangered (use of this measure requires strict enforcement).

4.5.6 Other options relevant for all steps

4.5.6.1 Testing

Some pests such as pathogens may infest a plant without producing symptoms, or symptoms may be masked, and therefore testing based on sampling may be required.

Even when symptoms are present, testing based on sampling may be required to identify or confirm the causal organism.

4.5.6.2 Treatments

Treatments may be applied at various stages in the production cycle to mitigate pest risk. Treatments may be applied singly or in combination with other treatments or measures.

Examples of treatments include:

- physical methods (e.g. brushing and washing);
- chemical treatments (e.g. application of fumigants, aerosols, mists, fogs, dusts, dips, granules, sprays);
- temperature treatments (e.g. hot water immersion, hot air treatment, vapour heat treatment, cold treatment);
- modified atmosphere treatments;
- irradiation (e.g. gamma, X-ray, microwave); and
- biological control.

4.5.6.4 Inspection

Inspection may be used as a phytosanitary measure or to verify the effectiveness of phytosanitary measures. The factors to consider when deciding to use inspection as a phytosanitary measure are described in ISPM 23 (*Guidelines for inspection*).

4.5.7 Systems approaches

Systems approaches offer a possible way to address the variability and uncertainty of individual measures by combining measures to meet the level of pest risk deemed to be acceptable.

ISPM 14 (*The use of integrated measures in a systems approach for pest risk management*) provides guidance on the development and evaluation of systems approaches.

ISPM 36 (*Integrated measures for plants for planting*) provides specific guidance on the use of integrated measures to manage the risk of plants for planting in international trade.

4.5.8 Additional options

Further additional phytosanitary measures may be required to provide assurance, verification, oversight, protection against infestation or contamination, or to allow for traceability.

Examples of such measures include:

- certification schemes for plants for planting;
- registered or approved places of production or production sites;
- registered or approved packing houses;
- labelling on plants in commerce, packages and so on (e.g. identifying packing and treatment facility, dates of packing and treatment, production site and field); and
- segregation and secure packaging following treatment.

4.6 Prohibition

Prohibition should only be selected when no other alternative option is available. Other, less trade-restrictive options providing an appropriate level of protection should be considered before deciding on prohibition (see ISPM 20 (*Guidelines for a phytosanitary import regulatory system*)).

Import prohibitions may apply to specific commodities, specific origins, specific physiological stages (e.g. dormant plants) or only during specific seasons (e.g. during the flight period of an insect).

5. Evaluation of pest risk management options

Measures identified as pest risk management options should be evaluated based on their effectiveness in reducing the probability of introduction and spread of the pest. To be established as phytosanitary measures, measures should not only be effective but also be feasible and have minimal impact to the international movement of commodities and conveyances.

5.1 Effectiveness

Effectiveness is an expression of the extent to which a given measure reduces pest risk. A description of effectiveness includes the specification of the desired response or end-point and a measurement of that response or end-point (e.g. mortality).

When appropriate, effectiveness may be expressed in quantitative terms including the usual statistical parameters (e.g. a confidence interval). When such calculation is not possible or not feasible, effectiveness may be expressed in qualitative terms such as “high”, “medium” and “low”.

Several factors should be considered in determining the required effectiveness of a measure. These include:

- the appropriate level of protection;
- the level of pest risk posed by a given situation;
- the nature of the pest risk being addressed;
- the biology of the pest (or pests) being managed; and
- the pest distribution and prevalence.

Metrics that may be used to determine the effectiveness of a measure include:

- pest prevalence or frequency of pest outbreaks in the production area (e.g. from surveillance);
- prevalence of pests in a consignment (e.g. from inspection records); and
- proportion of pests removed or percent mortality (e.g. from dose–response curves).

Certain measures may not directly affect mortality of the pest. Considerations for their evaluation include the following:

- for surveillance and monitoring: appropriate survey methods, intensity of monitoring, ability to detect the pest (see ISPM 6 (*Surveillance*));
- for pest free concepts: see ISPM 4, ISPM 10 and ISPM 26;
- for systems approaches: see ISPM 14 and ISPM 35 (*Systems approach for pest risk management of fruit flies (Tephritidae)*);
- for post-harvest processing and handling: see ISPM 32;
- for testing: availability and reliability of test methods, laboratory accreditation, validation of methodology (e.g. ISPM 27 (*Diagnostic protocols for regulated pests*));
- for irradiation treatments: see ISPM 18 (*Requirements for the use of irradiation as a phytosanitary measure*);
- for sampling: level of confidence of the detection of the pest for a given sample size (see ISPM 31 (*Methodologies for sampling of consignments*));
- for inspection: ability to detect the pest on the commodity (see ISPM 23); and
- for post-entry measures: see ISPM 36.

National plant protection organizations of importing countries may identify more than one pest risk management option, consisting of one or more measures, that could be used by an exporting country.

5.2 Treatment efficacy

The required response or end-point for treatments should be specified, along with the required efficacy. Responses or end-points may include:

- mortality;
- sterility (including sterility of F1 generation);
- inactivation;
- devitalization; or
- altered behaviour.

High-mortality treatments may not be feasible or technically justified when, for example:

- the testing required to establish high-mortality efficacy is not possible based on the pest biology (e.g. some organisms are difficult to rear in large enough numbers to establish the required statistical measures) but lower mortality rates can be established or lower statistical confidence can be achieved; or

- the commodity is only tolerant to the treatment at lower efficacies (e.g. a commodity that does not tolerate a cold treatment that achieves a high mortality rate may tolerate a cold treatment at a slightly higher temperature or shorter duration but which achieves a lower mortality rate).

Alternative treatments may be considered when high-mortality treatments are either not available or not feasible. A combination of lower-mortality treatments may be as effective as a single high-mortality treatment.

5.3 Potential impact of the measure

The potential economic, social and environmental impacts of measures should be identified and considered when evaluating them as pest risk management options. The NPPO of an importing country should discuss these with the NPPOs of exporting countries.

In general, an assessment of impacts in an exporting country may be warranted when:

- a particular measure may have significant unintended social or environmental impacts;
- the scope and magnitude of environmental impacts are unclear (as may be the case, for example, for chemical treatments);
- there may be public-health sensitivities or regulatory restrictions about a particular control technology; or
- there may be different economic impacts on different groups (producers in some areas may benefit, but producers in other areas may be disadvantaged by a particular measure).

5.4 Uncertainty

Pest risk management options may be difficult to evaluate if significant uncertainty is identified in the pest risk assessment. Even where uncertainty is identified, phytosanitary measures should not be applied unless information indicates that the pest risk is unacceptable.

Uncertainty may be addressed by adjusting the strength of measures or deeming them redundant. While measures should be appropriate to the pest risk, it may be technically justifiable to require phytosanitary measures to compensate for uncertainty. In those cases, the uncertainty should be identified (in terms of the source of uncertainty and the degree of uncertainty) and, if possible, addressed. Phytosanitary measures should subsequently be adjusted once uncertainty has been reduced.

Provisional measures may be implemented when there is uncertainty, but their application should be reviewed in a timely manner to provide technical justification for their continuance or removal.

5.5 Feasibility

In addition to being technically justified and effective, pest risk management options selected as phytosanitary measures should also be feasible.

The NPPO of the importing country should identify any available measures that could prevent the introduction of the pest. These should be considered for their feasibility in the exporting country or countries.

In determining feasibility, factors including the following should be considered:

- negative effects of treatments on the commodity (e.g. phytotoxicity, physical damage, reduction in shelf life);
- negative economic, social and environmental impacts resulting from the application of the measure;
- cost-effectiveness;
- availability of facilities and equipment;
- whether a particular treatment is approved for use; and
- operational and technical considerations (e.g. practicality, timing, available technologies).

6. Selection of appropriate phytosanitary measures

Once potential pest risk management options have been identified and evaluated based on effectiveness, feasibility and impacts, specific phytosanitary measures may be selected from these options.

Exporting countries should have the opportunity to provide proposals on phytosanitary measures to importing countries.

Depending on the effectiveness of the measures, and the appropriate level of protection, one or more phytosanitary measures may be selected.

A phytosanitary measure that is effective against one quarantine pest may also be effective against other quarantine pests. Therefore, a single phytosanitary measure may mitigate the pest risk for multiple quarantine pests.

If the NPPO of the importing country or countries identifies more than one appropriate phytosanitary measure to manage the pest risk, all these phytosanitary measures should be considered equivalent and published as options in the country's phytosanitary import requirements or shared with the NPPOs of exporting countries.

The NPPO of an exporting country should identify its preferred phytosanitary measure or measures to minimize impacts.

7. Conclusion of pest risk management

The pest risk management process concludes either with the determination that there are no appropriate pest risk management options or with the selection of one or more pest risk management options that would lower the pest risk to a level deemed acceptable.

The selected pest risk management options may form the basis of phytosanitary regulations or phytosanitary import requirements for the **regulated area**.

8. Documentation and communication

Contracting parties should be able to provide technical justification, if requested, for phytosanitary measures applied as a result of the pest risk management stage of PRA.

The main documentation elements to be provided on request by the NPPO of the importing country to the NPPO of an exporting country may include:

- the list of potential pest risk management options identified and evaluated;
- the selected phytosanitary measures; and
- the justification for selecting these, and not other, measures.

Contracting parties should be open to consultation regarding phytosanitary measures when requested and should allow the exporting country or countries a reasonable time frame for submitting comments.

9. Monitoring and re-evaluation of phytosanitary measures

Phytosanitary measures may be reviewed at any stage when:

- the NPPO of an exporting country proposes equivalent measures for evaluation by the NPPO of the importing country according to ISPM 24 (*Guidelines for the determination and recognition of equivalence of phytosanitary measures*);
- there is a change in the pest status in an importing or exporting country that requires management;
- there is significant or repeated non-compliance (see ISPM 13 (*Guidelines for the notification of non-compliance and emergency action*)); or
- emergency measures are reviewed to provide technical justification for their continuance or removal.

The importing country may carry out monitoring of pathways to determine the effectiveness of phytosanitary measures and systems audits to verify the implementation of phytosanitary measures.

This annex is a prescriptive part of the standard.

ANNEX 4: Environmental risks

1. Introduction

The range of pests covered by the IPPC extends beyond pests directly affecting cultivated plants. The coverage of the IPPC definition of “pests” includes plants as pests and other species that have indirect effects on plants, and the convention applies to the protection of wild flora. The scope of the IPPC also extends to organisms that are pests because they fall into one or more of the following categories:

- *They directly affect uncultivated or unmanaged plants.* Introduction of these pests may have few commercial consequences, and therefore they have been less likely to have been evaluated, regulated or placed under official control. An example of this type of pest is Dutch elm disease (caused by *Ophiostoma novo-ulmi* Brasier, 1991).
- *They indirectly affect plants.* In addition to pests that directly affect host plants, there are those that affect plants primarily by other processes such as competition. Examples include most plants as pests (e.g. weeds, non-indigenous plants that establish or spread rapidly).
- *They indirectly affect plants through effects on other organisms.* Some pests may primarily affect other organisms but thereby cause deleterious effects on plant species or on plant health in habitats or ecosystems. Examples include parasites of beneficial organisms, such as biological control agents.

To protect the environment and biodiversity without creating disguised barriers to trade, environmental risks, including risks to biological diversity, should be analysed in a PRA.

2. Sources of information

For environmental risks, the variety of sources of information will generally be wider than traditionally used by NPPOs. Broader inputs may be required. These sources may include environmental impact assessments, but it should be recognized that such assessments usually do not have the same purpose as PRA and cannot substitute for PRA.

3. Regulatory status

Official control of pests posing an environmental risk may involve agencies other than the NPPO. However, it is recognized that Supplement 1 (Guidelines on the interpretation and application of the concepts of “official control” and “not widely distributed”) to ISPM 5 applies, and in particular its provisions regarding NPPO authority and involvement in official control.

4. Environmental consequences of pest effects

In the case of the analysis of environmental risks, examples of **direct pest** effects on plants or their environmental consequences that may be considered include:

- reduction of plant species that are key to the ecological integrity of ecosystems;
- reduction of plant species that are major components of ecosystems (in terms of abundance or size) and endangered indigenous plant species (including effects below species level where there is evidence of such effects being significant); and
- significant reduction, displacement or elimination of other plant species.

The estimation of the area potentially endangered should relate to these effects.

In the case of the analysis of environmental risks, examples of **indirect pest** effects on plants or their environmental consequences that may be considered include:

- significant effects on plant communities;
- significant effects on designated environmentally sensitive or protected areas;

- significant change in ecological processes and the structure, stability or processes of an ecosystem (including further effects on plant species, increased erosion, water-table changes, increased risk of fire, changes to nutrient cycling);
- effects on human use of plant communities and the environment (e.g. effects on water quality, recreational uses, tourism, animal grazing, hunting, fishing); and
- costs of environmental restoration.

5. Uncertainty

It should be noted that the assessment of the probability of introduction and spread and of environmental consequences of pests of uncultivated and unmanaged plants often involves greater uncertainty than for pests of cultivated or managed plants. This is because of the lack of information, the greater complexity associated with ecosystems, and the greater variability associated with pests, hosts or habitats of uncultivated and unmanaged plants.

In considering the management of environmental risks, NPPOs should recognize that phytosanitary measures are intended to account for uncertainty and should be designed in proportion to the pest risk. Pest risk management options should be identified, taking account of the degree of uncertainty in the assessment of economic consequences, probability of introduction, and the respective technical justification of those options. In this respect, the management of risks to the environment caused by pests does not differ from the management of other pest risk.

6. Communication

Phytosanitary measures taken in relation to potential environmental consequences should, as appropriate, be notified to relevant competent authorities responsible for national biodiversity policies, strategies and action plans.

This annex is a prescriptive part of the standard.

ANNEX 5: Living modified organisms as pests

1. Introduction

The pest risk that may be posed by a living modified organism is within the scope of the IPPC and should be considered using PRA to inform decisions regarding pest risk management.

This annex includes guidance on evaluating the potential pest risk posed by an LMO. This guidance does not alter the scope of this standard but is intended to clarify issues related to the PRA of LMOs. This annex should be read in conjunction with Annexes 1, 2 and 3 of this standard.

The analysis of LMOs includes consideration of the following:

- Some LMOs may pose a pest risk and therefore warrant a PRA. However, other LMOs will not pose a pest risk beyond that posed by related non-LMOs and therefore will not warrant a complete PRA. For example, modifications to change the physiological characteristics of a plant (e.g. ripening time, storage life) may not change the pest risk posed by that plant. The pest risk that may be posed by an LMO is dependent on a combination of factors, including the characteristics of the donor and recipient organisms, the genetic alteration, and the specific new trait or traits. It may be useful, therefore, to consider the pest risk posed by an LMO in the context of the pest risk posed by the non-modified recipient or parental organisms, or similar organisms, in the PRA area. Section 2 of this annex therefore provides guidance on how to determine if an LMO is a potential pest.
- Pest risk analysis may constitute only a portion of the overall risk analysis for the import and release of an LMO. For example, countries may require the assessment of risks to human or animal health, or to the environment, beyond that covered by the IPPC. This annex only relates to the assessment and management of the risks within the scope of the IPPC. As with other organisms or pathways assessed by an NPPO, LMOs may pose other risks not falling within the scope of the IPPC. When an NPPO discovers potential for risks that are not of phytosanitary concern it may be appropriate to notify the relevant authorities.
- The pest risk posed by an LMO may result from certain traits introduced into the organism, such as those that increase the potential for establishment and spread, or from inserted gene sequences that do not alter the pest characteristics of the organism but that might act independently of the organism or have unintended consequences.
- In cases of pest risk related to gene flow, the LMO is acting more as a potential vector or pathway for introduction of a genetic construct of phytosanitary concern rather than as a pest in and of itself. Therefore, the term “pest” should be understood to include the potential of an LMO to act as a vector or pathway for introduction of a gene posing a potential pest risk.
- The risk analysis procedures of the IPPC are generally concerned with phenotypic characteristics rather than genotypic characteristics. However, genotypic characteristics may need to be considered when assessing the pest risk posed by an LMO.

2. Determining the potential for a living modified organism to be a pest

This annex is relevant for LMOs only where there is potential for the pest risk posed by an LMO to result from some characteristic or property related to the genetic modification. Other pest risk posed by the organism should be assessed under other appropriate sections or annexes of this standard or under other appropriate ISPMs.

The information requirements outlined in section 4.2 of this annex may be needed in determining the potential for an LMO to be a pest.

2.1 Potential characteristics or properties of living modified organisms that may affect pest risk

Characteristics or properties of LMOs that may potentially affect the pest risk posed by the organism include the following:

- (92) changes in adaptive characteristics that may increase the potential for introduction or spread, for example alterations in:
- tolerance to adverse environmental conditions (e.g. drought, freezing, salinity),
 - reproductive biology,
 - dispersal ability of pests,
 - growth rate or vigour,
 - host range,
 - pest resistance, or
 - pesticide (including herbicide) resistance or tolerance;
- (93) changes to gene flow or gene transfer that have adverse effects, such as:
- transfer of pesticide or pest resistance genes to compatible species,
 - development of the potential to overcome existing reproductive and recombination barriers, or
 - development of the potential for hybridization with existing organisms or pathogens to result in pathogenicity or increased pathogenicity;
- (94) changes that have adverse effects on non-target organisms, such as:
- changes in host range of the LMO, including the cases where it is intended for use as a biological control agent or organism otherwise claimed to be beneficial,
 - changes that have effects on other organisms, such as biological control agents, beneficial organisms, soil fauna and microflora, or nitrogen-fixing bacteria, that result in a phytosanitary impact (indirect effects),
 - development of the capacity to vector other pests, or
 - negative direct or indirect effects of plant-produced pesticides on non-target organisms beneficial to plants;
- (95) genotypic and phenotypic instability, such as:
- reversion of an organism intended as a biocontrol agent to a virulent form; and
- (96) changes that have other injurious effects, such as:
- pest risk resulting from new traits in organisms that do not normally pose a pest risk,
 - novel or enhanced capacity for virus recombination, trans-encapsidation and synergy events related to the presence of virus sequences, or
 - pest risk resulting from nucleic acid sequences (markers, promoters, terminators, etc.) present in the insert.

If there is no indication that new traits resulting from genetic modifications affect the pest risk, the LMO may require no further consideration.

It may be useful to consider the characteristics and properties contributing to the potential pest risk in the context of those associated with the non-modified recipients or parental organisms, or similar organisms, in the PRA area.

Factors that may result in the need to subject an LMO to Stage 2 of the PRA include:

- lack of knowledge about a particular modification event;
- insufficient credibility of information if it is an unfamiliar modification event;

- insufficient data on the behaviour of the LMO in environments similar to the PRA area;
- operational experience, research trials or laboratory data indicating that the LMO may pose a pest risk (see (1)–(2) above);
- expression by the LMO of characteristics that are associated with pests under Annex 2 of this standard;
- existence of conditions in the country (or PRA area) that may result in the LMO being a pest;
- existence of PRAs for similar organisms (including LMOs) or risk analyses carried out for other purposes that indicate a pest potential; and
- experience in other countries indicating a pest potential.

Factors that may lead to the conclusion that an LMO is not a potential pest or requires no further consideration under this standard include:

- evidence from a previous assessment by the NPPO (or other recognized experts or agencies) indicating that the genetic modification in similar or related organisms does not affect pest risk;
- the LMO is to be confined in a reliable containment facility and not be released;
- evidence from research trials indicating that the LMO is unlikely to be a pest under the use proposed; and
- experience in other countries indicating that there is no pest potential.

4. Initiation (PRA Stage 1)

The aim of the initiation stage is to identify LMOs that have the characteristics of a potential pest and need to be assessed further, and those which need no further assessment under this standard.

Living modified organisms are organisms that have been modified using techniques of modern biotechnology to express one or more new or altered traits. In most cases, the parent organism is not normally considered to be a pest but an assessment may need to be performed to determine if the genetic modification (i.e. gene, new gene sequence that regulates other genes, or gene product) results in a new trait or characteristic that may pose a pest risk.

A pest risk from LMOs may be posed by:

- the organism (or organisms) with the inserted gene (or genes) (i.e. the LMO);
- the combination of genetic material (e.g. gene from pests such as viruses); or
- the consequences of the genetic material moving to another organism.

4.1 Initiation points

The types of LMOs that an NPPO may be asked to assess for pest risk include:

- plants for use (1) as agricultural crops, for food and feed, ornamental plants or managed forests; (2) in bioremediation (as an organism that cleans up pollution); (3) for industrial purposes (e.g. production of enzymes or bioplastics); (4) as therapeutic agents (e.g. pharmaceutical production);
- biological control agents modified to improve their performance in that role;
- pests modified to alter their pathogenic characteristic and thereby make them useful for biological control (see ISPM 3); and
- organisms genetically modified to improve their characteristics, such as for biofertilizer or other influences on soil, for bioremediation or for industrial uses.

In order to be categorized as a pest, an LMO has to be injurious or potentially injurious to plants or plant products under conditions in the PRA area. This damage may be in the form of direct effects on plants or plant products, or indirect effects. For guidance on the process of determining whether an LMO has the potential to be a pest, see section 2 of this annex.

4.2 Information

For LMOs, information required for a full PRA may include:

- name, identity and taxonomic status of the LMO (including any relevant identifying codes) and the risk management measures applied to the LMO in the country of export;
- taxonomic status, common name, point of collection or acquisition, and characteristics of the donor organism;
- description of the nucleic acid or the modification introduced (including genetic construct) and the resulting genotypic and phenotypic characteristics of the LMO;
- details of the transformation process;
- appropriate detection and identification methods and their specificity, sensitivity and reliability;
- intended use, including intended containment; and
- quantity or volume of the LMO to be imported.

The provision of information necessary for PRA, to the extent that is possible, is an obligation under the IPPC (Article VIII.1(c)), facilitated by official contact points (Article VIII.2). A country may have obligations to provide information about LMOs under other international agreements, such as the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (CBD, 2000). The Secretariat of the Convention on Biological Diversity provide an online platform, the Biosafety Clearing-House, that may contain relevant information. Information on LMOs is sometimes commercially sensitive and applicable obligations with regard to release and handling of information should be observed.

4.3 Conclusion of initiation

At the end of Stage 1, an NPPO may decide that the LMO is either:

- a potential pest and needs to be assessed further in Stage 2; or
- not a potential pest and needs no further analysis under this standard.

5. Pest risk assessment (PRA Stage 2)

For LMOs, from this point forward in PRA, it is assumed that the LMO is being assessed as a pest, and therefore “LMO” refers to an LMO that is a potential quarantine pest because of new or altered characteristics or properties resulting from the genetic modification. The risk assessment should be carried out on a case-by-case basis. Living modified organisms that have pest characteristics unrelated to the genetic modification should be assessed using the normal procedures.

5.1 Pest categorization

5.1.1 Identity of pest

In the case of LMOs, identification requires information regarding characteristics of the recipient or parent organism, the donor organism, the genetic construct, the gene or transgene vector and the nature of the genetic modification. Information requirements are set out under section 4.2 of this annex.

5.1.2 Regulatory status

Official control should relate to the phytosanitary measures that are applied because of the pest nature of the LMO. It may be appropriate to consider any official control measures in place for the parent organism, donor organism, transgene vector or gene vector.

5.1.3 Potential for establishment and spread in PRA area

The following should be considered:

- changes in adaptive characteristics resulting from the genetic modification that may increase the potential for establishment and spread;

- gene transfer or gene flow that may result in the establishment and spread of pests, or the emergence of new pests; and
- genotypic and phenotypic instability that could result in the establishment and spread of organisms with new pest characteristics (e.g. loss of sterility genes designed to prevent outcrossing).

5.1.4 Potential for economic consequences in PRA area

The economic impact (including environmental impact) should relate to the pest nature (injurious to plants and plant products) of the LMO.

5.2 Assessment of the probability of introduction and spread

Assessing the probability of introduction of an LMO requires an analysis of both intentional or unintentional pathways of introduction, and intended use.

5.2.1 Probability of entry of a pest

The assessment of probability of entry is not relevant to LMOs imported for intentional release into the environment.

5.2.1.1 Identification of pathways for a PRA initiated by a pest

For LMOs, all relevant intentional and unintentional pathways of introduction should be considered.

5.2.2 Probability of establishment

The survival capacity without human intervention should be considered.

Where gene flow is a concern in the PRA area, the probability of expression and establishment of a trait of phytosanitary concern should be considered.

Case histories concerning comparable LMOs or other organisms carrying the same genetic construct may be considered.

5.2.2.1 Probability of transfer to a suitable host

When there is a trait of phytosanitary concern that may be transferred, the probability of gene flow and gene transfer should be considered.

5.2.2.2 Cultural practices and control measures

For plants that are LMOs, it may be appropriate to consider specific cultural, control or management practices.

5.2.2.3 Other characteristics of the pest affecting the probability of establishment

If there is evidence of genotypic and phenotypic instability, this should be considered.

It may be appropriate to consider proposed production and control practices related to the LMO in the country of import.

5.3 Assessment of potential consequences

The impact being assessed should relate to the pest nature (injurious to plants and plant products) of the LMO.

The following evidence should be considered:

- potential economic consequences that could result from adverse effects on non-target organisms that are injurious to plants or plant products; and
- economic consequences that could result from pest properties.

6. Pest risk management (PRA Stage 3)

6.1 Identification of appropriate pest risk management options

6.1.1 Pest risk management options

Information may have been obtained concerning the risk management measures applied to the LMO in the country of export (see section 4.2 of this annex). These measures should be assessed to determine if they are appropriate for the conditions in the PRA area and, if appropriate, the intended use.

Measures may include procedures for the provision of information on the integrity of consignments (e.g. tracing systems, documentation systems, identity-preservation systems).

6.1.2 Options preventing or reducing infestation in the crop

Measures may be applied to reduce the probability that LMOs (or genetic material from LMOs) that pose a pest risk could be present in other crops. These include:

- management systems (e.g. buffer zones, refugia);
- management of trait expression;
- control of reproductive ability (e.g. male sterility); and
- control of alternative hosts.

6.1.3 Options within the importing country

The potential pest risk posed by LMO pests depends in part on the intended use. As for other organisms, certain intended uses (such as high-security contained use) may significantly manage pest risk.

Options within the country include the use of emergency measures related to the potential pest risk posed by LMOs. Any emergency measures should be consistent with Article VII.6 of the IPPC.

6.2 Phytosanitary certificates and other compliance measures

Information on phytosanitary certificates regarding LMOs (as with any other regulated articles) should only be related to phytosanitary measures (see ISPM 12 (*Phytosanitary certificates*)).

This annex is a prescriptive part of the standard.

ANNEX 6: Pest risk analysis for plants as quarantine pests

1. Introduction

This annex provides specific guidance on conducting PRA to determine if a plant is a pest of cultivated or wild plants, whether it should be regulated, and to identify phytosanitary measures that reduce the pest risk to an acceptable level. It focuses primarily on plants proposed for import, whether as plants for planting or for other intended uses. It does not cover the unintentional introduction of plants as contaminating pests in commodities or conveyances.

2. Plants as pests

Plants as pests may affect other plants through competition for space and resources, such as light, nutrients and water, or through parasitism or allelopathy. Plants introduced to a new area may also become pests by hybridizing with cultivated plants or wild plants.

Thus, the protection of plants as pursued through the IPPC may include considering certain plants as pests, and taking phytosanitary measures to prevent their introduction and spread. Determining which plants are pests is context-specific and may vary with geography, habitat, land use, time and the perceived value of the natural resources in the endangered area. Pest risk analysis should form the basis of such a determination and subsequent decisions regarding possible regulation of the plant species as a quarantine pest. It should be noted that a plant having undergone such analysis may also require assessment of its potential to be a pathway for other pests.

The governing body of the IPPC has recognized the importance of plants as pests by underscoring that the definition of “pest” includes weeds (ICPM, 2001), and by specifically including “plants that are invasive alien species” in a range of recommendations for action for those invasive alien species that are pests of plants (ICPM, 2005). This annex provides some specific guidance on how to apply these recommendations.

The IPPC is concerned with pests injurious to cultivated and wild plants, and therefore weeds and invasive plants that are injurious to other plants should be considered pests in the IPPC context. Henceforth in this annex, the terms “weed” and “invasive plants” are not used, but only the single term “plants as pests”.³²

3. Initiation (PRA Stage 1)

3.1 Initiation points

The PRA process for plants as quarantine pests will most frequently arise in situations such as when:

- a request is made to import a plant not previously imported;
- a plant already available and used in a country is suspected of posing a pest risk (e.g. because of new evidence or anticipated changes in its intended use); or
- a decision is made to review or revise phytosanitary policies.

3.2 Preselection

Annex 1 of this standard describes, as part of the initiation stage, a preselection step for determining whether or not an organism is a pest, and provides some indicators that a plant may be a pest. Particular attention is needed for plants that have proven to be pests elsewhere or that have intrinsic characteristics

³² “Invasive plants” are often taken to mean invasive alien species in the sense used in the Convention on Biological Diversity (see ISPM 5, Appendix 1). The term “weed” usually refers to pests of cultivated plants. However, some countries use the term “weed” irrespective of whether cultivated plants or wild flora are at risk, and other countries use the term “noxious weed”, “landscape weed”, “environmental weed” or similar terms to distinguish them from plants only affecting crops.

that are strong predictors of pest potential, such as a high propagation rate or strong competitive or propagule dispersal abilities. In most cases, consideration of these factors in Stage 1 of the PRA may not be sufficient to terminate the process; however, in cases where it is clearly determined that the plant is only suited to a specific type of habitat that does not exist in the PRA area, it may be concluded that the plant cannot become a pest in that area and the PRA process may stop at that point.

4. Pest risk assessment (PRA Stage 2)

4.1 Identity of the plant

The species is the taxonomic level usually considered in PRA. However, in the case of cultivated plants that may be pests, lower taxonomic levels may be used where there are scientifically sound rationales. The taxonomic level appropriate for conducting the PRA for a particular plant as a pest should be determined by the NPPO.

Some particular considerations regarding the identity of plants as pests may include the following:

- The taxonomic identity of the plant may be unclear because it has been obscured by breeding or hybridization or is the subject of plant breeders' rights. This is particularly relevant for horticultural plants. The NPPO should acquire the best possible information about the identity and parentage of the plant from various sources (e.g. the prospective importer, plant breeders, scientific literature).
- The use of taxonomic levels below the species (i.e. subspecies, variety, cultivar) may be justified if there is scientific evidence demonstrating that differences in characteristics are stable and may significantly affect the pest risk. Examples may include differences in adaptability to environmental conditions, ability to exploit resources, ability to defend against herbivores, and methods of reproduction or propagule dispersal.
- The evaluation of a hybrid should be based on information specific to that hybrid where available. Where such information does not exist, PRA may be conducted on the parent species to determine their pest risk. If either parent is determined to be a pest and the associated pest risk is deemed unacceptable, this information may form the basis of the pest risk assessment for the hybrid. However, as hybrids do not always express similar characteristics to their parent species, that approach may significantly increase the assessment uncertainty and should be used with caution.

4.2 Presence or absence in the PRA area

Determination of presence or absence in the PRA area is a particular challenge for NPPOs when plants are proposed for import because the plants may already be growing in locations (e.g. botanical gardens, home gardens) that may not be reported. Sources of information may include horticultural, agricultural, forestry and aquaculture publications and databases. The NPPO may need to carry out a survey or surveys for the plant being assessed to obtain information on its presence and distribution.

The presence or absence of wild or cultivated relatives in the PRA area should also be determined in the case where there is scientific evidence that the plant may hybridize with such local relatives.

4.3 Intended use

The PRA should include consideration of the intended use (see ISPM 32) of the plant being assessed, as this may affect the probability of establishment, spread and economic consequences. However, it should also be recognized that plants, once entered, may escape or be diverted from the use for which they were originally intended.

In the case of plants for planting, significant human effort is made to ensure their continuous survival and, in some cases, successful reproduction, because of their perceived benefits. Furthermore, the plants for planting have often been selected to be well suited for growing in the importing country. This significantly increases the likelihood of establishment and spread. Therefore, plants for planting are

generally considered to pose the highest pest risk. Examples of intended uses, broadly in the order of decreasing pest risk at the time of planting, are:

- planting in the open landscape without management (e.g. for soil erosion control, wastewater treatment and carbon dioxide uptake, or as aquatic plants in watercourses or ponds);
- planting in the open landscape with management (e.g. in forestry, agriculture (including for biofuel), horticulture, land reclamation and golf courses, or as cover crops);
- planting outdoors in urban areas (e.g. for amenity purposes in roadsides, parks or gardens); and
- planting indoors only.

Plants for intended uses other than planting may be considered, including for human consumption or animal feed, processing, combustion for energy production, or research.

4.4 Habitats, locations and endangered areas

Plants imported for planting may be destined for a particular geographical location of a particular habitat. However, the NPPO should assess:

- the probability that the plants could establish in habitats in the PRA area other than where they were intended to grow (i.e. to what degree other habitats are suitable for the plant); and
- the probability that the plants could spread from the location where they were intended to grow.

The overall area of suitable habitats where the presence of the plant would result in economically important loss constitutes the endangered area.

With respect to a plant being assessed as a pest with indirect effects, wherever a reference is made to a “host” or “host range”, these terms should be understood to refer to a suitable habitat in the PRA area.

The analysis of suitable habitats is analogous to the analysis of host plants for other pests (in the case of parasitic plants, both host and habitat should be considered). The guidance provided in section 3.2 of Annex 2 may be applicable, substituting the terms “host” and “host range” with “suitable habitat”.

4.5 Probability of entry

For imported plants, the assessment of probability of entry is not relevant. Nevertheless, where an estimation of the volume, frequency and destinations of prospective imports is needed in order to assess the likelihood of establishment and spread, NPPOs should consider such estimations in the pest risk assessment. In addition, the probability of entry should be assessed for pests that may be carried by these plants, such as contaminating seeds carried with seeds imported for planting.

For plants for planting proposed for import, the plants may be planted and maintained in a particular location. A pest risk may arise if there is a possibility that the plants may spread from the location where they are intended to grow and establish in the endangered area. Accordingly, the probability of spread (section 4.8 of this annex) may be considered before the probability of establishment (section 4.7 of this annex).

Imported plants not intended to be planted may be used for various purposes (e.g. as bird seed, as fodder, for processing). A pest risk may arise if there is a possibility that the plants may escape or be diverted from the intended use and establish in the endangered area.

4.6 Historical evidence of pest behaviour

The most reliable predictor of establishment, spread and potential consequences of a plant as a pest is the history of that plant as a pest when introduced into new areas with similar habitats and climate. Where such a history is documented, the assessment should use this information, comparing the habitat and climate conditions with those in the PRA area to determine if they are sufficiently similar. However, a plant may never have been moved out of its native range, where it may be controlled by naturally occurring enemies or other biotic or abiotic factors. In such cases, no historical evidence will exist of establishment, spread or consequences.

4.7 Probability of establishment

In the case of plants as pests, assessment of the probability of establishment concerns their establishment in habitats other than those in which they are intended to grow.

The assessment of the probability of establishment should consider the suitability of the climate, other abiotic and biotic factors (see section 3.2.3 of Annex 2), and cultural practices (see section 3.2.4 of Annex 2). The assessment should compare the conditions in habitats within the PRA area to the conditions in habitats in which the plant is currently present. Depending on the information available, the following may be incorporated:

- *climate*: suitability of current climates and, for long-lived plants, future projected climates;
- *other abiotic factors*: soil characteristics, topography, hydrology, natural fires, and so on;
- *biotic factors*: current vegetation, degree of disturbance, presence or absence of natural enemies and competitors; and
- *cultural practices in crops or managed plant communities*: herbicide usage, harvesting, soil cultivation, burning, and so on (including side-effects such as aerial deposition of nitrogen or pesticides).

Where the history of a particular plant as a pest is not well documented, the assessment should consider intrinsic characteristics of the plant that may predict establishment (see section 3.2.5 of Annex 2). Although intrinsic characteristics have sometimes been shown to be poor predictors, the following may be considered:

- *reproductive characteristics*: sexual and asexual mechanisms, dioecism, duration of flowering, self-compatibility, reproduction frequency, generation time;
- *adaptive potential (of individuals and populations)*: genotypic or phenotypic plasticity, hybridization potential;
- *propagule attributes*: volume and viability, dormancy; and
- *tolerance or resistance*: response to pests, herbicides, grazing and other cultural practices, drought, flooding, frost, salinity, climate changes.

Many plants as pests are opportunists with a strong potential to become established in disturbed habitats. Plants with a robust dormancy combined with a prolific reproductive ability are particularly suited for such an opportunistic strategy. Disturbed habitats are common; therefore, plants with such opportunistic adaptations may encounter many opportunities for establishment and spread.

4.8 Probability of spread

Assessment of spread concerns spread from the location where the plants are intended to grow or from the intended use to the endangered area.

The likelihood and extent of spread depends on natural and human-mediated factors. Natural factors may include:

- intrinsic characteristics of the plant species (particularly regarding reproduction, adaptation and propagule dispersal);
- existence of natural means of dispersal (e.g. birds and other animals, water, wind); or
- existence and spatial pattern of suitable habitats and dispersal corridors connecting them.

Human-mediated factors, whether intentional or unintentional, may include:

- intended use, consumer demand, economic value and ease of transport;
- the movement of propagules of contaminating pests with soil or other materials (e.g. clothing, conveyances, machinery, tools, equipment);
- the discarding of plants (e.g. after flowering or when private aquaria are emptied); or
- disposal procedures (e.g. composting) for waste that contains plants.

There are often long time lags between a plant's initial introduction and its later spread. As a consequence, even in the cases where establishment may be well documented, the potential for later spread may be less known. If evidence exists, it should be considered. This may include evidence of factors such as:

- changes in abiotic factors (e.g. an increase in aerial deposition of nitrogen or sulphur);
- changes in the genetic profile of the plant species (e.g. through natural selection, genetic drift);
- whether the plant has a long generative time or time to maturity;
- emergence of novel uses for the plant;
- relatively rare dispersal events that move propagules from suboptimal to optimal habitats;
- changes in land use or disturbance pattern (e.g. following natural floods, natural fires); and
- changes in climate (e.g. warmer climate, changes in precipitation patterns).

4.9 Assessment of potential consequences

Plants as pests may have a variety of consequences, including yield losses in agriculture, horticulture and forestry; reduction of recreational value; or reduction of biodiversity and negative effects on other parts of the ecosystem. Assessment of consequences of plants as pests may be inherently difficult because they may have broad agricultural, environmental and social consequences that may be non-specific, not readily apparent or not easily quantified (e.g. changes in the soil's nutrient profile).

The assessment should also consider the potential long-term consequences for the entire PRA area, including where the plants are intended to grow. In particular, in the case of plants for planting that may be pests, the long-term consequences for the habitat in which the plants are intended to grow may be included in the assessment because planting may affect further use of, or have a harmful effect on, that habitat.

The most reliable predictor of potential consequences is evidence of consequences elsewhere, particularly in areas with similar habitats. However, in some cases, plants have never been moved out of their native ranges and therefore may not have had an opportunity to express any potential consequences. In the absence of evidence of consequences elsewhere, consideration may be given to whether or not the plant possesses intrinsic characteristics that predict pest potential, such as those discussed in sections 4.7 and 4.8 of this annex and in section 3.2.5 of Annex 2 related to establishment and spread.

5. Pest risk management (PRA Stage 3)

Plants for planting will usually be introduced into habitats suitable for their establishment and growth. In such cases, most pest risk management options would be counterproductive to the intended use. In general, for plants for planting considered to be quarantine pests, the most effective pest risk management option is prohibition (see section 4.6 of Annex 3). However, those plants may at the same time have a perceived benefit that may be considered in the decision-making process following the PRA.

For specific situations, other pest risk management options may be pursued, such as:

- requirements for growing plants under confinement;
- requirements for harvesting plants at a certain stage or specified time to prevent opportunities for reproduction;
- restriction of plants to particular locations, such as those that are marginally suitable;
- restriction of import to specified cultivars or clones;
- restrictions on the disposal of excess or waste plant material; and
- other restrictions on planting, growing, sale, holding, transport or disposal.

In some situations, it may be appropriate for NPPOs to promote the use of codes of conduct for sale, holding, transport, planting or disposal, for example in the form of internal rules or guidelines within the plant industry to refrain from or restrict the selling of particular plants for specific intended uses.

For plants imported for consumption or processing, pest risk management options may include restrictions on transport, storage, locations of import and use, sale, waste disposal, time of year that import takes place, and requirements regarding processing or treatments (e.g. devitalization).

In identifying pest risk management options, the suitability of control measures, ease of detection, identification of and access to the plants, time needed for effective control and difficulty of eradication or containment should be considered. For example, plants in highly managed systems such as cropping systems may be more easily controlled than plants in natural or semi-natural habitats, or in private gardens. Many of the factors considered under “establishment” and “spread” also influence a plant’s response to control measures and thus the feasibility of control.

In cases where the assessed plants are present in collections (e.g. botanical gardens) and import regulation is considered, phytosanitary measures may have to be applied to those collections.

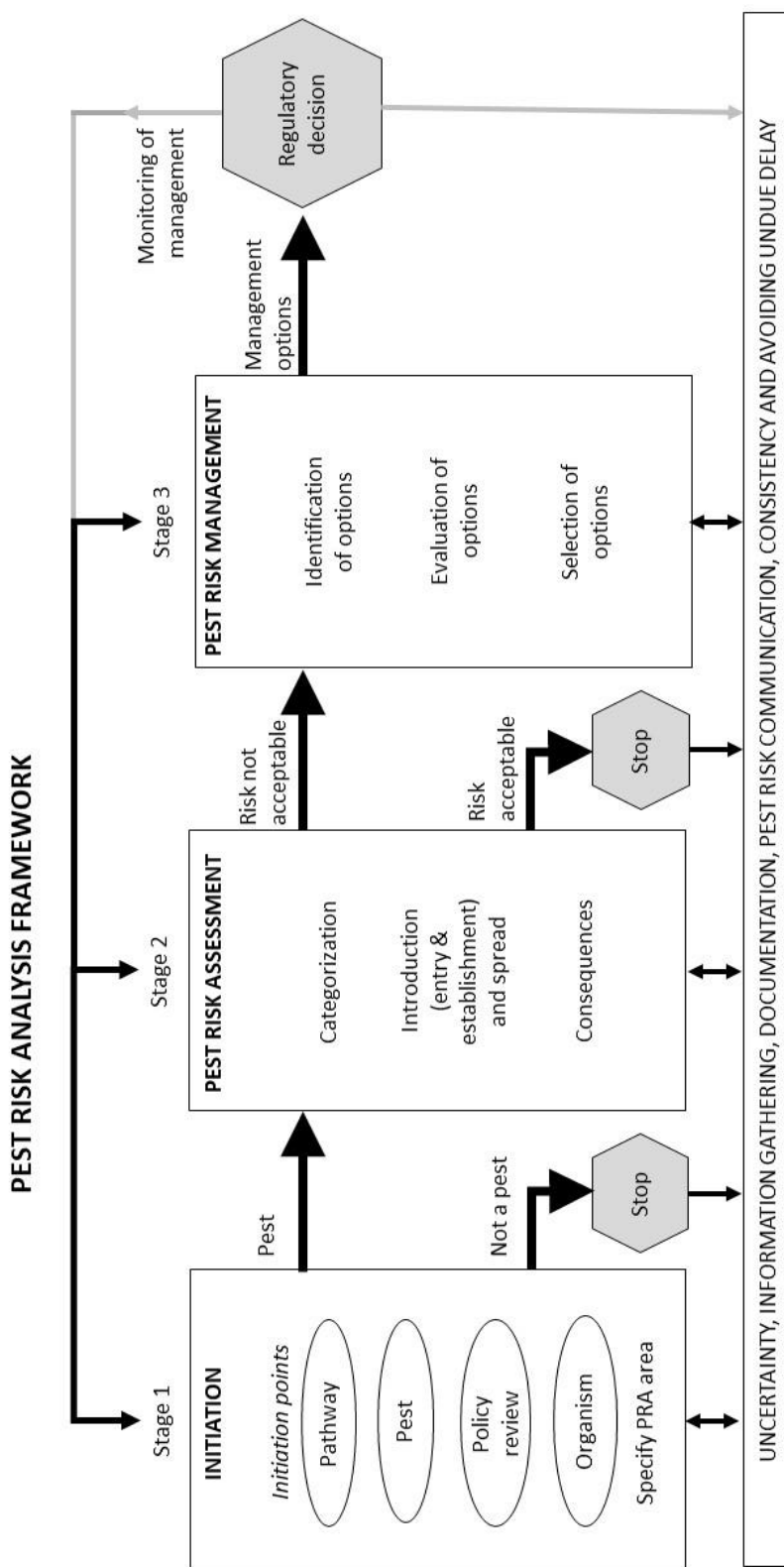
Irrespective of pest risk management options, where the import of a plant is allowed, it may be appropriate to develop post-entry systems such as surveillance in the PRA area, contingency plans, and systems to report new occurrences.

Potential implementation issues

This section is not part of the standard. The Standards Committee in May 2023 requested the secretariat to gather information on any potential implementation issues related to this draft. Please provide details and proposals on how to address these potential implementation issues.

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

APPENDIX 1: Pest risk analysis flow chart



Note: PRA, pest risk analysis.

Appendix 5: Introduction to the reorganization and revision of PRA standards (not an official part of the standard)

Pest risk analysis (PRA) is a core process within the scope of the IPPC. Guidance for national plant protection organizations (NPPOs) is currently provided in ISPM 2 (*Framework for pest risk analysis*, adopted in 1995, revised in 2007) and ISPM 11 (*Pest risk analysis for quarantine pests*, adopted in 2001, revised in 2003, 2004, and 2013).

The purpose of the revision is to:

- include all the requirements of the stages in PRA in one standard; and
- provide revised guidance on the pest risk management stage.

The reorganization and revision were achieved in line with Specification 72 (*Reorganization and revision of pest risk analysis standards*) by combining, and revising where relevant, ISPM 2, ISPM 11, and the draft ISPM on *Pest risk management for quarantine pests* (2014-001) (originally drafted as a stand-alone standard) into one standard. The redundant and repetitive text was removed but the substantive guidance remained. Information on environmental risks, living modified organisms (LMOs), and PRA for plants as pests are gathered into further annexes.

Main changes from existing PRA ISPMs

Structure of revised PRA ISPM:

- Core text of the standard
- ANNEX 1: Initiation (PRA Stage 1)
- ANNEX 2: Pest risk assessment (PRA Stage 2)
- ANNEX 3: Pest risk management (PRA Stage 3)
- ANNEX 4: Environmental risks
- ANNEX 5: Living modified organisms as pests
- ANNEX 6: Pest risk analysis for plants as quarantine pests
- APPENDIX 1: Pest risk analysis flow chart

Supplements on the environmental impacts (S1) and LMOs (S2). The supplemental text on environmental impacts (S1) and the section addressing plants as quarantine pests were moved to Annexes 4 and 6, respectively. The supplemental text on LMOs (S2) was moved to Annex 5 except where it was necessary to retain it in the text.

Probability of transfer to a suitable host. This subsection was moved from the end of the probability of entry section to the section on the probability of establishment. This was because, according to ISPM 5 (*Glossary of phytosanitary terms*), “entry” is complete when a pest enters the area, whereas, in ISPM 11, entry is complete when a pest is transferred to another host. This change was aimed at improving the logical flow of the process and achieving consistency across ISPMs.

Consequences. The expert working group (EWG) agreed that consequences to be considered include environmental, economic, social and other consequences, and economic consequences do not need to be mentioned specifically. The word “consequences” (without the qualifier of “economic” or “environmental”) is used, except where a special focus on “environmental” or “economical” consequences is indicated.

NOTE: Reviewers are encouraged to focus their review on new and revised text (specifically focusing on black text). General comments are encouraged on red and blue text at this stage of consultation, considering that the scope of the revision is limited by Specification 72 (www.ippc.int/en/publications/90498). Reviewers are also invited to identify implementation issues, if any.

Remarks/Colour code

- Text in black colour is new and revised text – all comments encouraged
- Text in blue colour is transcribed from ISPM 2 – general comments encouraged
- Text in red colour is transcribed from ISPM 11 – general comments encouraged

Additional information is included in the report of the EWG (www.ippc.int/en/publications/91944), and the discussion of the SC in May 2023 (www.ippc.int/en/publications/92194)

Appendix 6: DRAFT ANNEX TO ISPM 46: International movement of fresh *Mangifera indica* fruit (2021-011)

Status box

This is not an official part of the standard and it will be modified by the IPPC Secretariat after adoption.	
Date of this document	2023-05-18
Document category	Draft annex to ISPM 46
Current document stage	To first consultation
Major stages	2021-04 CPM-16 added topic Annex <i>International movement of mango (Mangifera indica) fruit (2021-011)</i> to ISPM 46 (<i>Commodity-specific standards for phytosanitary measures</i>) to the work programme, priority 1. 2022-11 SC approved Specification 73. 2023-01 Technical Panel on Commodity Standards (TPCS) drafted. 2023-02 TPCS revised and recommended to SC for approval for consultation. 2023-05 SC revised and approved for first consultation.
Steward history	2022-05 SC Joanne WILSON (NZ, Lead Steward) 2022-05 SC Hernando MORERA-GONZÁLEZ (CR, Assistant Steward)
Notes	2023-02 Edited 2023-05 Edited As per new FAO style, references cited in tables are listed below tables rather than in References.

Adoption

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

1. Scope

This commodity standard clearly describes the commodity (including, when relevant, the botanical name and part of the plant as well as its intended use) for which a list of associated pests and related options for phytosanitary measures are identified.

2. Description of the commodity and its intended use

This commodity standard provides guidance for national plant protection organizations on options for phytosanitary measures for the international movement of fresh *Mangifera indica* (mango) fruit.

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

3. Pests associated with fresh *Mangifera indica* fruit

The pests included in Table 1 are known to be associated with *M. indica* and are regulated by at least one contracting party. The list of pests is not intended to be exhaustive.

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 associated with fresh *Mangifera indica* fruit

Pest group	Family	Species
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 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
		<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)

Pest group	Family	Species
		<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 (Hemiptera)	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

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 intended to be exhaustive.

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 all pests 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 9.

Use of methyl bromide (Table 8) should take into account the Commission on Phytosanitary Measures recommendation on the *Replacement or reduction of the use of methyl bromide as a phytosanitary measure* (R-03). Alternative treatments that are more environmentally friendly are being pursued.

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

Integrated measures may also include general agricultural practices and production procedures. Examples of these include the following:

- production practices and procedures, such as:
 - orchard hygiene practices,

- monitoring for pests, and
- pest management;
- handling, grading and packing practices and procedures, such as:
 - pest management in the packing house,
 - packing fruit in material that is clean and either new or refurbished,
 - storing and transporting fruit in a secure manner to prevent contamination and infestation (e.g. use of insect-proof packaging), and
 - grading fruit to provide assurance that it is free from damage, symptoms of pests, and contamination (e.g. contamination with soil or plant debris); and
- secure management of treatment facilities to prevent contamination and infestation.

Table 2. Options for phytosanitary measures that may be relevant to all pests associated with fresh *Mangifera indica* fruit

Options for phytosanitary measures	References
Pest free areas	ISPM 4 (<i>Requirements for the establishment of pest free areas</i>)
Pest free areas for fruit flies	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>)
Inspection	ISPM 23 (<i>Guidelines for inspection</i>)
Phytosanitary certification	ISPM 7 (<i>Phytosanitary certification system</i>) ISPM 12 (<i>Phytosanitary certificates</i>)

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

Table 3. Pest-specific options for phytosanitary measures

Pest species	Options for phytosanitary measures
Weevils	
<i>Sternochetus frigidus</i>	IRDN 5; SA 1
<i>Sternochetus mangiferae</i>	IRDN 7; SA 1
<i>Sternochetus olivieri</i>	IRDN 7; SA 1
Fruit flies	
<i>Anastrepha distincta</i>	HWIT 2; IRDN 1
<i>Anastrepha fraterculus</i>	HWIT 1, 2; IRDN 4
<i>Anastrepha ludens</i>	HWIT 1; IRDN 1
<i>Anastrepha obliqua</i>	HWIT 1, 2; IRDN 1
<i>Anastrepha serpentina</i>	HWIT 1, 2; IRDN 2
<i>Anastrepha striata</i>	HWIT 1, 2; IRDN 4
<i>Bactrocera aquilonis</i>	IRDN 4; VHT 4, 5

Pest species	Options for phytosanitary measures
<i>Bactrocera carambolae</i>	HWIT 4; IRDN 4; VHT 3, 6, 7
<i>Bactrocera caryeae</i>	HWIT 4; IRDN 4
<i>Bactrocera correcta</i>	HWIT 4; IRDN 4; VHT 3, 6, 7
<i>Bactrocera curvipennis</i>	HTFA 1; IRDN 4
<i>Bactrocera dorsalis</i>	HWIT 3, 4, 5; IRDN 3; MB 1; VHT 1, 3, 6, 7
<i>Bactrocera facialis</i>	HTFA 1; IRDN 4
<i>Bactrocera frauenfeldi</i>	IRDN 4; VHT 4, 5
<i>Bactrocera jarvisi</i>	IRDN 2; VHT 4, 5
<i>Bactrocera kirki</i>	HTFA 1; IRDN 4
<i>Bactrocera melanotus</i>	HTFA 1; IRDN 4
<i>Bactrocera neohumeralis</i>	IRDN 4; VHT 4, 5
<i>Bactrocera occipitalis</i>	IRDN 4; VHT 1
<i>Bactrocera passiflorae</i>	HTFA 1; IRDN 4
<i>Bactrocera psidii</i>	HTFA 1; IRDN 4
<i>Bactrocera tryoni</i>	HTFA 1; IRDN 2; VHT 4, 5
<i>Bactrocera tuberculata</i>	IRDN 4; VHT 3, 6, 7
<i>Bactrocera xanthodes</i>	HTFA 1; IRDN 4
<i>Bactrocera zonata</i>	HWIT 4; IRDN 4; VHT 3, 6, 7
<i>Ceratitis capitata</i>	HWIT 1, 2, 3, 5; IRDN 2; MB 1; VHT 2, 4
<i>Ceratitis cosyra</i>	HWIT 3, 5; IRDN 4; MB 1
<i>Ceratitis rosa</i>	HWIT 3, 5; IRDN 4; MB 1
<i>Zeugodacus cucurbitae</i>	IRDN 4; VHT 1; VHT 3, 6, 7
<i>Zeugodacus tau</i>	IRDN 4; VHT 3, 6, 7
Mealybugs	
<i>Dysmicoccus neobrevipes</i>	IRDN 6; pre-export inspection*
<i>Ferrisia malvastra</i>	IRDN 8
<i>Formicococcus robustus</i>	IRDN 8
<i>Maconellicoccus hirsutus</i>	Official laboratory analysis†
<i>Nipaecoccus nipae</i>	Pre-export inspection*
<i>Planococcus lilacinus</i>	IRDN 6; pre-export inspection*
<i>Planococcus minor</i>	IRDN 6; pre-export inspection*
<i>Pseudococcus cryptus</i>	IRDN 8; pre-export inspection*
<i>Pseudococcus jackbeardsleyi</i>	IRDN 8; pre-export inspection*
<i>Pseudococcus solenedyos</i>	IRDN 8; pre-export inspection*
<i>Rastrococcus iceryoides</i>	IRDN 8; pre-export inspection*
<i>Rastrococcus invadens</i>	IRDN 8; pre-export inspection*
<i>Rastrococcus rubellus</i>	IRDN 8; pre-export inspection*
<i>Rastrococcus spinosus</i>	IRDN 8; pre-export inspection*
Whiteflies	
<i>Aleurodicus dispersus</i>	Pre-export inspection

Pest species	Options for phytosanitary measures
Other hemipterans	
<i>Acanthocoris scabrator</i>	Pre-export inspection*
<i>Amblypelta nitida</i>	Pre-export inspection*
<i>Bathycoelia thalassina</i>	Pre-export inspection*
Moths	
<i>Deanolis sublimbalis</i>	IRDN 8; pre-export inspection*
<i>Biston suppressaria</i>	Pre-export inspection*
<i>Darna trima</i>	Pre-export inspection*
Thrips	
<i>Retithrips syriacus</i>	Pre-export inspection
<i>Rhipiphorothrips cruentatus</i>	Pre-export inspection*
<i>Scirtothrips aurantii</i>	Pre-export inspection*
<i>Thrips palmi</i>	Pre-export inspection*
Fungi	
<i>Cytosphaera mangiferae</i>	SA 1

Notes: * Pre-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 identified to species. If the pest is detected, a remedial action is applied to the affected consignment or the consignment is rejected for export.

HTFA, high temperature forced air (see Table 6); HWIT, hot water immersion treatment (see Table 4); IRDN, irradiation (see Table 7); MB, methyl bromide (see Table 8); SA, systems approach (see Table 9); VHT, vapour heat treatment (see Table 5).

Table 4. Schedules for hot water immersion treatment

Schedule number	Fruit weight (g)	Water temperature (°C)	Immersion time (minutes)	References*
HWIT 1	0–375	46.1	65	USDA (2016)
	376–500	46.1	75	
	501–700	46.1	90	
HWIT 2	0–425	46.1	75	MERCOSUR (2006) MPI (2023)
	426–650	46.1	90	
HWIT 3	0–500	46.1	75	Armstrong and Mangan (2007) DAFF (2023)
	501–700	46.1	90	
	701–900	46.1	110	
HWIT 4	0–500	48.0	60	APQA (2012, 2016) DAFF (2023)
	501–700	48.0	75	
	701–900	48.0	90	
Schedule number	Fruit weight (g)	Fruit pulp temperature (°C)	Immersion time (minutes)	References
HWIT 5	All	50.0	11	Zakariya and Alhassan (2014)

Note: * References listed in alphabetical order, not by weight of fruit.

Sources:

APQA (Animal and Plant Quarantine Agency). 2012. *Import requirement for fresh mango fruits from Pakistan into Korea* (in Korean). Republic of Korea. www.qia.go.kr/bbs/lawAnn/viewLawWebAction.do?id=190958&type=0

- APQA. 2016. *Import requirement for fresh mango fruits from India into Korea* (in Korean). Republic of Korea. www.qia.go.kr/lawAnn/viewLawWebAction.do?id=190961&type=0
- Armstrong, J.W. & Mangan, R.L. 2007. Commercial quarantine heat treatments. In: J. Tang, E. Mitcham, S. Wang & S. Lurie, eds. *Heat treatments for postharvest pest control – Theory and practice*, pp. 311–340. Wallingford, UK, CAB. 349 pp.
- DAFF (Department of Agriculture, Fisheries and Forestry). 2023. Australian Biosecurity Import Conditions. In: *Australian Government Department of Agriculture, Fisheries and Forestry*. Canberra. [Cited 29 January 2023]. <https://bicon.agriculture.gov.au/BiconWeb4.0>
- MERCOSUR (Southern Common Market). 2006. [Phytosanitary requirements for *Mangifera indica* (mango), according to country of destination and origin, for MERCOSUR member states.] MERCOSUR/GMC/RES. N° 61/06, sub-standard 3.7.45 (in Spanish). Brasília. 9 pp. <https://faolex.fao.org/docs/pdf/mrc104485.pdf>
- MPI (Ministry for Primary Industries). 2023. Requirement documents for importing fresh fruit and vegetables. In: *Ministry for Primary Industries*. Wellington, New Zealand Government. [Cited 1 March 2023]. www.mpi.govt.nz/import/food/fresh-fruit-vegetables/requirements
- USDA (United States Department of Agriculture). 2016. *Treatment manual*, 2nd edn. Animal and Plant Health Inspection Service, USDA. 968 pp. www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/treatment.pdf
- Zakariya, A.A.-R.M. & Alhassan, N. 2014. Application of hot water and temperature treatments to improve quality of Keitt and Nam Doc Mai mango fruits. *International Journal of Scientific and Technology Research*, 3: 262–266. www.ijstr.org/final-print/sep2014/Application-Of-Hot-Water-And-Temperature-Treatments-To-Improve-Quality-Of-Keitt-And-Nam-Doc-Mai-Mango-Fruits.pdf

Table 5. Schedules for vapour heat treatment

Schedule number	Minimum pulp temperature (°C)	Minimum relative humidity (%)	Minimum exposure time (minutes)	References
VHT 1	46.0	95	10	Dohino <i>et al.</i> (2017) USDA (2016)
VHT 2	46.5	95	10	PT 30 (Vapour heat treatment for <i>Ceratitidis capitata</i> on <i>Mangifera indica</i>)
VHT 3	46.5	95	30	APPPC (2021)
VHT 4	47.0	90	15	DAFF (2023)
VHT 5	47.0	95	15	PT 31 (Vapour heat treatment for <i>Bactrocera tryoni</i> on <i>Mangifera indica</i>)
VHT 6	47.0	95	20	APPPC (2021)
VHT 7	47.5	95	20	APPPC (2021)

Note: **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.

Sources: ISPMs are available at www.ippc.int/core-activities/standards-setting/ispms.

APPPC (Asia and Pacific Plant Protection Commission). 2021. *International movement of fresh mango (Mangifera indica) fruit*. Regional Standard for Phytosanitary Measures (RSPM) 11. Bangkok, APPPC, FAO. 12 pp. www.fao.org/3/cb5357en/cb5357en.pdf

DAFF (Department of Agriculture, Fisheries and Forestry). 2023. Australian Biosecurity Import Conditions. In: *Australian Government Department of Agriculture, Fisheries and Forestry*. Canberra. [Cited 17 May 2023]. <https://bicon.agriculture.gov.au/BiconWeb4.0>

Dohino, T., Hallman, G.J., Grout, T.G., Clarke, A.R., Follett, P.A., Cugala, D.R., Tu, D.M. *et al.* 2017. Phytosanitary treatments against *Bactrocera dorsalis* (Diptera: Tephritidae): current situation and future prospects. *Journal of Economic Entomology*, 110(1): 67–79. <https://doi.org/10.1093/jee/tow247>

USDA (United States Department of Agriculture). 2016. *Treatment manual*, 2nd edn. Animal and Plant Health Inspection Service, USDA. 968 pp. www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/treatment.pdf

Table 6. Schedules for high temperature forced air treatment

Schedule number	Minimum pulp temperature (°C)	Minimum exposure time (minutes)	References
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HTFA 1	47.2	20	APPPC (2021) MPI (2023)
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Sources:

APPPC (Asia and Pacific Plant Protection Commission). 2021. *International movement of fresh mango (Mangifera indica) fruit*. Regional Standard for Phytosanitary Measures (RSPM) 11. Bangkok, APPPC, FAO. 12 pp. www.fao.org/3/cb5357en/cb5357en.pdf

MPI (Ministry for Primary Industries). 2023. Requirement documents for importing fresh fruit and vegetables. In: *Ministry for Primary Industries*. Wellington, New Zealand Government. [Cited 1 March 2023]. www.mpi.govt.nz/import/food/fresh-fruit-vegetables/requirements

Table 7. Schedules for irradiation

Schedule number	Dose (Gy)	References
IRDN 1	70	PT 1 (Irradiation treatment for <i>Anastrepha ludens</i>) PT 2 (Irradiation treatment for <i>Anastrepha obliqua</i>) PT 39 (Irradiation treatment for the genus <i>Anastrepha</i>)
IRDN 2	100	PT 3 (Irradiation treatment for <i>Anastrepha serpentina</i>) PT 4 (Irradiation treatment for <i>Bactrocera jarvisi</i>) PT 5 (Irradiation treatment for <i>Bactrocera tryoni</i>) PT 14 (Irradiation treatment for <i>Ceratitis capitata</i>)
IRDN 3	116	PT 33 (Irradiation treatment for <i>Bactrocera dorsalis</i>)
IRDN 4	150	PT 7 (Irradiation treatment for fruit flies of the family Tephritidae (generic))
IRDN 5	165	PT 43 (Irradiation treatment for <i>Sternochetus frigidus</i>)
IRDN 6	231	PT 19 (Irradiation treatment for <i>Dysmicoccus neobrevipes</i>, <i>Planococcus lilacinus</i> and <i>Planococcus minor</i>)
IRDN 7	300	USDA (2016)
IRDN 8*	400	APPPC (2021)

Notes: * IRDN 8 treatment excludes pupae and adults of the order Lepidoptera.

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.

Sources: ISPMs are available at www.ippc.int/core-activities/standards-setting/ispms.

APPPC (Asia and Pacific Plant Protection Commission). 2021. *International movement of fresh mango (Mangifera indica) fruit*. Regional Standard for Phytosanitary Measures (RSPM) 11. Bangkok, APPPC, FAO. 12 pp. www.fao.org/3/cb5357en/cb5357en.pdf

USDA (United States Department of Agriculture). 2016. *Treatment manual*, 2nd edn. Animal and Plant Health Inspection Service, USDA. 968 pp. www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/treatment.pdf

Table 8. Schedules for methyl bromide fumigation (applied under normal atmospheric pressure)

Schedule number	Minimum temperature (°C)	Minimum dose (g/m ³)	Minimum time (hours)	Reference
MB 1	21	32	2	DAC (2003)

Source:

DAC (Department of Agriculture and Cooperation). 2003. *Plant Quarantine (Regulation of Import into India) Order, 2003*. New Delhi. 105 pp. www.ppq.gov.in/acts

Table 9. 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. targeted field management using pest control) <i>Harvest control measures</i> (e.g. field sanitation, removal of infested fruit) <i>Post-harvest control measures</i> (e.g. washing and brushing; chemical dipping; targeted inspection and remedial action to remove external pests)	Lun (2017)

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

Lun, V. 2017. Case study on Cambodian fresh mangos export to Korea. Presentation, 7 September 2017, Yogyakarta, Indonesia. www.unescap.org/sites/default/files/4.1%20Case%20Study%20on%20Cambodian%20Fresh%20Mango%20Export%20to%20Korea_L.%20Vanny.pdf

5. References

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

CPM R-03. 2017. *Replacement or reduction of the use of methyl bromide as a phytosanitary measure.* CPM Recommendation. Rome, IPPC Secretariat, FAO. Adopted 2008. www.ippc.int/en/publications/84230

IPPC Secretariat. 1997. *International Plant Protection Convention.* Rome, IPPC Secretariat, FAO. www.ippc.int/en/core-activities/governance/convention-text

Potential implementation issues

This section is not part of the standard. The Standards Committee in May 2016 requested the Secretariat to gather information on any potential implementation issues related to this draft. Please provide details and proposals on how to address these potential implementation issues.

Appendix 7: DRAFT ANNEX TO ISPM 39: Use of systems approaches in managing the pest risk associated with the movement of wood (2015-004)

Status box

This is not an official part of the standard and it will be modified by the IPPC Secretariat after adoption.	
Date of this document	2023-05-19
Document category	Draft annex to ISPM 39
Current document stage	To first consultation
Major stages	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. 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>). 2022-06 Expert working group drafted the annex. 2023-05 SC revised and approved for consultation.
Steward history	2021-11 SC Steve CÔTÉ (CA, Lead Steward) 2022-05 SC Harry ARIJS (BE, Assistant Steward) 2021-11 SC Sophie PETERSON (AU, Assistant Steward) 2019-05 SC Rajesh RAMARATHNAM (CA, Lead Steward)
Notes	2022-07 Edited 2023-05 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 (i.e. dicotyledons and some monocotyledons, such as palms) other than bamboo and rattan.

BACKGROUND

A systems approach may provide, where appropriate, an equivalent (according to ISPM 24 (*Guidelines for the determination and recognition of equivalence of phytosanitary measures*)) alternative to a single phytosanitary measure, such as a treatment, or 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*). Measures combined in the systems approach may include a wide range of actions that go beyond what are traditionally thought of as treatments, these including production practices and the ways in which wood commodities are transported to the importing country. Other measures may be carried out once wood commodities enter the importing

country. In combination, these measures reduce the pest risk for the importing country and thus facilitate safe trade.

The guidance provided in this annex pertains to quarantine pests associated with wood and with specific locations within the wood. It identifies specific procedures and practices that may be applied from pre-planting to post-import of wood in a systems approach to meet phytosanitary import requirements. It also details the documentation required to demonstrate the measures that have been taken. The annex provides guidance on the respective responsibilities of NPPOs and participating entities in developing the systems approach, implementing the measures and supervising the implementation.

REQUIREMENTS

1. Developing a wood-commodities systems approach

Development of a wood-commodities system approach requires knowledge of the biology of the pest or pests associated with the wood commodity or commodities, the production chain of the commodity or commodities and the associated pest risk. Specific pest risk management options to be included as measures in the systems approach should be effective and feasible. The selection of the measures should be negotiated between the NPPO of the importing country and the NPPO of the exporting country.

2. Practices employed along a wood-commodities production chain for consideration when developing a systems approach

Practices relating to activities in an exporting country, from pre-planting to transport, that may reduce pest risk are described in Table 1.

The NPPO of an importing country may decide to approve, when applicable and feasible, the use of some of the practices described in Table 1 as post-import measures. In addition, practices that are specific to the post-import part of the production chain may be employed (Table 2).

Table 1. Examples of practices that may be used from pre-planting to transport

Pre-planting	
Use of resistant genotypes	Planting tolerant or resistant genotypes, selected for the environmental conditions of the planting location, can reduce infestation.
Site selection	Pre-planting assessments, including soil testing, may be conducted to assess site suitability.
Species selection	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 monoculture or clonal trees can reduce the vulnerability of forests to pests.
Drainage	Tillage to improve drainage before planting can reduce pest populations.
Pest free areas or areas of low pest prevalence	Pest risk can be reduced by establishing trees from 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 22 (<i>Requirements for the establishment of areas of low pest prevalence</i>) and ISPM 8 (<i>Determination of pest status in an area</i>).
Pre-harvest	
Silvicultural practices	Planning and operational practices that can result in pest risk reduction may be applied to both planted and naturally regenerated forests. Post-planting assessments may be conducted to regularly review the progress of planted seedlings. Thinning, spacing and pruning may be carried out to remove unhealthy or infested trees or branches and improve growing conditions. Similarly, roguing (routine removal of plants that exhibit evidence of disease, infestation, off-type characteristics or undesirable traits) improves harvest quality. Well-planned and managed natural and planted forests provide an opportunity to maximize tree health and keep it under review while optimizing timber production.

Field inspection	Data from field inspections may be used to guide harvest-planning decisions and to help ensure that infested trees are not selected for export.
Surveillance	Surveillance may be used in the establishment and recognition of pest free areas and allows for early detection and intervention when pest outbreaks occur. Surveillance should be conducted in accordance with ISPM 6 (<i>Surveillance</i>).
Application of semiochemicals	Semiochemicals may be used to reduce pest populations via techniques such as pest-mating disruption and to check for pest presence to ensure early detection. Anti-aggregation pheromones (chemical substances that interrupt pest aggregation on a resource) may be used to reduce pest populations or protect healthy tree stands that may be susceptible to pests.
Chemical controls	Pesticide use can reduce pest-population density.
Biological control	Biological control agents can reduce pest-population density.
Pest free areas or areas of low pest prevalence	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) or ISPM 22 (for areas of low pest prevalence)
Harvest	
Timing of harvest	To determine whether the likelihood of infestation by a particular pest can be reduced by altering the timing of the harvest, it is important to understand the biology of the pest. For those pests that exhibit distinct seasonality in temperate forests, such as bark beetles, ambrosia beetles and other wood-boring pests, it may be feasible to identify the ideal timing of harvest to reduce levels of attack by the pest and therefore infestation, but this may not be possible in tropical forests, as pest species may have multiple overlapping generations throughout the year or year-round activity with peak levels of activity in the dry or wet season.
Assessment of standing trees for pest presence	Assessing standing trees before harvest when signs or symptoms of pests are most likely to be present can help in the selection of non-infested trees.
Post-harvest	
Rapid removal and timely transport of harvested round wood	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 all influence the likelihood of post-harvest infestation. Rapid removal and timely transport can therefore reduce the likelihood of such infestation
Visual examination for pests during volume and quality determination	To reduce the likelihood of infested wood entering the production chain, round wood may be visually examined for evidence of pests by trained personnel during the process of scaling and grading.
Anti-aggregation pheromones to repel insects	Anti-aggregation pheromones, if available, may be used to repel pests from places of natural disturbance (e.g. windthrows) or logging and storage areas.
Protection of round wood after harvest	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.
Removal of branches (or boughs)	Branch removal can be an effective method to reduce pests of foliage and twigs, preventing the movement of those pests.
Processing wood commodities	
Rapid processing of round wood	Rapid processing (to reduce timing between harvest and processing of round wood) reduces the likelihood of infestation.
Removal of bark	Removal of bark substantially removes pests inhabiting the outer surface and those found directly beneath the bark. Debarked and bark-free wood are described in section 2.1 of this standard. Bark removal can prevent post-harvest infestation by some species of wood pest.
Sawing and planing wood	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 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.
Quality control of sawn wood	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.
Inventory and contamination management	Post-harvest inventory management and keeping storage and processing areas free of soil and wood debris play an important role in reducing the likelihood of 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.
Pest free areas or areas of low pest prevalence	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) or ISPM 22 (for areas of low pest prevalence).
Surveillance	Surveillance using traps and lure combinations may be used to detect pests within and around a storage and processing facility. Surveillance should be conducted in accordance with ISPM 6.
Visual examination of wood commodities	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 more challenging.
Chipping	<p>The pest risk associated with wood chips varies depending on 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 organisms compared with chips used as a bioenergy source that may have greater variation in size and may contain bark.</p> <p>The physical 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.</p>
Heat treatment	<p>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 and vacuum-steam heating, kiln-heating, solar heating, joule heating and dielectric (microwave or radio-frequency) heating.</p> <p>Technical standards for heat treatment schedules should be established by NPPOs.</p>
Air-drying	Air-drying wood to the equilibrium moisture content can prevent some pests from completing their life cycle, because of the reduction in moisture content.
Kiln-drying	Kiln-drying can prevent some pests from completing their life cycle in wood commodities, because of the heat exposure and reduction in moisture content. Kiln-drying is described in Appendix 2 of this standard.
Irradiation	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>).
Fumigation	Fumigants 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>). Fumigation used as a phytosanitary measure should be applied in accordance with ISPM 43 (<i>Requirements for the use of fumigation as a phytosanitary measure</i>).
Anti-fungal sap-stain chemical dips	Wood commodities may be treated with anti-fungal sap-stain chemical spray or dips may be used to prevent the growth of stain fungi on logs or sawn wood (see Appendix 2 of this standard).
Modified atmosphere treatment	Wood commodities may be exposed to a modified atmosphere as a pest risk reduction measure. See Appendix 2 of this standard and ISPM 44 (<i>Requirements for the use of modified atmosphere treatments as phytosanitary measures</i>) for the use of modified atmosphere as a phytosanitary measure.
Pre-dispatch	

Limiting the storage time	Dispatching wood commodities within a specified time frame that limits the storage time reduces opportunities for post-harvest infestation.
Timing of dispatch	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.
Storage-area segregation	Regulated 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.
Storage-area cleanliness	Keeping storage areas free from contamination can help to prevent infestation of commodities stored there and may therefore be included as a component of a systems approach.
Pre-dispatch protection	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 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, or pesticide application), may be used to protect wood commodities during storage.
Water application	Round wood may be sprinkled with water in some storage areas (where appropriate) to reduce insect infestation and water pressure-washing may be used to remove pests, soil and debris.
Verification of pest status	Outer perimeter pull–push systems with aggregation and anti-aggregation pheromones and traps may be used to verify pest status and manage some insect pests. With NPPO oversight, this may be considered surveillance and should be conducted in accordance with ISPM 6.
Topical pesticides	To prevent pests from infesting processed wood commodities, topical pesticide treatments may be applied.
Packaging	Packaging (including wrapping) may be used to prevent infestation, contamination and damage by the weather before and during transport.
Pre-dispatch sampling and inspection	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.
Sampling and laboratory testing	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 tested in the laboratory to determine the pest diagnosis.
Certification	Certificates should be issued in accordance with the importing country's phytosanitary import requirements.
Transport	
Protection during transport	Wood commodities may be protected during transport (e.g. by covering them or sealing them in closed containers) to reduce the likelihood or severity of infestation by pests during transport.
Phytosanitary treatment during transport	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.
Planned transport routes	The choice of transport route may be influenced by the known distribution and phenology of pests associated with the wood commodities being transported and the weather and climatic conditions during transit.
Cleaning shipping containers	The inside and outside of containers may be cleaned after unloading or before reloading to reduce the likelihood of pests from previous cargoes infesting wood commodities.

Notes: NPPO, national plant protection organization.

ISPMs are available at www.ippc.int/core-activities/standards-setting/ispm.

Table 2. Post-import practices

Storage in an importing country	If agreed by the importing country, a systems approach may include provisions for wood-commodity storage that are designed to prevent pest escape, infestation, and contamination of storage areas.
Inspection on arrival	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>).
Limiting intended use	If agreed by the importing country, 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, 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.
Limiting points of entry and distribution	If agreed by the importing country, 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.

Note: ISPMs are available at www.ippc.int/core-activities/standards-setting/ispms.

3. Designing a wood-commodities systems approach

When designing a systems approach, the NPPO of the exporting country should select relevant measures, 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 measures 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 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. As industry has experience and an in-depth understanding of the wood production chain, it may be beneficial for the participating NPPOs to engage industry in the early stages of the development of the systems approach.

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

For the purposes of this annex, participating entities include entities authorized by NPPOs to perform phytosanitary actions.

4.1 Responsibilities of NPPOs

[402] The responsibilities of the NPPOs participating in a systems approach are described in ISPM 14. In addition, responsibilities specific to wood-commodities systems approaches 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;
- 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;
- 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); 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

[403] 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

Documents that can contribute to successful implementation and effective communication of a wood-commodities systems approach may include, but are not limited to, 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 developed by NPPOs

[404] A description of the requirements for the systems approach, developed by NPPOs, should cover aspects such as:

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

5.2. Implementation procedures documented by participating entities and NPPOs

[405] Documented procedures, for example production manuals or standard operating procedures, describe actions, elements, processes and operational systems that make up the measures that are applied by participating entities and NPPOs. The documented procedures may include, but are not limited to, any of the following elements:

- 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 and how they will be achieved as part of the systems approach, which may include:
 - the place or places of harvest or production,
 - the taxa (trees, pests, or both) that the systems approach is designed to address,
 - a description of the procedures or processes to be undertaken (e.g. processing, phytosanitary treatment, storage and movement, handling, segregating and traceability of the wood commodities) to ensure that the phytosanitary import requirements of the importing country are met;
- procedures associated with maintaining records of the measures applied in the systems approach; and
- procedures used by the participating entities to record, address and correct nonconformities that may occur.

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, or in the importing country in cases where measures are 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

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

APPENDIX 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, but are not limited to, pests that live and reproduce in the following situations: on, in or just under the surface bark; wood tissue under the bark; and in foliage and twigs.

Organisms on or in the bark or just under the bark in the cambium

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

- **Bark beetles** (Coleoptera: Curculionidae: Scolytinae) – 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. Some bark beetles feed on fungus-infected phloem to fulfil their nitrogen requirements.
- **Fungi** – Many fungal pests, including stem rusts and canker fungi, grow and sporulate in close association with bark and phloem tissues.
- **Fungi and fungus-like organisms** (e.g. *Phytophthora* species) – These pests may be present on the outer surfaces of some wood commodities.

Organisms associated mostly with wood tissue located under the bark

Certain species of insects, fungi and nematodes live mostly 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 Sesiidae; and Isoptera) – These insects feed on or excavate 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 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 live primarily in the sapwood, specifically in the xylem.

Organisms associated with foliage and twigs

Although foliage and twigs are not a major wood commodity, many forest organisms live and reproduce exclusively in these plant tissues:

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

Potential implementation issues

This section is not part of the standard. The Standards Committee in May 2016 requested the Secretariat to gather information on any potential implementation issues related to this draft. Please provide details and proposals on how to address these potential implementation issues.

Appendix 8: DRAFT REVISION OF ISPM 4: Requirements for the establishment of pest free areas (2009-002)

[2]Status box

[3]This is not an official part of the standard and it will be modified by the IPPC Secretariat after adoption.	
[4]Date of this document	[5]2023-06-26
[6]Document category	[7]Draft revision of ISPM
[8]Current document stage	[9]To CPM-18 (2024) for adoption
[10]Major stages	<p>[11]2009-11 Standards Committee (SC) recommended topic <i>Revision to ISPM 4 (Requirements for the establishment of pest free areas) (2009-002)</i> be added to the work programme.</p> <p>[12]2010-03 CPM-5 added topic to the work programme with high priority (subsequently changed to priority 4 by CPM-10).</p> <p>[13]2010-11 SC deferred.</p> <p>[14]2013-11 SC approved Specification 58.</p> <p>[15]2015-10 Secretariat revised Specification 58 to incorporate task on references to ISPM 4 as requested by the 2014-11 SC.</p> <p>[16]2020-12 / 2021-01 Expert working group met virtually and drafted standard.</p> <p>[17]2021-05 SC revised and approved for first consultation.</p> <p>[18]2021-07 First consultation.</p> <p>[19]2022-05 SC-7 revised and approved for second consultation.</p> <p>2022-07 Second consultation.</p> <p>2022-10 Revision of the draft by the steward.</p> <p>2022-11 SC revised.</p> <p>2023-05 SC revised and recommended the draft for adoption by CPM.</p>
[20]Steward history	<p>[21]2015-11 SC Marina ZLOTINA (US, Lead Steward)</p> <p>[22]2019-05 SC David KAMANGIRA (MW, Assistant Steward)</p>
[23]Notes	<p>[24]THIS IS A DRAFT DOCUMENT</p> <p>[25]2021-02 Edited</p> <p>[26]2021-05 Edited</p> <p>[27]2022-05 Edited</p> <p>2023-05 Edited</p>

[29]Adoption

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

[31]INTRODUCTION

[32]Scope

[33]This standard describes the requirements for initiating, establishing and maintaining pest free areas (PFAs) as a phytosanitary measure to support the phytosanitary certification of plants, plant products and other regulated articles exported from the PFA or, if technically justified, as a phytosanitary measure required by the national plant protection organization (NPPO) of an importing country for the protection of an endangered area in its territory.

[34]This standard does not cover pest free places of production or pest free production sites, the requirements for which can be found in ISPM 10 (*Requirements for the establishment of pest free places of production and pest free production sites*).

[35]References

[36]The present standard refers to ISPMs. ISPMs are available on the International Phytosanitary Portal (IPP) at www.ippc.int/core-activities/standards-setting/ispms.

[37]Definitions

[38]Definitions of phytosanitary terms used in this standard can be found in ISPM 5 (*Glossary of phytosanitary terms*).

[39]Outline of requirements

[40]A PFA is a phytosanitary measure that may be used to facilitate safe trade and protect plant resources. National plant protection organizations should consider a PFA to be a phytosanitary measure that, when used alone, is sufficient for managing the risk associated with a specified pest.

[41]When initiating, establishing or maintaining a PFA, NPPOs should follow the requirements outlined in this standard. Requirements include programmes to establish and maintain a PFA, verification that PFA status has been attained or maintained, appropriate corrective actions for pest detections, proper documentation of these activities and appropriate record-keeping, and transparency and stakeholder communication.

In this standard, “pest” is used to refer to a “pest or group of pests”, except where the text explicitly refers to one pest species or to a group of pests. Where an area being established or maintained as a PFA covers all or parts of several countries, references in this standard to the NPPO that establishes or maintains the PFA, or to the NPPO in which the PFA is situated, apply to the NPPOs of all the countries in which the PFA is situated.

[42]BACKGROUND

[43]A PFA is recognized as a pest risk management option that contracting parties may consider implementing as a phytosanitary measure to protect the plant resources of an area for agricultural, forestry or ecological conservation purposes, facilitate safe trade, or increase the market-access opportunities for exporting countries. Pest free areas can offer a cost-effective way for NPPOs and industry in both importing and exporting countries to manage pest risk.

[44]According to Article IV.2(e) of the IPPC, the responsibility for the designation, maintenance and surveillance of PFAs lies with NPPOs. The operational principles outlined in ISPM 1 (*Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade*) also require contracting parties to take into account the status of an area (e.g. PFA or area with a pest status of “absent” for the targeted pest) when determining phytosanitary measures for imports from that area.

[45]A PFA may be applied to an entire country or a part or parts of it. A PFA may also cover areas in several adjacent countries. Within a single country, more than one PFA may be established for the same pest, depending on the geography of the country, the distribution of the pest and its hosts, and the biology of the pest.

[46]When a PFA is established, it is usually for one pest species, but a PFA may also be established for a defined group of pests with similar biology.

[47]IMPACTS ON BIODIVERSITY AND THE ENVIRONMENT

[48]This standard may contribute to the protection of biodiversity and the environment by preventing the introduction of regulated pests into an area. When establishing and maintaining PFAs, countries are encouraged to consider phytosanitary procedures that minimize impact on the environment.

[49] REQUIREMENTS

[50] A PFA should be considered a phytosanitary measure that, when used alone, is sufficient for managing the pest risk associated with a specified pest. Where a PFA has been established and maintained in accordance with the requirements of this standard, additional phytosanitary measures in relation to the pest should not be imposed.

[51] The requirements that should be met for a PFA to be established and maintained, and used as a phytosanitary measure for trade, are detailed below. Depending on the pest concerned, an individual or a combination of measures may be used to meet these requirements.

[52] Requirements for the establishment and maintenance of a PFA by an NPPO include:

- [53] programmes to establish a PFA;
- [54] programmes to maintain PFA status;
- [55] verification that a PFA has been attained and its status is maintained;
- [57] corrective actions for detections of the specified pest;
- [58] documentation of these activities and appropriate record-keeping; and
- [59] transparency and communication with other NPPOs and stakeholders.

[60] The following elements should be considered when establishing and maintaining a PFA:

- [61] the necessity to base measures on the biology of the pest, the relevant pathways and the characteristics of the area;
- [62] the availability of appropriate surveillance tools, technology and trained personnel to detect and identify the pest;
- [63] the existence of an appropriate regulatory framework to support the establishment and maintenance of the PFA;
- [64] the support from relevant stakeholders, such as domestic industries and local regulatory bodies; and
- [65] the importance of communicating with and raising awareness among other NPPOs, stakeholders and the general public.

[66] In addition, NPPOs may wish to consider the feasibility of establishing and maintaining the PFA in terms of resource availability (economic, human and technical) and the cost-benefit.

[67] 1. Initiation of a pest free area

[68] 1.1 Pest to be controlled

[69] When initiating the establishment of a PFA, an NPPO should first specify the pest that is to be controlled (including its scientific name) and identify valid detection and diagnostic methods and relevant aspects of its biology.

[70] 1.2 Identification of the area

[71] The area being considered for a PFA may be a part or parts of a country, the entire country, or all or part of several countries. Pest free areas are generally delimited by readily recognizable boundaries, considered to coincide acceptably with a pest's biological limits. These may be administrative (e.g. country, province, commune or property boundaries) or they may be natural barriers such as bodies of water, mountains, deserts or other geographical features that prevent pest movement from one area to another.

The area should be described specifically enough to allow it to be readily identified. This is important when the NPPO is providing evidence to support the claim that the area is free of the pest, but also when the NPPO is subsequently reporting the status of the targeted pest in the PFA and when raising public awareness.

[73]1.3 Suitability of environmental conditions in the area

[74]The NPPO of the country in which the area is situated should determine the availability of host plants in the area. Potential differences in host susceptibility in the area, the climatic suitability of the area, and the potential for entry and establishment of the pest in the area should also be considered.

[75]2. Establishment of the pest free area

[76]2.1 Determination of pest status in the area

[77]Once the pest has been specified and the area identified, the NPPO should determine the pest status in the area by conducting surveillance in accordance with the requirements outlined in ISPM 8 (*Determination of pest status in an area*) and ISPM 6 (*Surveillance*).

[79]If an exporting country has declared a pest to be absent in an area in accordance with ISPM 8, then establishing a PFA in that area should not be required, unless there is technical justification by importing countries.

[85]2.2 Controls on the movement of regulated articles

[86]To prevent the entry of the pest into the area, the pest should be regulated in relation to the area, the potential pathways should be identified and appropriate controls on the movement of regulated articles should be established. The movement controls should depend on the assessed pest risk, including the probability of pest establishment. Such controls should include:

- [88]regulation of the pathways and articles that require control;
- [89]imposition of domestic restrictions, phytosanitary import requirements, or other measures to control the movement of regulated articles into or through the area; and
- [90]inspection and testing of regulated articles where technically justified, examination of the relevant documentation and, where necessary for cases of non-compliance, the application of appropriate measures.

[91]2.3 Establishment of buffer zones

[92]Where the geographical isolation of the area is not adequate to prevent the natural spread of the pest into it, the establishment of a buffer zone should be considered. The population of the pest in the buffer zone should be maintained at or below a specified level, which should be verified by surveillance. The extent of the buffer zone should be determined by the NPPO, based on the distance over which the likely natural spread of the pest population to the area could not occur during the season when hosts are available. The NPPO should describe, with the use of supporting maps, the boundaries of the buffer zone.

[93]2.4 Official declaration of pest free area

[94]When the pest status is determined as absent (in accordance with ISPM 8) or eradication of the pest from the area is achieved (in accordance with ISPM 9 (*Guidelines for pest eradication programmes*)), the NPPO should make an official declaration that the area is free from the pest. All internal management procedures and measures to maintain the PFA (see section 3) should be in place before any declaration is made.

[95]3. Maintenance of the pest free area

[96]The NPPO of the country in which the PFA is situated should set up a programme to ensure maintenance of the PFA. This programme should be risk-based and should incorporate at least the following elements: a regulatory framework to control the movement of regulated articles; surveillance and collection of relevant data to inform the management of the PFA, including outbreak management; a framework for reporting pest detections; and a corrective action plan in case of an outbreak, with associated provisions for suspension and reinstatement of the PFA status.

3.1 [97]Regulatory framework

[98]The regulation of the pest through the controls on the movement of regulated articles (see section 2.2) should be sufficient to prevent its entry into the PFA. Where appropriate, buffer zones should be established to ensure early detection of the spread of the pest into the vicinity of the PFA. The measures should also allow traceability of regulated articles introduced into the PFA or moving within the PFA so that the appropriate corrective actions can be taken in a timely manner.

[99]3.2Surveillance for the maintenance of the pest free area

[100]Surveillance should be conducted on a regular basis to verify that the absence of the pest from the PFA is maintained.

[101]The decision about whether general surveillance for the pest is sufficient or specific surveillance is needed should be based on the risk of the pest's entry and establishment in the PFA and depends on the biology of the pest, the relevant pathways and the characteristics of the PFA.

[102]General surveillance may be sufficient in cases where the pest has never been introduced into the PFA, nor into the surrounding areas, and there have been no records of the pest's presence in the PFA.

[103]Specific surveillance to detect possible outbreaks of the pest at an early stage should be the standard procedure in all other cases. The type and frequency of the detection surveys should be based on an assessment of the potential for pest entry and establishment in the PFA and should allow detection of the pest with an appropriate level of confidence.

[104]3.3 Notification of detection of the pest

[105]A reporting framework should be established to ensure that detections of the pest in the PFA are immediately notified to the NPPO (or other competent authority delegated by the NPPO) and officially confirmed. In the event of immediate or potential danger of pest spread, such as when an outbreak occurs or a non-compliant commodity is intercepted, the relevant NPPOs should follow the guidance in ISPM 13 (*Guidelines for the notification of non-compliance and emergency action*) and ISPM 17 (*Pest reporting*) and relevant bilateral arrangements.

[106]3.4 Response to an outbreak

[108]Preparedness for rapid intervention may be ensured by developing, in advance, a contingency plan to support the development and implementation of a corrective action plan in the event of an outbreak. The contingency plan may detail the triggers for corrective actions, plans for rapid technical assessment of the situation, the availability of financial and human resources, the roles and responsibilities of the parties concerned, and the operational activities that are likely to be needed. To assist in preparedness, regular simulation exercises may be used to review the effectiveness of the contingency plan.

[107]In the event of the pest being detected in the PFA, the NPPO should determine, based on survey results, the corrective actions to be taken. An eradication programme should be initiated for an outbreak of a pest, but not for an interception when the consignment containing the pest can be immediately destroyed, or where evidence indicates that there is no risk of the pest establishing or causing economic damage.

[109]An eradication programme should follow ISPM 9 and include the following steps.

[110]3.4.1 Delimiting survey to demarcate the outbreak area

[111]As soon as the detection of the pest outbreak has been officially confirmed in the PFA, a delimiting survey should be conducted to determine the boundary of the infested area. Based on this determination and an assessment of the pest biology, the relevant pathways and the characteristics of the PFA, an outbreak area within the PFA should be demarcated and the PFA status should be temporarily suspended therein. This demarcated outbreak area should consist of the infested area surrounded by a buffer zone,

the size of which should depend on the biology of the pest, the availability of host plants and the ecological conditions.

[112]3.4.2 Implementation of control measures

[113]Control measures should be applied to prevent the pest moving out of the outbreak area by human activities (e.g. through the movement of infested host plants or plant products, or contaminated means of conveyance) or, to the extent that is reasonably achievable, by natural spread.

[114]Measures to eradicate the pest should be implemented in accordance with ISPM 9.

[115]3.4.3 Increased surveillance in the outbreak area

[116]Surveys should be used in the outbreak area to determine and record the distribution of the pest and its population dynamics, and to assess the effectiveness of the eradication measures. This level of survey should be maintained until the pest is eradicated from the outbreak area.

[117]3.5 Provisions for suspension, reinstatement or withdrawal of the pest free area status

[118]Criteria for successful eradication in accordance with ISPM 9 should be established in advance of the need to eradicate an outbreak. These criteria should include the intensity of the survey in the outbreak area and the minimum period that the outbreak area needs to be free from the pest before lifting the suspension of the PFA.

[119]If the criteria are fulfilled, then eradication may be officially declared successful and the temporary control and eradication measures may be lifted. The status of the full PFA may then be reinstated.

[120]If the criteria for eradication within the outbreak area cannot be fulfilled within a reasonable time frame (as determined by the relevant NPPO in advance), then either the PFA status should be withdrawn or the delimitation of the PFA should be reviewed.

[121]4. Regular review and verification of implementation

[122]Once the PFA is established, including the administrative activities, the performance of the PFA maintenance programme should be regularly reviewed by the NPPO to verify correct implementation of the maintenance programme. This review should allow the NPPO to find and correct deficiencies, incorporate any new and relevant information on the pest or associated pathways, and adjust and improve the maintenance programme accordingly.

[124]Traceability procedures for the movement of regulated articles should allow the verification of their origin and conformity with the phytosanitary requirements set for the PFA.

[125]5. Data collection, documentation and record-keeping

[126]The data from the surveillance (e.g. time of survey, number and type of plants inspected, number of samples taken for inspection, number of samples taken for laboratory analysis, diagnostic protocols used, data analysis methods used, results of the analyses, and other relevant information as required by ISPM 6) should be stored and kept. To facilitate traceability and verification, this information should be made available for as long as the PFA is based on these data.

[127]The measures used to establish and maintain the PFA should be adequately documented. The documentation should be reviewed regularly, updated as needed, and include any amendments to the PFA maintenance programme. Records of the procedures to establish, implement and maintain corrective actions should be kept as needed or for at least 24 months, depending on the biology of the pest and the duration of the commodity being moved from the PFA.

[128]6. Communication and stakeholder engagement

[129]Individuals, groups or organizations other than the NPPO of the country in which the PFA is situated can also affect, or be affected by, the actions to establish and maintain the PFA. The NPPO may establish partnerships with stakeholders, which may include seeking contributions of resources.

[130]Information about the establishment and maintenance of the PFA, including information about the methodology used, results of surveys and pest diagnostics, and other relevant information supporting the PFA claim, should be made available on request to other NPPOs and, if appropriate, to relevant stakeholders.

[131]Maps and information about the measures applied to maintain the PFA may be communicated to relevant stakeholders.

[132]To achieve the support of the community, NPPOs are encouraged to raise public awareness about PFAs in their territory, including the framework for reporting detections or cases of suspected presence of the pest in the PFAs, measures applied in the PFAs, and the importance of maintaining the PFAs.

[133]7. Recognition of pest free areas

[134]Recognition of PFAs should take place in accordance with ISPM 29 (*Recognition of pest free areas and areas of low pest prevalence*).

Appendix 9: Proposed ink amendments to ISPM 5 in relation to the term “entry (of a consignment)”

ISPM	Current text	Proposed text	Rationale
5	Movement through a point of entry into an area [FAO, 1995]	movement <u>of a consignment</u> through a point of entry into an area	<p>TPG suggested that “of a consignment” be inserted as an ink amendment into the definition of “entry (of a consignment)” to provide parallelism with the definition of “entry (of a pest)” and hence reduce potential confusion.</p> <p>The same approach had been taken for the definition of “release (of a consignment)”, where “of a consignment” had been included in the definition even though it was also a qualifier to the term itself.</p> <p>TPG also explained that it was only necessary where there were pairs or groups of parallel definitions, and no further changes of this sort were anticipated.</p>

Appendix 10: Proposed procedure for DP drafting groups without sufficient authors

TPDP STANDARD PROCEDURE FOR HANDLING INSUFFICIENT AUTHOR NOMINATIONS

(developed by the TPDP and approved by the TPDP in 2022-11)

Background

- [1] The initial step in the author selection process is a call for author nominations posted on the International Phytosanitary Portal (IPP) by the IPPC Secretariat. The TPDP Discipline Leads (DLs) support the nomination process by encouraging relevant experts to submit nominations through NPPO or RPPO. Once submissions are compiled, the list of nominations is reviewed by the TPDP to select and recommend the most appropriate author team members to the Standards Committee (SC). The standard practice is to select a lead author and two co-authors for a drafting team based on past expertise. The DL can also support selection of authors by submitting the name of an expert in a process parallel to the IPP call. This parallel process requires the DL to submit the nominated expert's CV for review and this can be performed concurrent to the time of call for authors on IPP or after that call has closed. The TPDP can consider these additional experts as authors.
- [2] In the past, some calls for authors through the IPP have resulted in insufficient nominations to select a drafting team. These situations include receiving no nominations to a call, receiving less than three nominations that are used to select a team, or receiving no qualified nominations because submissions have no relevant experience with the pest. In these situations, it is beneficial to have a standard process for resolving the TPDP's inability to select a drafting team.
- [3] Another important factor in selecting a drafting team is the rating of the topic for the protocol. During the selection of topics, the TPDP provides recommendations to the SC on rating based on review of topic suggestion and review of pest information. The Commission on Phytosanitary Measures (CPM) reviews the List of topics (LOT) for IPPC standards recommended by the SC. The CPM adjusts and adopts the LOT, including assigning a priority for each topic. Priority 1 to 4 (with 1 being of high priority and 4 being of low priority). Inability to select drafting teams in a timely manner for higher priority rated topics can be more problematic for work programmes than for lower rated topics. The rating process included two criteria for prioritization directly related to availability of experts/authors for the proposed protocol: (1) number of laboratories undertaking the diagnosis and (2) feasibility of production of a protocol, including availability of knowledge and expertise. Failure to identify qualified authors might indicate these criteria were scored incorrectly.

Proposed process

- [4] The TPDP proposes the following process to address situations when insufficient nominations are available for a drafting team.
- [5] Steps:
- 1) Determine if a three-author team can be selected from IPP nominations and experts nominated by DL. If not, then submit a request to SC to open a second call.
 - 2) If the second call for nominations through IPP fails to develop a robust list of authors, then consider if a smaller team can be formed from the nominations to initiate work. Once officially selected as lead author, the selected author(s) can suggest additional experts to the team later. If none are identified, determine if the author can complete project without additional co-authors or cannot complete without additional co-authors. If additional authors are needed, proceed to step 3.
 - 3) If no qualified authors are available to initiate work, then notify SC and open a third call on IPP.

4) If the third call for nominations through IPP fails to develop a robust list of authors, then consider if protocol is for higher (1, 2) or lower priority (3, 4) topic.

a. If lower priority, submit a request to remove the DP from work programme;

If higher priority, submit a request to SC to perform a reassessment of topic rating and/or reach out to suggesting member(s) or diagnostic laboratory networking group to identify what NPPO or RPPO has experience in methods to diagnose the pest.

Appendix 11: TPDP Specification TP 1 revision - (in track changes)

TP 1

Technical Panel on Diagnostic Protocols

(20XX)

Title

Technical Panel on Diagnostic Protocols (2004-002).

Reason for the technical panel

Proper pest detection and pest identification are crucial for the appropriate application of phytosanitary measures. In particular, contracting parties need proper diagnostic procedures for determination of pest status and pest reporting (ISPM 8 *Determination of pest status in an area*; ISPM 17, *Pest reporting*), and the diagnosis of pests in imported consignments (ISPM 13 *Guidelines for the notification of non-compliance and emergency action*). ICPM-6 (2004) recognized that there was a need for international diagnostic protocols within the framework of the IPPC and approved the formation of a technical panel on diagnostic protocols.

Scope and purpose

The Technical Panel on Diagnostic Protocols (TPDP) develops diagnostic protocols (DPs) within the framework of ISPM 27 (*Diagnostic protocols for regulated pests*) and develops guidance on related issues.

Tasks

The TPDP should undertake the following:

- (1) Identify the need for DPs to be developed based on the guidance paper on “*Criteria for the prioritisation of diagnostic protocols*” (TPDP, July 2010), including considering suggestions for new DPs (i.e. put forward by national plant protection organizations (NPPOs), regional plant protection organizations, expert working groups (EWGs) or other technical panels), and submit subjects for new protocols to the Standards Committee (SC).
- (2) Identify specialists for the development or revision of a DP (authors, editorial team, experts to be consulted) and if applicable provide advice to the SC accordingly.
- (3) Produce or supervise the production or revision of DPs.
- (4) Submit draft DPs to the SC.
- (5) Review adopted DPs regularly, identify the need for revising DPs and submit revisions to the SC.

- (6) Consider aspects of quality assurance related to the development of DPs and their application. Where necessary establish general guidance on the criteria for methods to be included in DPs (e.g. validation).
- (7) Provide specific advice to the SC and other technical panels or EWGs on issues related to the correct nomenclature of pests.
- (8) Under the direction of the SC, consider other topics related to diagnosis of regulated pests.
- (9) Review appropriate draft International Organization for Standardization (ISO) standards, identify standards of significance for the IPPC, and seek guidance from the SC on whether to provide comments to ISO.
- (10) In drafting an ISPM, consider whether the new standard could affect in a specific way (positively or negatively) the protection of biodiversity and the environment, and if so, the impact should be identified, addressed and clarified in the draft standard.
- (11) Consider implementation of standards by contracting parties and identify potential operational and technical implementation issues. Provide information and possible recommendations on these issues to the SC.

Provision of resources

Funding for the meeting is provided by the IPPC Secretariat (FAO). As recommended by ICPM-2 (1999), whenever possible, those participating in standard setting activities voluntarily fund their travel and subsistence to attend meetings. Participants may request financial assistance, with the understanding that resources are limited and the priority for financial assistance is given to developing country participants. Please refer to the *Criteria used for prioritizing participants to receive travel assistance to attend meetings organized by the IPPC Secretariat* posted on the IPP (see <https://www.ippc.int/en/core-activities/>).

Steward

Please refer to the list of topics for IPPC standards posted on the IPP (see <https://www.ippc.int/en/core-activities/standards-setting/list-topics-ippc-standards/list>).

Expertise

Members of this panel should primarily have diagnostic expertise (where appropriate taxonomic) with at least one member representing each discipline: entomology, acarology, nematology, mycology, bacteriology, virology (including viroids and phytoplasma) and botany. Between them, participants should have practical expertise in the use of morphological and molecular/biochemical diagnostic techniques, in quality assurance and in phytosanitary procedures.

Participants

Details of TPDP membership may be found on the IPP:

<https://www.ippc.int/en/core-activities/standards-setting/expert-drafting-groups/technical-panels/technical-panel-diagnostic-protocols/> . Panel members are selected by the SC for a 5-year term. The SC reviews the composition of the panel on a regular basis. The SC may renew individual memberships for additional terms.

The SC in November 2012 agreed that the TPDP could invite to their meetings lead authors or members of DP drafting groups when their DP is being reviewed.

References

The IPPC, relevant ISPMs and other national, regional and international standards and agreements as may be applicable to the tasks, and discussion papers submitted in relation to this work. For example:

- . European and Mediterranean Plant Protection Organization (EPPO) DPs
- . International Seed Testing Association.

Discussion papers

Participants and interested parties are encouraged to submit discussion papers to the IPPC Secretariat (ippc@fao.org) for consideration by the technical panel.

Appendix 12: Submission Template Form: Information Materials for Commodity Standards

Submission Template Form: Information Materials for Commodity Standards

(Developed by TPCS and approved by the SC on XXXX-XX)

Name of Country: _____

[Click here](#) to find the IPPC Procedure Manual for Standard Setting on the IPP (www.ippc.int), where you can download this form.

Submission number (Secretariat Use Only):

Complete the following form, preferably in electronic format, and submit by e-mail to the IPPC Secretariat (ippc@fao.org).

Please use one form per commodity. An electronic version of this form is available on the International Phytosanitary Portal (IPP) at **xxxx**. Incomplete submissions will be returned. Please save the completed submission form with the following file name: COUNTRY or RPPO NAME –Title of commodity.doc, prior to submitting to the IPPC Secretariat via e-mail.

(Text in brackets given for explanatory purposes)

Name and description of Commodity	<i>(Provide enough detail to identify the commodity including the botanical name, authority, part of the plant for trade and its intended use)</i>
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Submitted by: <i>(Name of national or regional plant protection organization)</i>	
Contact: <i>(Contact information of an individual able to clarify issues relating to this submission, including pest risk assessment, phytosanitary measures, interception data related to measure etc.)</i>	
Name:	
Position and organization:	
Mailing address:	
.....	
Phone:.....	Fax:.....
E-mail:.....	

List of regulated pests associated with the commodity for trade

(Only include pests that are regulated by your national plant protection organization and are associated with the plant or plant part traded (e.g. if only fruit is traded then do not include pests that are only associated with leaves)). Also consider including pests regulated by other countries, especially for those instances in which your NPPO export the commodity.

Pest type	Family	Species (include authority)	Link to pest risk assessment (if available)
e.g. fruit flies, moths, thrips, fungi, bacteria, virus			

List of Measures (*Please repeat this part for each measure proposed*)

Name and Description of Measure	
Name of Measure	<i>e.g. vapour heat treatment, cold treatment, irradiation, systems approach, PFA, PFPP, PFPS, pesticide</i>
Measure Type	<i>e.g. physical, chemical, biological</i>
Active Ingredient	<i>For chemical treatments only</i>
Schedule	<i>For treatments, the schedule should include details such as dose, concentration, time, temperature, relative humidity, where applicable, efficacy and confidence if known. For systems approaches, please include a description of the independent measures.</i>
Target Pest	<i>Include the regulated pests and life stages that the measure manages. Pests should be included in the list of pests (above)</i>
Reference	<i>Include any available reference or website link</i>

Other information (<i>Please complete as many fields as possible</i>)
Is there quantitative or qualitative evidence to indicate the measure is effective?
<i>Where possible, provide published references or experimental data to support the measure.</i>
Does experience from use in international trade indicate that the measure is effective?
<i>Describe the countries that use the measure in trade (e.g. importing country – exporting country) and the number of years the measure has been used (e.g. year regulations were set). Include information on volume of trade and relevant pest interception data where possible.</i>
Has the measure been successfully used to manage non-compliant consignments?
<i>Describe the circumstances for use and how often the measure is used to manage non-compliant consignments.</i>
Has the measure been successfully used to effectively manage pest risk domestically?
<i>Describe the circumstances for domestic use of the measure e.g. the measure has been used extensively in relation to domestic movement of commodities; the measure has been used successfully in outbreak management and eradication programmes; information from domestic plant certification schemes indicates that the measure is effective; best management practices for the measure are available.</i>
Has the measure been used successfully by the private sector or authorized entities?
Has the measure has been identified as an effective pest risk management option based on a PRA or comparable technical evaluation?
<i>Please provide PRAs or comparable evaluations that identify the measure as being effective.</i>
Is the measure, relevant to the pest, adopted in an ISPM or regional standard?
<i>Please provide reference to ISPM or a regional standard</i>

Send submissions to:

E-mail: ippc@fao.org
(preferred)

Mail: IPPC Secretariat (AGPP)
Food and Agriculture Organization of the UN
Viale delle Terme di Caracalla,
00153 Rome, Italy

Appendix 13: TPCS draft working procedures

Technical Panel on Commodity Standards (TPCS)

Draft working procedures

(Developed by the TPCS in 2023.

To be presented for approval to the Standards Committee May 2023)

1. Technical Panel on Commodity Standards (TPCS)

- [1] Principles in relation to commodity standards are described in [ISPM 46 \(Commodity-specific standards for phytosanitary measures\)](#).
- [2] The lists of options for phytosanitary measures presented in commodity standards are not intended to be exhaustive; other measures may be required by contracting parties, if technically justified (Article VII.2(g) of the IPPC), and may be proposed for inclusion in revisions of commodity standards.³³
- [3] *Inclusion of a pest in a commodity standard does not constitute technical justification for its regulation. When determining whether to regulate a pest listed in a commodity standard, an importing country should base its decision on technical justification using either a PRA or, where applicable, another comparable examination and evaluation of available scientific information. The list of pests is not intended to be exhaustive.*¹

2. Current tasks of the TPCS

- [4] The tasks of the TPCS are described in [Specification TP 6 - Technical Panel on Commodity Standards](#)³⁴.
- [5] The TPCS develops and updates commodity standards within the framework of [ISPM 46 \(Commodity-specific standards for phytosanitary measures\)](#), provides advice to the Standards Committee on related aspects and identifies potential implementation needs on related aspects.

3. Template form for submitting information on pests and measure

IPPC Call for topics

- [6] The TPCS developed a template form (see attachment **XX**) to be considered and submitted by contracting parties and Regional Plant protection Organizations (RPPOs) during the IPPC call for topics: standards and implementation. It is intended for providing information on pests known to be associated to the commodity and effective phytosanitary measures. Considerations to be taken are:
- Availability of information: publicly available or available upon request.
 - The TPCS recommended that specifications received from call for topics be revised by the SC and TPCS, without the need to go for the full cycle of the Standard Setting Procedure, i.e. for consultation period on draft specifications for the specific commodity standards.

Consultation period on draft ISPMs:

- The same form developed by the TPCS for the call for topics, it would also be submitted to contracting parties during consultation period for providing information on regulated pests known to be associated to the commodity and effective phytosanitary measures.
- Like for draft phytosanitary treatments (PTs) annexes to ISPM 28 (*Phytosanitary treatments for regulated pests*), the TPCS recommends that, if no substantive comments during first consultation

³³ As text adopted in ISPM 46 (*Commodity-specific standards for phytosanitary measures*).

³⁴ Specification approved by the SC 2020-11.

period, the TPCS could propose the draft annex to the SC for recommendation for adoption, without the need for a second round of consultation period.

4. Specifications

[7] The TPCS agreed that:

- Draft specifications for specific commodity standards should follow a standard format, including content common to all such specifications.
- Draft specifications for specific commodity standards received in response to calls for topics could be revised by the TPCS and SC without the need to be submitted for consultation period.

[8] The TPCS acknowledged that PTs and diagnostic protocols (DPs)³⁵ are developed without specifications or without consultation period, and that this does not compromise the relevance, transparency and quality of these standards. This would avoid unnecessary repetition and speed up the development of such annexes. It was acknowledged that the TPCS would review proposals and make recommendations to the SC for the inclusion of a subject in the work programme, in which ultimately the Commission on Phytosanitary Measures (CPM), each year, adopts the SC work programme.

5. Criteria for inclusion of a pest

[9] According to ISPM 46, the inclusion of a pest in a commodity standard is that it is regulated by at least one contracting party, and based on technical justification, for that specific commodity.

[10] Furthermore, the TPCS agreed that the pest should additionally meet at least one of the following sub criteria:

- The commercially produced commodity is a host.
- There are existing phytosanitary measures options available (and there is sufficient confidence for option(s) to be included in the commodity standard – see section below).
- There is evidence of establishment of the pest after entry, via the commodity.
- Major or minor pest for the crop.
- There have been repeated interceptions of the pest on the commodity.

[11] When referring to family or genus level, the TPCS agreed that a note be included to indicate that not necessarily all the species in the family or genus level are regulated. This was rather because of grouping the phytosanitary measures.

6. Criteria and confidence for inclusion of a phytosanitary measure

[12] The TPCS determine which measures to include in a commodity standard according to ISPM 46 (sections 3 and 4). The TPCS concluded that the criteria listed in section 3 of ISPM 46 are used to identify candidate measures for inclusion and the criteria listed in section 4, which relate to confidence in the effectiveness of measures, are used to select which of these candidate measures to actually include. The TPCS also agreed that the confidence categories referred to in section 4 of ISPM 46 are not included in the commodity standard itself.

[13] Furthermore, the TPCS agreed:

- A further consideration for the inclusion of a phytosanitary measure is that the information or data supporting the measure (e.g. PRA information) should be publicly available with free access or be available upon request.

³⁵ Diagnostic protocols developed as annexes to ISPM 27 (*Diagnostic protocols for regulated pests*).

- Being used successfully in trade (e.g. reports of success or failure of the measure, compliance or non-compliance data from contracting parties, and years being applied in trade)
- For phytosanitary treatments, the TPCS highlighted that commodity standards are not intended to be as descriptive as the treatment schedules in ISPM 28 (*Phytosanitary treatments for regulated pests*).

7. Revision of commodity standards

7.1 When a phytosanitary measure is no longer effective:

- [14] The TPCS suggests that, where there is evidence that a particular measure in a commodity standard may no longer be effective, a footnote to this effect may be added to the annex as a variation to the ink amendment process. This would then provide a useful interim solution until the commodity standard was revised.

7.2 When there is pest taxonomy change:

- [15] The TPCS suggests that, when there is pest taxonomy change that would not affect the phytosanitary measure option(s), a footnote to this effect may be added to the annex as a variation to the ink amendment process. This would then provide a useful interim solution until the commodity standard was revised.

8. Searchable online database of pests and measures

- [16] For the purpose of transparency the TPCS agreed to recommend that a database be developed listing the target pest, commodity and phytosanitary measure, cross-referenced to relevant sources of information. It was agreed that all information received, i.e. the pests and phytosanitary measures included and excluded in each specific commodity standard should be populated in the database.

Meantime, the TPCS agreed that for the pests and phytosanitary measures, included and excluded in the annex for mango (*Mangifera indica*) fresh fruits, will be archived in a spreadsheet for future inclusion of this information in a database for commodity standards

Appendix 14: Process for the selection of Technical Panel members via e-decision

PROCEDURES FOR CONDUCTING DISCUSSIONS AND MAKING DECISIONS BY ELECTRONIC MEANS

(Approved by the Standards Committee (SC), November 2010 and updated in November 2022 and May 2023)

Initiation of electronic discussion and decision-making

Issues for electronic communication do not need to be first identified at a face-to-face meeting of the SC.

To initiate a discussion via electronic means, an SC member may submit the proposed topic and a proposed timeline for discussion to the Secretariat. In consultation with the SC Chair, the Secretariat communicates the topic for discussion and the timeline to the SC. If a decision is needed as a result of the discussion, the SC Chair will provide a summary of the discussion and a proposed decision to the SC to be taken.

Types of discussion and decisions that the SC can make by electronic means

The types of discussions and decisions listed below may be made through the use of electronic communication:

- approval of selected nominations for expert drafting groups (SC, November 2005)
- approval of explanatory documents (SC, November 2005)
- clearance of draft ISPMs for member consultation (Step 4 – special process) (CPM-3, 2008)
- consideration of member comments (Step 5 – special process) (CPM-3, 2008)
- determining how to proceed with draft ISPMs that are modified as a result of comments (Step 6 – special process) (CPM-3, 2008)
- determining how to proceed with draft ISPMs that have received formal objections 14 days prior to the CPM (Step 7 – special process) (CPM-3, 2008)
- development and approval of draft specifications for member consultation (SC, November 2009)
- adjustments to stewards (of specifications, draft ISPMs and technical panels) (SC, November 2009)
- any other tasks decided by the CPM or the SC during a face to face meeting (SC, November 2005)
 - Exceptional cases determined in consultation with the Secretariat and the SC chairperson (SC, November 2005).

Rules for agreement

If there are no objections by the deadline, the SC is considered to be in agreement and a course of action in line with the decision should be taken.

If one or more SC members raise objection before the deadline, there is no consensus.

If there is no consensus, the SC chair should summarize the issues and try to reformulate the proposed decision and submit for another round of consultation among SC members in order to try to reach consensus.

When selecting experts for EWGs, the SC members express their preference from the list of nominated experts by considering the expertise of the nominees and the regional representation. The secretariat compiles this information into a list, ranked in order of SC preference, and the maximum number of experts allowed by the specification are then selected based on that ranking. If the selection of the last position in the EWG is inconclusive, those candidates receiving an equal amount of support are then the

subject of a poll. If there is still no consensus, the SC chair should communicate what he or she feels are the main points to the SC and the SC is asked to make the ultimate decision.

When selecting experts for Technical Panels, the Secretariat opens a forum. The selection is only confirmed if all the SC agrees (confirmed via poll). If there is still no consensus, the SC chair should communicate what he or she feels are the main points to the SC and the SC is asked to make the ultimate decision.

Timeframe for response

Normally three weeks (except in urgent cases and for simple decisions).

Communication of decisions made electronically

Final decisions taken during discussions via electronic means should be communicated to all SC members so that they are aware of the final outcome.

Appendix 15: Summary of Standard Committee e-decisions between 2022 November – 2023 May

Table 1: SC e-decisions presented between 2022 November – 2023 May

E-decision number	SC decision	SC members commenting in the forum	Polls (yes/no)
2023_eSC_May_01	Approval of Draft PT for adoption: Irradiation treatment for <i>Pseudococcus jackbeardsleyi</i> (2017-027)	15	
2023_eSC_May_02	Adoption of the 2022 November SC meeting report	15	
2023_eSC_May_03	Selection of experts for the EWG on field inspection (annex to ISPM 23 (<i>Guidelines for inspection</i>)) (2021-018)	19	
2023_eSC_May_04	Selection of experts for the EWG on the Revision of ISPM 26 (<i>Establishment of pest free areas for fruit flies</i> (Tephritidae)) (2021-010).	15	
2023_eSC_May_05	Scope adjustment to subject Tephritidae: identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028)	13	
2023_eSC_May_06	Proposal for removal from the work programme: Begomoviruses transmitted by <i>Bemisia tabaci</i> (2006-023)	14	
2023_eSC_May_07	Pending status: Revision DP 05 - <i>Phyllosticta citricarpa</i> (McAlpine) Aa (2019-011)	13	
2023_eSC_May_08	Proposal for removal from the work programme: <i>Puccinia graminis</i> f.sp. UG 99 (2019-004)	14	

2023_eSC_May_01: Approval of Draft PT for adoption: Irradiation treatment for *Pseudococcus jackbeardsleyi* (2017-027)

Summary of SC e-forum discussion

During the SC e-decision The SC was invited to approve the responses to the consultation comments and following draft PT for adoption: Irradiation treatment for *Pseudococcus jackbeardsleyi* (2017-027).

The SC e-forum was open from the 23 November to the 07 December 2022. 15 SC members provided their comments.

SC e-decision

Based on the forum discussions, the SC approved the responses to the consultation comments and the draft PT on the Irradiation treatment for *Pseudococcus jackbeardsleyi* (2017-027) for adoption.

2022_eSC_May_02: Adoption of the 2022 November SC meeting report

Summary of SC e-forum discussion

During the SC e-decision, the SC was invited to adopt the 2022 November SC meeting report.

The SC e-forum was open from the 17 to 31 January 2023. 15 SC members provided their comments.

SC e-decision

Based on the forum discussions, the SC adopted the 2022 November SC meeting report.

2023_eSC_May_03: Selection of experts for the EWG on field inspection (annex to ISPM 23 (*Guidelines for inspection*)) (2021-018)

Summary of SC e-forum discussion

During the SC e-decision, the SC was invited to review the nominations and select six to eight experts for the EWG on field inspection (annex to ISPM 23 (*Guidelines for inspection*)) (2021-018);

The SC e-forum was open from the 6 to 20 April 2023. 19 SC members provided their comments. SC e-decision.

Some SC members felt that the nominees don't allow for appropriate geographical representation within the EWG, and some suggested to extend the call for experts to allow for more appropriately qualified expert nominations.

SC e-decision

Based on the forum discussions, the selection of experts was inconclusive. The discussion was deferred to the next SC meeting.

2023_eSC_May_04: Selection of experts for the EWG on the Revision of ISPM 26 (*Establishment of pest free areas for fruit flies (Tephritidae)*) (2021-010).

Summary of SC e-forum discussion

During the SC e-decision, the SC was invited to review the nominations and select seven to nine experts for the EWG on Revision of ISPM 26 (*Establishment of pest free areas for fruit flies (Tephritidae)*) (2021-010).;

The SC e-forum was open from the 6 to 20 April 2023. 15 SC members provided their comments.

SC e-decision

Based on the forum discussions, the following experts were selected:

- 1. George Stuart Cuthill Gill (New Zealand)
- 2. Sonya Broughton (Australia)
- 3. Caio Cesar Simao (Brazil)
- 4. Arturo Bello Rivera (Mexico)
- 5. Cory Penca (USA)
- 6. María Florencia Vazquez (Argentina)
- 7. Toshihisa Kamiji (Japan)
- 8. Zhihong Li (China)
- 9. Hoang Kim Toa (Vietnam)

2023_eSC_May_05: Scope adjustment to subject Tephritidae: identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028)

Summary of SC e-forum discussion

During the SC e-decision, the SC was invited to approve the proposed change in scope for the DP Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028) to focus on genus-level identifications of the six major pest lineages. These would be identification of immature flies to *Anastrepha*, *Bactrocera*, *Dacus*, *Ceratitis*, *Rhagoletis*, and *Zeugodacus* using DNA barcoding.

The SC e-forum was open from the 18 April to 2 May 2023. 13 SC members provided their comments.

SC e-decision

Based on the forum discussions, the change in scope for the DP Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028) was approved.

2023_eSC_May_06: Proposal for removal from the work programme: Begomoviruses transmitted by *Bemisia tabaci* (2006-023)

Summary of SC e-forum discussion

During the SC e-decision, the SC was invited review the information in the background document and remove the subject *Begomoviruses* transmitted by *Bemisia tabaci* DP (2006-23) from the TPDP work program.

The SC e-forum was open from the 18 April to 2 May 2023. 14 SC members provided their comments.

SC e-decision

Based on the forum discussions, the SC agreed to remove the subject *Begomoviruses* transmitted by *Bemisia tabaci* DP (2006-23) from the TPDP work program.

2023_eSC_May_07: Pending status: Revision DP 05 - *Phyllosticta citricarpa* (McAlpine) Aa (2019-011)

Summary of SC e-forum discussion

During the SC e-decision, the SC was invited review the information in this document and consider putting the subject on the revision of the DP 05: *Phyllosticta citricarpa* (McAlpine) Aa (2019-011) to “pending status” until additional information on pest identification is available.

The SC e-forum was open from the 18 April to 2 May 2023. 13 SC members provided their comments.

SC e-decision

Based on the forum discussions, the SC agreed put the subject on the revision of the DP 05: *Phyllosticta citricarpa* (McAlpine) Aa (2019-011) to “pending status” until additional information on pest identification is available.

2023_eSC_May_08: Proposal for removal from the work programme: *Puccinia graminis* f.sp. UG 99 (2019-004)

Summary of SC e-forum discussion

During the SC e-decision, the SC was invited review the information in the background document and agree to the removal of *Puccinia graminis* f. sp. *tritici* Ug99 (2019-004) from the TPDP work programme.

The SC e-forum was open from the 18 April to 2 May 2023. 14 SC members provided their comments.

SC e-decision

Based on the forum discussions, the SC agreed to the removal of *Puccinia graminis* f. sp. *tritici* Ug99 (2019-004) from the TPDP work programme.

Appendix 16: List of action points arising from the meeting

Action	Responsible	Deadline
1. requested that the secretariat archive the implementation issues identified for the draft ISPM on Pest risk analysis for quarantine pests (2020-001) until after the first consultation, for consideration by the SC and potential forwarding to the Implementation and Capacity Development Committee (IC).	Secretariat	After the first consultation (30 September 2023)
2. thanked Samuel BISHOP (CPM Bureau member for Europe) for his offer to provide feedback following the request by CPM-17 (2023) that the secretariat consult the FAO Legal Office regarding the legal status of ISPMs	Secretariat/ BISHOP	Next SC meeting (13 November 2023)
3. encouraged contracting parties to use the template form developed by the TPCS when submitting comments on this draft and proposing addition of pests or measures.	Secretariat	End of Call for topics (15 September 2023)
4. recommended to the CPM Bureau that the POARS Steering Group continue the work of the CPM POARS Focus Group in developing criteria for what constitutes an emerging pest, with input as necessary from the TPG and taking account of the comments made at this meeting on the definition drafted by the TPG, and invited the CPM Bureau to advise on the next steps;	Secretariat	Before Bureau June meeting (12 June 2023)
5. requested that the secretariat include this recommendation in the SC update to the June meeting of the CPM Bureau;	Secretariat	Before Bureau June meeting (12 June 2023)
6. removed "visual examination" (2022-001) from the TPG's work programme and requested that the secretariat update the List of topics for IPPC standards accordingly.	Secretariat	Next SC meeting (13 November 2023)
7. agreed that a small working group of SC members would develop a paper for the SPG on how a common understanding may be achieved within the IPPC community about what systems approaches are and how they are developed;	Secretariat	Before SPG meeting (18 August 2023)
8. agreed that the working group would comprise Harry ARIJS (European Commission), Steve CÔTE (Canada), Nader ELBADRY (Egypt), Matías GONZALEZ BUTTERA (Argentina), David KAMANGIRA (Malawi), Glenn PANGANIBAN (Philippines) and Sophie PETERSON (Australia), and requested that the secretariat arrange the first virtual meeting of the group, at which a lead would be selected.	Harry Arijs, Steve Côte, Nader Elbad, Matías Gonzalez Buttera, David Kamangira, Glenn Panganiban And Sophie Peterson/ Secretariat	Before SPG meeting (18 August 2023)
9. requested that the secretariat archive the implementation issues identified by the SC for the draft annex Use of systems approaches in	Secretariat	After the first consultation (30 September 2023)

Action	Responsible	Deadline
managing the pest risks associated with the movement of wood (2015-004) to ISPM 39 (International movement of wood) until after the first consultation, for forwarding to the IC.		
10. recommended the draft revision of ISPM 4 (Requirements for the establishment of pest free areas) (2009-002) as modified in this meeting for submission to CPM-18 (2024) for adoption;	Secretariat	Before CPM-18 2024
11. requested that the secretariat forward implementation issues identified for this draft standard to the Implementation Facilitation Unit of the secretariat for consideration by the IC.	Secretariat	Before CPM-18 2024
12. agreed to apply an ink amendment to the definition of "entry (of a consignment)" in ISPM 5 and requested that the secretariat implement this (Appendix XX);	Secretariat	Next SC meeting (13 November 2023)
13. noted that the updated Explanatory document on ISPM 5 ("Annotated Glossary") would be published in 2024;	Secretariat	2024
14. requested that the secretariat highlight, to FAO Translation Services, the importance of continuity in the use of translators for draft ISPMs to ensure translators are familiar with ISPM terminology and in particular glossary terms in all FAO languages;	Secretariat	Next SC meeting (13 November 2023)
15. requested that the secretariat seek additional information from the candidates nominated as an expert for the Spanish language for the TPG, to ensure that each candidate has submitted a CV in English and a CV in Spanish;	Secretariat	Next SC meeting (13 November 2023)
16. noted that the secretariat would proactively seek suggestions or nominations for a coordinator for the Language Review Group for French, starting with RPPOs in regions containing French-speaking countries; and	Secretariat	Next SC meeting (13 November 2023)
17. requested that the secretariat open a call for at least one TPDP member for botany and agreed that the number of experts selected would be agreed by the SC at a later date, depending on submissions during the 2023 call for topics;	Secretariat	-
18. agreed to share proposals for DPs, forwarded to the SC by the Task Force on Topics, with the TPDP to allow the TPDP to advise the SC on the feasibility of developing the DPs proposed;	Secretariat	-
19. noted the following four SC e-decisions: <ul style="list-style-type: none"> • proposal for scope adjustment to subject Tephritidae: Identification of immature stages of fruit flies of economic importance by molecular techniques (2006-028), 	Secretariat	-

Action	Responsible	Deadline
<ul style="list-style-type: none"> proposal for removal from the work programme: Begomoviruses transmitted by Bemisia tabaci (2006-023), proposal for pending status: Revision of DP 5 (Phyllosticta citricarpa (McAlpine) Aa) (2019-011), and proposal for removal from the work programme: Puccinia graminis f. sp. UG 99 (2019-004); 		
<p>20. noted that the secretariat would be opening a call for authors for each of the following subjects and agreed to seek nominations of relevant experts to be submitted via these calls by 16 June 2023:</p> <ul style="list-style-type: none"> Microcyclus ulei (2019-003), Spodoptera frugiperda (2021-016), and Moniliophthora roreri (2019-005); 	Secretariat	16 June 2023
<p>21. approved the proposed procedure for DP drafting groups without sufficient authors, subject to it being modified to allow the secretariat to open calls for authors without seeking approval from the SC (Appendix XX), and requested that the secretariat include the procedure in the IPPC procedure manual for standard setting under the TPDP procedures at the next revision;</p>	Secretariat	-
<p>22. agreed to undertake an additional consultation period for DPs only in January 2024 and requested that the secretariat open the consultation period via the OCS (tentative dates: 30 January to 30 June 2024);</p>	Secretariat	Tentative dates: 30 January to 30 June 2024)
<p>23. recommended to CPM-18 (2024) that the Standard Setting Procedure be changed so that any new topics proposed for commodity standards during an IPPC call for topics are revised by the SC and the TPCS without the need for a consultation period for the draft specification;</p>	Secretariat	2024 CPM
<p>24. invited the TPCS to develop an annotated template for draft commodity standards once the first commodity standard has been adopted and requested that the secretariat archive this decision for future action by the TPCS;</p>	Secretariat	-
<p>25. approved the TPCS working procedures, modified to exclude Part 5 (Appendix XX), and requested that the secretariat include it in the IPPC procedure manual for standard setting, pending those parts relating to the Standard Setting Procedure that require CPM approval;</p>	Secretariat	-
<p>26. invited the secretariat and the TPCS to explore options on how to build a database on commodity standards, and present proposals on this to the SC at a future meeting;</p>	Secretariat	-

Action	Responsible	Deadline
27. agreed that all draft specifications for commodity standards would follow a standard format and requested that the TPCS and secretariat prepare a template;	Secretariat	-
28. requested that the secretariat update the Procedures for conducting discussions and making decisions by electronic means accordingly;	Secretariat	SC Nov
29. requested that the secretariat seek legal advice on the rules about reaching decisions in the absence of face-to-face meetings and about voting.	Secretariat	SC Nov
30. agreed to re-open a call for experts for the EWG on Field Inspection (annex to ISPM 23 (Guidelines for inspection)) (2021-018) for three weeks.	Secretariat	-before July
31. requested that the secretariat open an e-decision to approve the report of this meeting, following approval of the text by the rapporteur.	Secretariat	Before SC Nov
32. To develop roles and tasks for invited experts and observers. This is to be included in the IPPC Standard Setting Procedure together with the SC-7 proposal for the Standard Setting Procedure.	Secretariat	SC Nov
33. Also to reflect that the online form for call for experts and TP members will be available only for IPPC official Contacts Points by making it available on the IPP restricted work area. Also to be updated in the Standard Setting Procedure.	Secretariat	SC Nov