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COMMISSION ON PHYTOSANITARY MEASURES

Twelfth Session

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Adoption of International Standards for Phytosanitary Measures - Reorganization, Harmonization And Minor Technical Updates Of The Fruit Fly ISPMs

Agenda item 9.2

Prepared by the IPPC Secretariat

I. Background

1. In November 2011, the Standards Committee (SC) noted that work to reorganize and harmonize CPM adopted fruit fly standards should be carried out, and in May 2015 a proposal was presented to the SC. Based on the SC guidance, the Technical Panel on Pest Free Areas and Systems Approaches for Fruit Flies (TPFF) met in Vienna, Austria, in 2015 to work on the reorganization of the adopted fruit fly standards . The meeting was hosted and supported by the Joint FAO/International Atomic Energy Agency (IAEA) Division of Nuclear Techniques in Food and Agriculture (hereafter "the Joint FAO/IAEA Division").

2. The SC in May 2016 discussed the proposal in depth, including the proposed reorganization, harmonization and technical updates, and reviewed the proposed consequential ink amendments.

3. The fruit fly standards under consideration (see also Figure 1) are:

- ISPM 26 (*Establishment of pest free areas for fruit flies*)
- ISPM 30 (*Establishment of areas of low pest prevalence for fruit flies (Tephritidae*))
- ISPM 35 (*Systems approach for pest risk management of fruit flies*) and
- ISPM 37 (*Determination of host status of fruits to fruit flies (Tephritidae*).

4. The SC could not reach consensus on the reorganization (see Figure 2 and the following sections) and as a result, the SC agreed that the details of all positions maintained should be presented to the CPM along with a clear explanation as to why the fruit fly ISPMs had been reorganized in this manner and the benefits. In addition, some indication of the resources utilized for the proposed or any future reorganization should be presented .

Figure 1: Overview of the current ISPMs on fruit flies

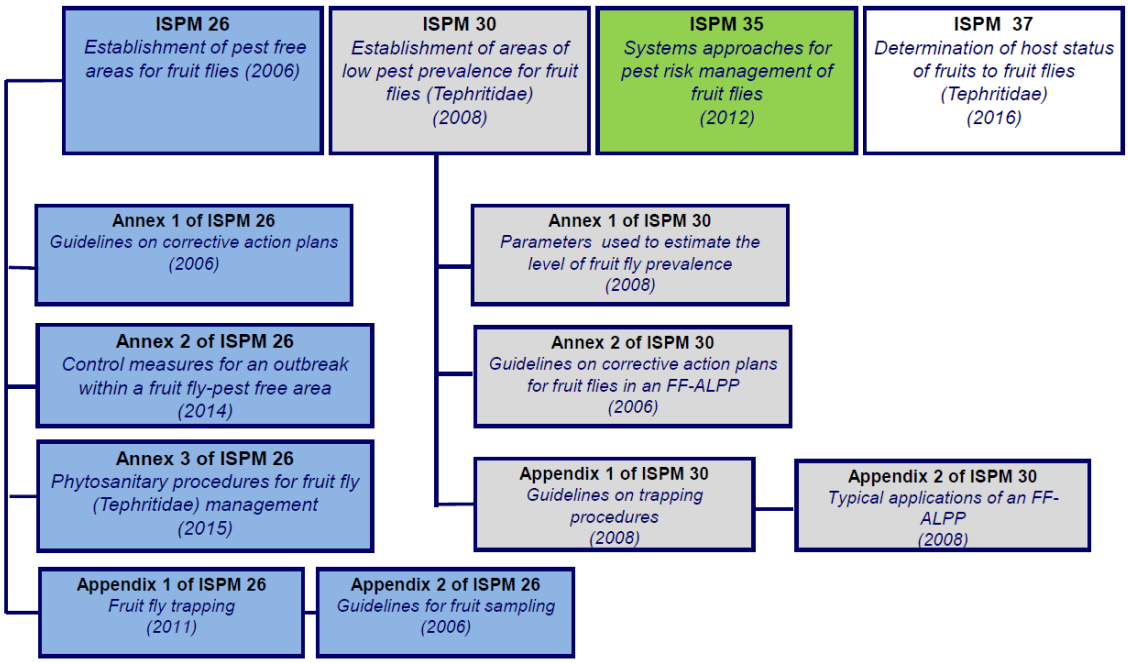
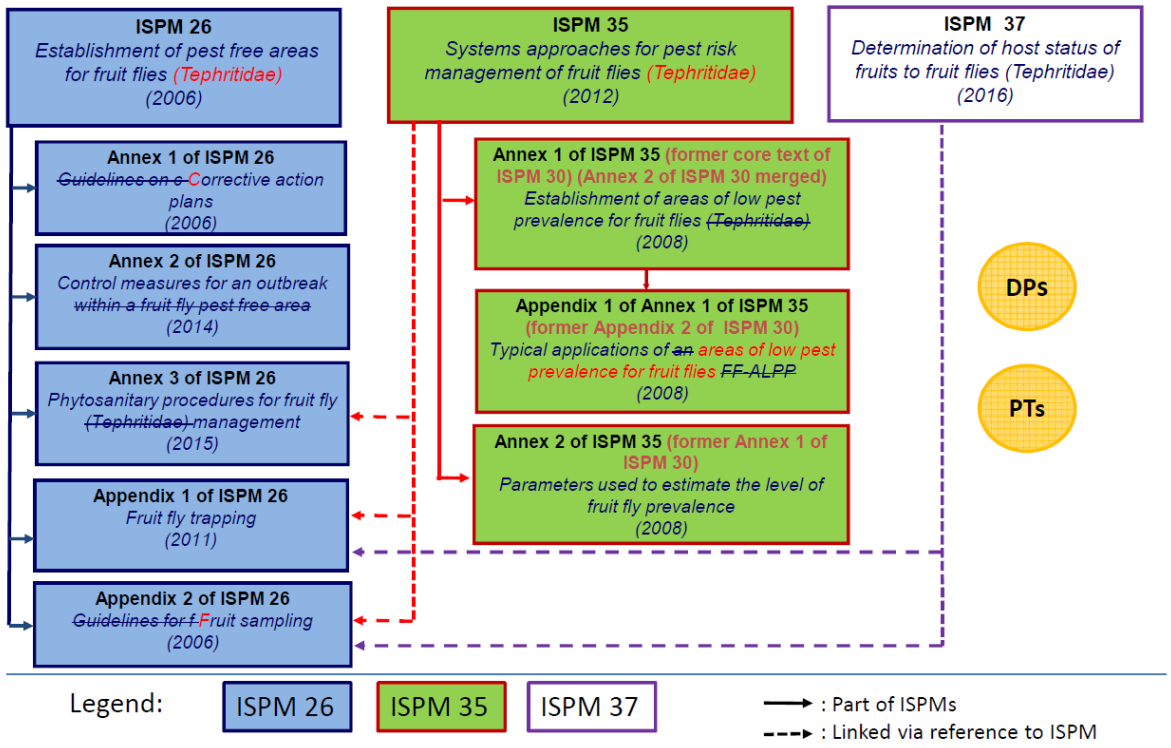


Figure 2: TPFF proposal for the reorganization of ISPMs on fruit flies



II. SC May 2016 considerations

5. The following is an excerpt from the SC May 2016 report (paragraph numbers correspond to those of the SC report).

[217] The SC discussed the following issues regarding the proposed reorganization.

[218] One SC member queried the rationale for retaining Annex 3 of ISPM 26 under ISPM 26 and not moving it to ISPM 35. The Secretariat explained that while Annex 3 is relevant to both ISPMs, ISPM 26 had been adopted first and the panel, wishing to minimizing the changes, recommended to leave it under ISPM 26.

[219] Some SC members expressed concerns about changing ISPM 30 to an annex under ISPM 35 because, while it is true that the establishment of area of low pest prevalence of fruit flies (ALPP-FF) is usually part of a systems approach, an ALPP-FF may also be used in the future as a standalone measure.

[220] Other SC members explained that in international trade they were unaware of examples of commodities being traded from an ALPP-FF without there having been other measures applied as part of a systems approach and that placing ALPP-FF under ISPM 35 seemed logical and would facilitate implementation of the fruit fly standards. It was also recalled that an annex of a standard may still be used on its own. Although it was not foreseeable to have situations where countries would accept commodities from an ALPP-FF without there having been other measures applied. Considering that ISPMs address international harmonization of measures, and not particular bilateral arrangements, many SC members supported the proposed reorganization. However, to address the concern raised by some SC members, other SC members suggested that a sentence could be included in the former ISPM 30 to state that ALPP-FF could be used as a standalone measure if desired.

[221] Another SC member suggested that ISPM 26 be included under ISPM 35 because he believed that establishment of a fruit fly pest free area (FF-PFA) and establishment of an ALPP-FF would both be part of systems approaches on equal terms. Other members disagreed because there an FF-PFA (e.g. as a result of natural climatic conditions or geographical isolation from infested areas) is usually used as a standalone measure and not in a systems approach.

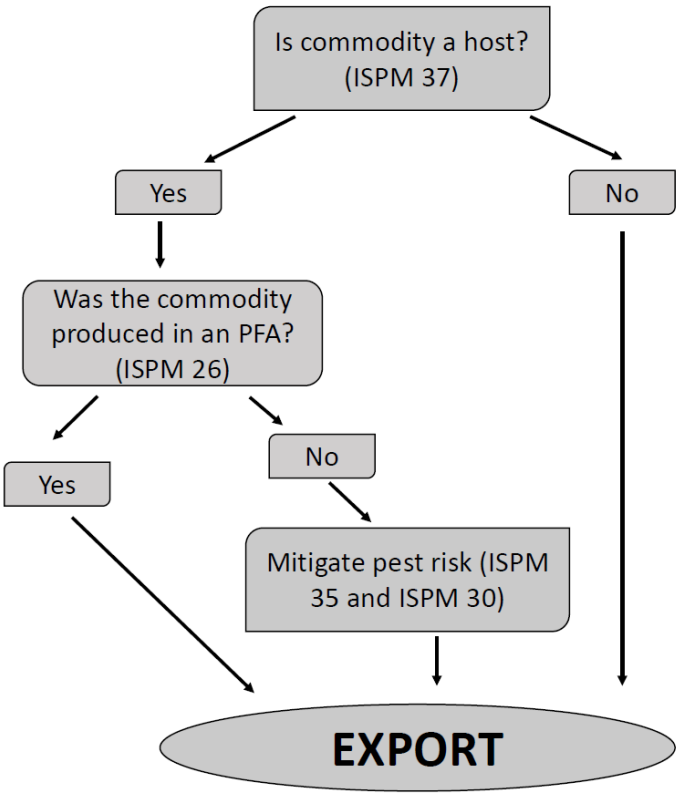
[222] The Secretariat expressed deep concerns about the fact that the SC had been presented with the overall proposal for reorganization in November 2015 and that no concerns were raised at that time regarding the proposal to move ISPM 30 under ISPM 35. That meant that the TPFF and the Secretariat had spent significant resources in finalizing the consequential ink amendments based on the SC November 2015 decision. One SC member noted this proposed reorganization was presented to the SC in a PowerPoint presentation and not in paper as it was noted the TPFF had only developed the proposed reorganization plan a few weeks before. It was highlighted that this work had been funded by the Joint IAEA/FAO division and no resources were currently available for the TPFF to meet to discuss the issue again. The Secretariat furthermore highlighted that, based on CPM set priorities, it would not be able to carry out the further adjustments to reorganization of the standards and ink amendments for the time being.

[223] The SC reviewed the textual changes, agreed they were ink amendments and that they should be submitted to CPM for noting. Only five ink amendments were not accepted and one revised […]

III. Reorganization

6. The main objective of the reorganization is to help the implementation of the suite of fruit fly standards become more logical and simple to prevent the introduction and spread of fruit flies and to facilitate trade. Figure 3 presents a simplified outline of the export of fruits and vegetables enabled by the ISPMs.

Figure 3: Simplified flow chart for the export of fruits and vegetables by using ISPMs on fruit flies



7. Exporting countries use first ISPM 37 to evaluate if the commodity is a fruit fly host or not. If not, the commodity can be exported without any additional phytosanitary measures. If it is a host, then ISPM 26 should be used to identify if the area is a fruit fly free area (FF-PFA) or not. If it is an FF-PFA, no additional measure is necessary to export the commodity. If the area is infested, the exporting country must use ISPM 35 where two of more measures are used in combination pre- and post-harvesting to mitigate the risk of introducing a pest to the importing country.

8. To ensure that the fruit fly ISPMs' logical application matches these production and trade practices for fruits and vegetables, it is necessary to integrate the existing ISPM 30 as an annex to ISPM 35.

9. There are two major reasons for this integration:

- There are no known examples in international trade of countries using a fruit fly area of low pest prevalence (FF-ALPP) as a stand-alone measure to export from. In all know cases, FF-ALPP is used as part of a systems approach. It is therefore logical and helpful for implementation that ISPM 30 becomes an annex to ISPM.
- The text on FF-ALPP retains its prescriptiveness as an annex. Annexes and core ISPMs have the same level of obligation. The only difference in this case is to help ensure that the linkages between the standards are clear due to the necessity of applying the requirements for an FF-ALPP under a systems approach.

IV. Harmonization

10. In 2006, ISPM 26 was adopted as the first fruit fly ISPM. It took exactly 10 years until ISPM 37 was adopted in 2016. Over this 10-year period, some definitions and denominations have changed or been used differently in the various ISPMs and annexes adopted during the 10 years period. There was also repeated information in some of the ISPMs, just as additional linkages between the standards and between the standards and adopted diagnostic protocols and phytosanitary treatments were felt to enhance usability of the standards.

11. The TPFF reviewed the 13 core ISPMs, annexes and appendixes of the suite of fruit fly ISPMs to ensure harmonization and consistency between them. In addition, all the documents were edited by the IPPC scientific editor. These changes are considered ink amendments as they do not change the content of the standards but help facilitate reading and utilization.

12. The ink amendments are presented in attachments 1-5 of the English version of this paper only due to cost savings:

Attachment 1: ISPM 26 (*Establishment of pest free areas for fruit flies (tephritidae)*) with Annex 1 (Corrective action plans) and Appendix 2 (Fruit sampling)

- Attachment 2: Annex 2 (Control measures for an outbreak within a fruit fly-pest free area) of ISPM 26
- Attachment 3: Annex 3 (Phytosanitary procedures for fruit fly (~~Tephritidae~~) management) of ISPM 26
- Attachment 4: Appendix 1 (Fruit fly trapping) of ISPM 26
- Attachment 5: Annex 1 (Establishment of areas of low pest prevalence for fruit flies) (ex ISPM 30), including Appendix 1 (Typical applications of an FF-ALPP) (ex Appendix 2 of ISPM 30), and Annex 2 (Parameters used to estimate the level of fruit fly prevalence) (ex Annex 1 of ISPM 30) of ISPM 35 (*Systems approach for pest risk management of fruit flies (Tephritidae*))

V. Technical updates

13. Over the last 10 years some technical changes occurred, specifically within taxonomy. The main technical update that was proposed in the reorganization was for the synonimization of four species of Bactrocera (B. dorsalis, B. invadens, B. papaya and B. phillipinensis) on a single species B. dorsalis. That change has a direct positive impact on the fruits and vegetable trade worldwide. This change is supported by scientific evidence.

VI. Resources utilized for the proposed or any future reorganization

14. The costs of the current reorganization were approximately USD 113 000. This amount includes:

- estimated time dedicated to the work by the eight TPFF panel members and their travel costs: USD 48 000 (total)
- operational costs (meeting arrangements, editing) of USD 25 000 and IPPC Secretariat / Joint FAO/IAEA Division human resources of USD 40 000; most of this funding was supplied by the Joint FAO/IAEA Division.

15. A future reorganization will likely have similar costs.

16. Should the CPM wish to proceed with the reorganization only partly, for instance, by excluding the move of ISPM 30, the ink amendments will need to be reviewed again and some excluded. It is estimated that this would cost approximately USD 10 000 (editor and staff time), in addition to the similar costs indicated above for another meeting of the TPFF members.

17. It should be recalled that the costs related to translation and incorporation of the ink amendments into the six FAO languages for all the standards will be similar independent of the level of reorganization that is decided by the CPM.

VII. Conclusions

18. Since 2004, the current TPFF members have worked to develop fruit fly standards under the auspices of the IPPC. They represent not only the highest expertise worldwide but also six FAO regions, bringing with them a wealth of scientific knowledge and practical experience in managing pest risks pertaining to fruit flies.

19. The proposal for reorganization is one based on international practices. It will facilitate the implementation of the fruit fly standards as it creates a logical link between them, and this in turn will facilitate trade. The TPFF considered other possible ways of achieving improved implementation of the fruit fly standards but agreed that this proposal is the best way forward.

20. The level of obligation in the standards remains identical.

21. The costs of the reorganization was substantial, not only in funds spent by the Joint FAO/IAEA Division and the IPPC Secretariat, but also in time and funds spent by the individual countries supporting the TPFF members.

22. Should the CPM wish for the TPFF to reconsider the reorganization, similar costs on all accounts should be expected for this work and the costs would need to be covered by extra-budgetary funds.

23. It should also be noted that the Joint FAO/International Atomic Energy Agency (IAEA) Division of Nuclear Techniques in Food and Agriculture have set aside resources to assist the IPPC Secretariat in the development of a guide for the implementation of fruit fly ISPMs. This guidance would provide specific information on the sequence of events to be considered when implementing this suite of standards to provide linkages between the relevant standards, annexes and appendixes as well to relevant diagnostic protocols and phytosanitary treatments. These funds are allocated to be used in 2017 and they will not be carried forward if this reorganization is not agreed.

VIII. Decisions

24. The CPM is invited to:

1) *Agree* to the reorganization of the suite of fruit fly ISPMs as presented in Figure 2, including to
   a) incorporate ISPM 30 into ISPM 35 as Annex 1, noting that the same level of prescriptiveness persists and consequently:

      i) *Note* that the text of former Annex 2 to ISPM 30 was integrated into Section 8 of Annex 1 to ISPM 35 (former ISPM 30).
      ii) *Note* that the former Appendix 1 to ISPM 30 is no longer relevant because ISPM 26 has an elaborated and recently adopted appendix on fruit fly trapping, and consequently this was not incorporated into ISPM 35. A reference is made to Appendix 1 of ISPM 26.
      iii) *Note* that former Appendix 2 of ISPM 30 has become Appendix 1 of Annex 1 of ISPM 35 (former ISPM 30).

   b) Revoke ISPM 30.

2) *Note* that direct links between fruit fly standards and direct links between fruit fly standards, annexes to ISPM 28 and annexes to ISPM 27 have been included in the relevant fruit fly standards.

3) *Note* the consistency and editorial changes (ink amendments) in the standards mentioned in Attachment 1-5, attached in the English version of this document only.

4) *Note* that the ink amendments, upon approval of the reorganization by CPM, will be translated into all FAO languages. All ink amendments in all languages will be incorporated into the individual standards and the previous versions of the standards revoked.

CONSISTENCY CORRECTIONS IN RELATION TO HARMONIZATION OF FRUIT FLY STANDARDS

(Developed by the TPFF, October 2015; approved by SC May 2016 pending CPM-12 decision on reorganization)

ISPM 26 (*ESTABLISHMENT OF PEST FREE AREAS FOR FRUIT FLIES (TEPHRITIDAE)*) WITH ANNEX 1 (CORRECTIVE ACTION PLANS) AND APPENDIX 2 (FRUIT SAMPLING)

Instructions: Changes to the text are shown in "track change" mode. If paragraphs are to be moved, this is indicated by "Move [para] to before / after [para]".

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[1]	**Adoption**	
[2]	This standard was adopted by the First Session of the Commission on Phytosanitary Measures in April 2006. Revision of Appendix 1 ~~on Fruit fly trapping~~ was adopted by the Sixth Session of the Commission on Phytosanitary Measures in March 2011. Annex 2 was adopted by the Ninth Session of the Commission on Phytosanitary Measures in April 2014. Annex 3 was adopted by the Tenth Session of the Commission on Phytosanitary Measures in March 2015.	Deletion of appendix title for consistency (annex titles not given). I suggest you add the adoption dates for Annex 1 and Appendix 2 (adopted with the core standard?).
[3]	**INTRODUCTION**	
[4]	**Scope**	
[5]	This standard provides guidelines for the establishment of pest free areas for fruit flies (Tephritidae) of economic importance, and for the maintenance of their pest free status.	Check use of “guidelines” is acceptable in this context: change to “guidance”?
[6]	**References**	
[7]	**IPPC**. 1997. International Plant Protection Convention. Rome, IPPC, FAO.	Editorial correction (not italics).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[8]	The present standard ~~also~~ refers to ~~other International Standards for Phytosanitary Measures (~~ISPMs~~)~~. ISPMs are available on the International Phytosanitary Portal (IPP) at https://www.ippc.int/core-activities/standards-setting/ispms.	Move [8] to before [7] (this standard text should appear at the start of the References section). Edits in line with ISPM template text.
[9]	**Definitions**	
[10]	Definitions of phytosanitary terms used in this~~the present~~ standard can be found in ISPM 5 (*Glossary of phytosanitary terms*).	Edits in line with ISPM template text.
[11]	**Outline of Requirements**	
[12]	The general requirements for establishing a fruit fly ~~-~~pest free area (FF-PFA) include:	Editorial correction.
[13]	- the preparation of a public awareness programme	
[14]	- the management elements of the system (documentation and review systems, recordkeeping)	Editorial correction.
[15]	- supervision activities.	
[16]	The major elements of an~~the~~ FF-PFA are:	Editorial correction (to match "a" at [12], and for sense: it's a concept until it's characterized).
[17]	- the characterization of the FF-PFA	
[18]	- the establishment and maintenance of the FF-PFA.	
[19]	These elements include the surveillance activities of fruit fly trapping (described in Appendix 1) and fruit sampling (described in Appendix 2), and official control on the movement of regulated articles. ~~Fruit fly trappingGuidance on surveillance and fruit sampling activities is are provided described in Appendixes 1 and Appendix 2.~~	Wording here should be consistent with the title of Appendix 1. Editorial changes made to eliminate redundancy and for clarity.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[20]	Additional elements include: corrective action planning, and suspension, reinstatement (if possible) ~~loss of pest free status~~ and ~~reinstatement~~ revocation of pest free status ~~(if possible)~~ of the FF-PFA. Corrective action plan~~sning~~ are~~is~~ described in Annex 1, control measures for an outbreak within a fruit fly ~~-~~pest free area in Annex 2 and phytosanitary procedures for fruit fly management in Annex 3.~~.~~	Additional elements have been shifted around to be in the same order as listed in the standard. Additional change of "loss" to "revocation" see [173]. Annex 1 change to match its title. Added mention of Annex 2 and Annex 3 to have reference to these annexes in the core text of the standard. Editorial correction (addition of "and" as "corrective action planning" does not relate to "of pest free status of the FF-PFA").
[21]	**BACKGROUND**	
[22]	Fruit flies are a very important group of pests for many countries because of~~due to~~ their potential to cause damage in fruits and ~~to~~ their potential to restrict access to international markets for plant products that can host fruit flies. The high probability of introduction of fruit flies associated with a wide range of hosts results in restrictions imposed by many importing countries on~~to~~ accepting fruits from areas in which these pests are established. For these reasons, there is a need for an ISPM that provides specific guidance for the establishment and maintenance of pest free areas for fruit flies.	Editorial corrections (grammatical errors).
[23]	A pest free area is "an area in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained" (ISPM 5). Areas initially free from fruit flies may remain naturally free from fruit flies as a result of~~due to~~ the presence of barriers or climatic~~e~~ conditions~~,~~ and/or may be maintained free through movement restrictions and related measures (though fruit flies have the potential to establish there), or may be made free by an eradication programme (ISPM 9 (*Guidelines for pest eradication programmes*)). ISPM 4 (*Requirements for the establishment of pest free areas*) describes different types of pest free areas and provides general guidance on the establishment of pest free areas. However, a need for additional guidance on the establishment and maintenance of pest free areas specifically for fruit flies ~~(fruit fly pest~~	Editorial corrections (grammatical errors; abbreviation already defined above).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	~~free areas, FF-PFA)~~ was recognized. This standard describes additional requirements for the establishment and maintenance of FF-PFAs. The target pests for which this standard was developed include insects of the order Diptera, family Tephritidae, ~~of the~~ genera *Anastrepha*, *Bactrocera*, *Ceratitis*, *Dacus*, *Rhagoletis* and *Toxotrypana*.	
[24]	The establishment and maintenance of an FF-PFA implies that no other phytosanitary measures specific for the target species are required for host commodities within the pest free area~~PFA~~.	Editorial correction (PFA has not been defined, FF-PFA has, and in addition, "pest free area/s" spelled out in full is used many times in this standard).
[25]	**REQUIREMENTS**	It is noted that there is no section on "IMPACTS ON BIODIVERSITY AND THE ENVIRONMENT"
[26]	**1. General Requirements**	
[27]	The concepts and provisions of ISPM 4 apply to the establishment and maintenance of pest free areas for all pests, including fruit flies, and therefore ISPM 4 should be referred to in conjunction with this standard.	Editorial correction.
[28]	Phytosanitary measures and specific procedures as further described in this standard may be required for the establishment and maintenance of an FF-PFA. The decision to establish an ~~formal~~ FF-PFA may be made based on the technical factors provided in this standard. They include components such as pest biology, size of the area, pest population levels and dispersal pathway, ecological conditions, geographical isolation and availability of methods for pest eradication.	Editorial correction (FF-PFAs are inherently official).
[29]	FF-PFAs may be established in accordance with this ISPM under a variety of ~~different~~ situations. Some of them require the application of the full range of elements provided by this standard; others require only the application of some of these elements.	Editorial correction (redundancy of words "variety" and "different").
[30]	In areas where the fruit flies concerned are not capable of establishment because of climatic, geographical or other reasons, there should be no records	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	of presence and it may be reasonable to conclude that the pest is absent (ISPM 8 (*Determination of pest status in an area*)). If, however, the fruit flies are detected and can cause economic damage during a season (Article VII.3 of the IPPC), corrective actions should be applied in order to allow the maintenance of an FF-PFA.	
[31]	In areas where the fruit flies are capable of establishment and known to be absent, general surveillance in accordance with— ISPM 8 is normally sufficient for the purpose of delimiting and establishing a pest free area. Where appropriate, import requirements and/or domestic movement restrictions against the introduction of the relevant fruit fly species into the area may be required to maintain the area free from the pest.	Typo correction.
[32]	**1.1 Public awareness**	
[33]	A public awareness programme is most important in areas where the risk of introduction is higher. An important factor in the establishment and maintenance of FF-PFAs is the support and participation of the public (especially the local community) close to the FF-PFA and individuals whothat travel to or through the area, including parties with direct and indirect interests. The public and stakeholders should be informed through different forms of media (written, radio, TVtelevision) of the importance of establishing and maintaining the pest free status of the area, and of avoiding the introduction or re-introduction of potentially infested host material. This may contribute to and improve compliance with the phytosanitary measures for the FF-PFA. The public awareness and phytosanitary education programme should be ongoing and may include information on:	Editorial corrections.
[34]	- permanent or random checkpoints	
[35]	- posting signs at points of entry points and transit corridors	Editorial correction (Glossary term).
[36]	- disposal bins for host material	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[37]	- leaflets or brochures with information on the pest and the pest free area	
[38]	- publications (e.g. print, electronic ~~media~~)	Editorial correction.
[39]	- systems to regulate fruit movement	
[40]	- non-commercial hosts	
[41]	- security of the traps	
[42]	- penalties for non-compliance, where applicable.	
[43]	**1.2 Documentation and record ~~-~~keeping**	Editorial correction (remove hyphen).
[44]	The phytosanitary measures used for the establishment and maintenance of an FF-PFA should be adequately documented as part of phytosanitary procedures. They should be reviewed and updated regularly, and includ~~e~~~~ing~~ corrective actions, if required (see also ISPM 4).	Editorial correction.
[45]	The records of surveys, detections, occurrences or outbreaks and results of other operational procedures should be retained for at least 24 months. Such records should be made available to the national plant protection organization (NPPO) of the importing country on request.	Editorial correction (the abbreviation needs to be defined at first mention).
[46]	**1.3 Supervision activities**	
[47]	The FF-PFA programme, including regulatory control, surveillance procedures (e.g.~~for example~~ trapping, fruit sampling ~~–~~, see details in Appendix 1 and Appendix 2, respectively) and corrective action planning should comply with officially approved procedures.	Editorial correction.
[48]	Such procedures should include ~~official~~ delegation of responsibility assigned to key personnel, for example:	"official" deleted as the procedures are official (see [47]).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[49]	- a person with defined authority and responsibility to ensure that the ~~systems/~~procedures are implemented and maintained appropriately	Editorial correction (to avoid "/").
[50]	- entomologist(s) with responsibility for the authoritative identification of fruit flies to species level.	
[51]	The effectiveness of the programme should be monitored periodically by the NPPO of the exporting country, through review of documentation and procedures.	
[52]	**2. Specific Requirements**	
[53]	**2.1 Characterization of the FF-PFA**	
[54]	The determining characteristics of the FF-PFA include:	
[55]	- the target fruit fly species and its distribution within or adjacent to the area	
[56]	- commercial and non-commercial host species	
[57]	- delimitation of the area (detailed maps or global positioning system (GPS) coordinates showing the boundaries, natural barriers, points of entry ~~points~~ and host area locations, and, where necessary, buffer zones)	Editorial correction (Glossary term).
[58]	- climate, for example rainfall, relative humidity, temperature, prevailing wind speed and direction.	
[59]	Further guidance on establishing and describing a pest free area~~PFA~~ is provided in ISPM 4.	Editorial correction (see explanation at [24]).
[60]	**2.2 Establishment of the FF-PFA**	
[61]	The following should be developed and implemented when establishing an FF-PFA:	Editorial correction (for clarity).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[62]	- surveillance activities for the establishment of the FF-PFA	Editorial correction.
[63]	- delimitation of the FF-PFA	
[64]	- phytosanitary measures related to movement of host material or regulated articles	
[65]	- pest suppression and eradication techniques, as appropriate.	Editorial correction.
[66]	The establishment of buffer zones may also be necessary (as described in section 2.2.1) and it may be useful to collect additional technical information during the establishment of the FF-PFA.	
[67]	**2.2.1 Buffer zone**	
[68]	In areas where geographic isolation is not considered adequate to prevent introduction to or reinfestation of a pest free area~~PFA~~ or where there are no other means of preventing fruit fly movement to the pest free area~~PFA~~, a buffer zone should be established. Factors that should be considered in the establishment and effectiveness of a buffer zone include:	Editorial correction (see explanation at [24]).
[69]	- pest suppression techniques, which may be used to reduce the fruit fly population, including:	Editorial correction.
[70]	· use of selective insecticide -bait	Editorial correction.
[71]	· ~~S~~spraying	Editorial correction.
[72]	· sterile insect technique	
[73]	· male annihilation technique	
[74]	· biological control	
[75]	· mechanical control, etc.	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[76]	- host availability, cropping systems, natural vegetation	
[77]	- climatic conditions	
[78]	- the geography of the area	
[79]	- the capacity for natural spread through identified pathways	Editorial correction.
[80]	- the ability to implement a system to monitor the effectiveness of buffer zone establishment (e.g. trapping network).	
[81]	**2.2.2 Surveillance activities before~~prior to~~ establishment**	Editorial correction.
[82]	A regular survey programme should be established and implemented. Trapping is the preferred option to determine fruit fly absence or presence in an area for lure or ~~/~~bait~~-~~ responsive species. However, fruit sampling activities may sometimes be required to complement the trapping programme in cases where trapping is less effective, for example when species are less responsive to specific lures.	Editorial correction (to avoid "/").
[83]	Before~~Prior to~~ the establishment of ~~a~~ an FF-PFA, surveillance should be undertaken for a period determined by the climatic characteristics of the area, and as technically appropriate, for at least 12 consecutive months in the FF-PFA in all relevant areas of commercial and non-commercial host plants to demonstrate that the pest is not present in the area. There should be no populations detected during the surveillance activities before~~prior to~~ establishment. A single adult detection, depending on its status (in accordance with ISPM 8), may not disqualify an area from subsequent designation as an FF-PFA. For qualifying the area as a pest free area, there should be no detection of an immature specimen, two or more fertile adults, or an inseminated female of the target species during the survey period. There are different trapping and fruit sampling regimes for different fruit fly species. Surveys should be conducted following the guidance in~~using~~ ~~the guidelines in~~ Appendix~~es~~ 1 and Appendix 2. These appendices~~guidelines~~ may	Editorial corrections. "Guidelines" deleted as per SC decision to try to avoid using this term. Further editorial correction (surveys can not be physically

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	be revised as trap, lure and fruit sampling efficiencies improve.	conducted using the appendixes).
[84]	**2.2.2.1 Trapping procedures**	
[85]	This section contains general information on trapping procedures for target fruit fly species. Trapping conditions may vary depending on, for example, the target fruit fly and environmental conditions. More information is provided in Appendix 1. When planning for trapping, the following should be considered.	
[86]	**Trap type and lures**	In the final formatted ISPM these headings should be in-line headings in italics.
[87]	Several types of traps and lures have been developed over decades to survey fruit fly populations. Fly catches differ depending on the types of lure used. The type of trap chosen for a survey depends on the target fruit fly species and the nature of the attractant. The most widely used traps include Jackson, McPhail, Steiner, open bottom dry trap ~~(OBDT)~~, yellow panel traps, which may use specific attractants (para~~-~~pheromone or pheromone lures that are male specific), or food or host odours (liquid protein or dry synthetic protein). Liquid protein is used to catch a wide range of ~~different~~ fruit fly species and to capture both females and males, with a slightly higher percentage of females captured. However, identification of the fruit flies can be difficult because of~~due to~~ decomposition within the liquid bait. In traps such as McPhail, ethylene glycol may be added to delay decomposition. Dry synthetic protein baits are female biased, capture fewer~~less~~ non-target organisms and, when used in dry traps, may prevent premature decomposition of captured specimens.	Editorial corrections.
[88]	**Trap density**	
[89]	Trap density (number of traps per unit area) is a critical factor for effective fruit fly surveys and it should be designed based on target fruit fly species, trap efficiency, cultivation practices, and other biotic and abiotic factors.	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	Density may change depending on the programme phase, with different densities required during the establishment of an FF-PFA and the maintenance phase. Trap density also depends on the risk associated with potential pathways for entry into the designated pest free area~~PFA~~.	
[90]	**Trap deployment ~~(determination of the specific location of the traps)~~**	The definition from the heading was added to the first sentence of [91] as the heading was long, and because this enhanced consistency in the headings.
[91]	In an FF-PFA programme, an extensive trapping network should be deployed over the entire area (i.e. determination of the specific location of the traps). The trapping network layout will depend on the characteristics of the area, host distribution and the biology of the fruit fly of concern. One of the most important features of trap placement is the selection of a proper location and trap site within the host plant. The application of GPS and geographic information systems (GIS) are useful tools for the management of a trapping network.	Editorial corrections.
[92]	Trap location should take into consideration the presence of the preferred hosts (primary, secondary and occasional ~~hosts~~) of the target species. Because the pest is associated with maturing fruit, the location, including rotation, of traps should follow the sequence of fruit maturity in host plants. Consideration should be given to commercial management practices in the area where host trees are selected. For example, the regular application of insecticides (and/or other chemicals) to selected host trees may have a false-negative effect on the trapping programme.	Editorial corrections.
[93]	**Trap servicing**	
[94]	The frequency of trap servicing (maintaining and refreshing the traps) during the period of trapping should depend on the:	
[95]	- longevity of baits (attractant persistency)	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[96]	- retention capacity	
[97]	- rate of catch	
[98]	- season of fruit fly activity	
[99]	- placement of the traps	
[100]	- biology of the species	
[101]	- environmental conditions.	
[102]	**Trap inspection** ~~(checking the traps for fruit flies)~~	The definition from the heading was added to the first sentence of [103] as the heading was long, and because this enhanced consistency in the headings.
[103]	The frequency of ~~regular~~ inspection (checking the traps for fruit flies) during the period of trapping should depend on:	Editorial correction (for sense).
[104]	- expected fruit fly activity (biology of the species)	
[105]	- the response of the target fruit fly in relation to host status (ISPM XX) at different times of the year	The panel agreed that a reference to the draft ISPM on host status should be added when (if) adopted to enhance linkages between the FF standards.
[106]	- the relative number of target and non-target fruit flies expected to be caught in a trap	Editorial correction.
[107]	- the type of trap used	Editorial correction.
[108]	- the physical condition of the flies in the trap (and whether they can be identified).	Editorial correction.
[109]	In certain traps, specimens may degrade quickly making identification difficult or impossible unless the traps are checked frequently.	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[110]	**Identification capability**	
[111]	NPPOs should have in place, or have ready access to, adequate infrastructure and trained personnel to identify ~~detected~~ fruit fly specimens of the target species in an expeditious manner, preferably within 48 hours of trapping. Continuous access to expertise may be necessary during the establishment phase or when implementing corrective actions.	The panel felt that "detected" was a term that created confusion and agreed to delete this term. The panel added "fruit fly" for consistency with the parallel section 2.2.2.2. Editorial correction (for sense).
[112]	**2.2.2.2 Fruit sampling procedures**	
[113]	Fruit sampling may be used as a surveillance method in combination with trapping where trapping is less effective. It should be noted that fruit sampling is particularly effective in small-scale delimiting surveys in an outbreak area. However, it is labour-intensive, time-consuming and expensive because of~~due to~~ the destruction of fruit. It is important that fruit samples should be held in suitable conditions to maintain the viability of all immature stages of fruit ~~fly~~flies in infested fruit for identification purposes. Further information is provided in Appendix 2.	Cross-reference to Appendix 2 added for clarity.
[114]	**Host preference**	In the final formatted ISPM these headings should be in-line headings in italics.
[115]	Fruit sampling should take into consideration the presence of primary, secondary and occasional hosts of the target species. Fruit sampling should also take into account the maturity of fruit, apparent signs of infestation in fruit, and commercial practices (e.g. application of insecticides) in the area.	
[116]	**~~Focusing on h~~High-risk areas**	Editorial correction.
[117]	Fruit sampling should be targeted to~~on~~ areas likely to have presence of infested fruits such as:	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[118]	- urban areas	
[119]	- abandoned orchards	
[120]	- rejected fruit at packing facilities	
[121]	- fruit markets	
[122]	- sites with a high concentration of primary hosts	
[123]	- points of entry~~entrance points in~~ to the FF-PFA, where appropriate.	Editorial correction (Glossary term).
[124]	The sequence of hosts that are likely to be infested by the target fruit fly species in the area should be used as fruit sampling areas.	
[125]	**Sample size and selection**	
[126]	Factors to be considered include:	
[127]	- the required level of confidence	
[128]	- the availability of primary host material in the field	
[129]	- fruits with symptoms on trees, fallen or rejected fruit (e.g.~~for example~~ at packing facilities), where appropriate.	Editorial correction.
[130]	**Procedures for processing sampled fruit for inspection**	
[131]	Fruit samples collected in the field should be brought to a facility for holding, fruit dissection, and pest recovery and identification. Fruit should be labelled, transported and held in a secure manner to avoid mixing fruits from different samples.	Editorial correction (because "pest" refers to "identification" too).
[132]	**Identification capability**	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[133]	NPPOs should have in place, or have ready access to, adequate infrastructure and trained personnel to identify fruit fly immature stages and emerged adults of the target species in an expeditious manner.	
[134]	**2.2.3 Controls on the movement of regulated articles**	
[135]	~~Movement c~~Controls on the movement of regulated articles should be implemented to prevent the entry of target pests into the FF-PFA. These controls depend on the assessed risks (after identification of likely pathways and regulated articles) and may include:	Editorial correction (for sense and consistency with the heading above).
[136]	- listing of the target fruit fly species on a quarantine pest list	
[137]	- regulation of the pathways and articles that require control to maintain the FF-PFA	
[138]	- domestic restrictions to control the movement of regulated articles into the FF-PFA	
[139]	- inspection of regulated articles, examination of relevant documentation as appropriate and, where necessary for cases of non-compliance, the application of appropriate phytosanitary measures (e.g. treatment, refusal or destruction).	
[140]	**2.2.4 Additional technical information for the establishment of an FF-PFA**	Editorial corrections.
[141]	Additional information that may be useful during the establishment phase of FF-PFAs~~. This~~ includes:	Editorial correction.
[142]	- historical records of detection, biology and population dynamics of the target pest(s), and survey activities for the designated target pest(s) in the FF-PFA	
[143]	- the results of phytosanitary measures taken as part of actions following detections of fruit flies in the FF-PFA	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[144]	- records of the commercial production of host crops in the area, an estimate of non-commercial production and the presence of wild host material	
[145]	- lists of the other fruit fly species of economic importance that may be present in the FF-PFA.	
[146]	**2.2.5 Domestic declaration of pest freedom**	
[147]	The NPPO should verify the fruit fly free status of the area (in accordance with ISPM 8) specifically by confirming compliance with the procedures established~~set up~~ in accordance with this standard (surveillance and controls). The NPPO should declare and notify the establishment of the FF-PFA, as appropriate.	Editorial correction (to match [108] in Annex 1 of ISPM 35).
[148]	In order to be able to verify the fruit fly free status in the area and for the purpose~~s~~ of internal management, the continuing FF-PFA status should be checked after the FF-PFA has been established and any phytosanitary measures for the maintenance of the FF-PFA have been put in place.	Editorial corrections.
[149]	**2.3 Maintenance of the FF-PFA**	
[150]	In order to maintain the FF-PFA status, the NPPO should ~~continue to~~ monitor ~~the operation of~~ the surveillance and control activities, continuously verifying the pest free status.	Editorial correction (for sense – at this stage it seems the NPPO would start and not continue to monitor; and it reads oddly to operate activities).
[151]	**2.3.1 Surveillance for the maintenance of the FF-PFA**	Editorial correction.
[152]	After verifying and declaring the FF-PFA, the ~~official~~ surveillance programme should be continued at a level assessed as being necessary for the maintenance of the FF-PFA. Regular technical reports on~~of~~ the survey activities should be generated (e.g.~~for example~~ monthly). Requirements for this are essentially the same as for the establishment of the FF-PFA (see section 2.2) but with differences in trap density and trap deployment~~locations~~	Editorial corrections. "Official" deleted because according to ISPM 5 "surveillance" is an official process.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	dependent upon the assessed level of risk of introduction of the target species.	To use the same terminology from section 2.2.
[153]	**2.3.2 Controls on the movement of regulated articles**	
[154]	These are the same as for the establishment of the FF-PFA (provided in section 2.2.3).	Editorial correction.
[155]	**2.3.3 Corrective actions (including response to an outbreak)**	
[156]	The NPPO should have plans prepared ~~plans~~ for corrective actions that may be implemented if the target pest(s) is detected in the FF-PFA or in host material from that area (detailed guidance is~~guidelines are~~ provided in Annex 1, Annex 2 and Annex 3), or if faulty procedures are found. ~~This~~These plans should include components or systems to cover:	Reference to Annex 2 and Annex 3 added to clarify that further guidance can be found here and to ensure cross-references to the annexes in the core text. Change made to avoid the use of "guidelines". Change made to plural "plans" to match use at start of paragraph.
[157]	- outbreak declaration, according to criteria in ISPM 8, and notification	
[158]	- delimiting surveillance (trapping and fruit sampling) to determine the infested area under corrective actions	
[159]	- the implementation of control measures	Editorial correction.
[160]	- further surveillance	
[161]	- criteria for the reinstatement of freedom of the area affected by the outbreak	
[162]	- responses to interceptions.	
[163]	A corrective action plan should be initiated as soon as possible and in any case within 72 hours of the detection (of an adult or immature stage of the target pest).	
[164]	**2.4 Suspension, reinstatement or ~~loss~~ revocation of an FF-PFA**	Editorial correction; ink amendment, see explanation in [172].

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	status	
[165]	**2.4.1 Suspension**	
[166]	The status of the FF-PFA or the affected part within the FF-PFA should be suspended when an outbreak of the target fruit fly occurs or based on one of the following triggers: detection of an immature specimen of the target fruit fly~~,~~; detection of two or more fertile adults as demonstrated by scientific evidence~~,~~; or detection of an inseminated female within a defined period and distance. Suspension may also be applied if procedures are found to be faulty (e.g.~~for example~~ inadequate trapping, host movement controls or treatments).	Editorial corrections (the list structure was not grammatically correct – alternatively, to avoid repeating "detection of", wording could be "...based on the detection of: an immature...").
[167]	If the criteria for an outbreak are met, this should result in the implementation of the corrective action plan as specified in this standard and immediate notification to interested importing countries' NPPOs (see ISPM 17 (*Pest reporting*)). The whole or part of the FF-PFA may be suspended or revoked. In most cases a suspension radius will delimit the affected part of the FF-PFA. The radius will depend on the biology and ecology of the target fruit fly. The same radius will generally apply for all FF-PFAs for a given target species unless scientific evidence supports any proposed deviation. Where a suspension is put in place, the criteria for lifting the suspension should be made clear. Interested importing countries' NPPOs should be informed of any change in FF-PFA status.	
[168]	**2.4.2 Reinstatement**	
[169]	Reinstatement should be based on requirements for establishment with the following conditions:	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[170]	- no further detection of the target pest species for a period determined by the biology of the species and the prevailing environmental conditions[1], as confirmed by surveillance, or	Editorial correction in the footnote (it now matches the same footnote in Annex 2 of ISPM 26).
[171]	- in the case of a fault in the procedures, only when the fault has been corrected.	
[172]	**2.4.3 ~~Loss of FF-PFA status~~Revocation**	The panel discussed whether to change "revoked" to "lost". Several ISPMs use "loss of status" but the panel was concerned that this would not adequately reflect the official measure taken. The panel agreed that "revoke" is the appropriate term to use to clarify that the PFA status is revoked by the NPPO. This also enhances consistency with Section 2.4.1. that uses "revoke".
[173]	If the control measures are not effective and the pest becomes established in the whole area (the area recognized as pest free), the status of the FF-PFA should be ~~lost~~revoked. In order to achieve again the FF-PFA, the procedures of establishment and maintenance outlined in this standard should be followed.	
[174]	This annex is a prescriptive part of the standard.	
[175]	**ANNEX 1: ~~Guidelines on C~~corrective action plans**	Titled changed to conform with the SC decision not to use "guidelines" in titles of standards and for consistency with analogous title in section 8 of Annex 1 to ISPM 35 (ex-ISPM 30).

[1] The period starts from the last detection. For some species, no further detection should occur for at least three life cycles; however, the required period should be based on scientific information, including that provided by the surveillance systems in place.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[176]	The detection of a single fruit fly (adult or immature stage) of the target species in the FF-PFA should trigger the enforcement of a corrective action plan.	Editorial corrections.
[177]	In case of an outbreak, the objective of the corrective action plan is to ensure eradication of the pest to enable reinstatement of ~~pest status in~~ the affected area into the FF-PFA.	Editorial correction.
[178]	The corrective action plan should be prepared taking into account the biology of the target fruit fly species, the geography of the FF-PFA ~~area~~, climatic conditions and host distribution within the area.	Editorial correction (the "A" of PFA is already "area").
[179]	The elements required for implementation of a corrective action plan include:	
[180]	- a legal framework under which the corrective action plan can be applied	Editorial correction.
[181]	- criteria for the declaration of an outbreak	
[182]	- time scales for the initial response	
[183]	- technical criteria for delimiting trapping, fruit sampling, application of the eradication actions and establishment of regulatory measures	
[184]	- the availability of sufficient operational resources	Editorial correction.
[185]	- identification capability	
[186]	- effective communication within the NPPO and with the NPPO(s) of the importing country(ies), including provision of contact details of all parties involved.	
[187]	**1. Actions to apply the corrective action plan**	Editorial correction – annex headings are numbered in the same style as core ISPM headings.
[188]	(1) *Determination of the pest status of the detection (actionable or non-*	Each line in italics should be a level 2 heading.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	actionable)	
[189]	(1.1) If the detection is a transient non-actionable occurrence (ISPM 8), no further action is required.	
[190]	(1.2) If the detection of a target pest may be actionable, a delimiting survey, which includes additional traps, and usually fruit sampling as well as an increased trap inspection rate, should be implemented immediately after the detection to assess whether the detection represents an outbreak, which will determine necessary responsive actions. If a population is present, this action is also used to determine the size of the affected area.	
[191]	(2) *Suspension of FF-PFA status*	
[192]	If after detection it is determined that an outbreak has occurred or any of the triggers specified in section 2.4.1 of this standard is reached, the FF-PFA status in the affected area should be suspended. The affected area may be limited to parts of the FF-PFA or may be the whole FF-PFA.	Editorial correction.
[193]	(3) *Implementation of control measures in the affected area*	
[194]	As per ISPM 9, specific corrective or eradication actions should be implemented immediately in the affected area~~(s)~~ and adequately communicated to the community. Eradication actions may include:	Editorial correction (similar wording in [192]).
[195]	- selective insecticide ~~-~~bait treatments	Editorial correction.
[196]	- sterile fly release	
[197]	- total harvest of fruit in the trees	
[198]	- male annihilation technique	
[199]	- destruction of infested fruit	
[200]	- soil treatment (chemical or physical)	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[201]	- insecticide application.	
[202]	Phytosanitary measures should be immediately enforced for control of movement of regulated articles that can host fruit flies. These measures may include the cancellation of shipments of fruit commodities from the affected area and, as appropriate, fruit disinfestation and the operation of road blocks to prevent the movement of infested fruit from the affected area to the rest of the pest free area. Other measures could be adopted if agreed by the importing country, for example, treatment, increased surveys~~,~~ or supplementary trapping.	Editorial corrections.
[203]	(4) *Criteria for reinstatement of an FF-PFA after an outbreak and actions to be taken*	Editorial correction.
[204]	The criteria for determining that eradication has been successful are specified in section 2.4.2 of this standard and should be included in the corrective action plan for the target fruit fly. The time period will depend on the biology of the species and the prevailing environmental conditions. Once the criteria have been fulfilled the following actions should be taken:	Editorial correction.
[205]	- notification of NPPOs of importing countries	
[206]	- reinstatement of normal surveillance levels	
[207]	- reinstatement of the FF-PFA.	
[208]	(5) *Notification of relevant agencies*	
[209]	Relevant NPPOs and other agencies should be kept informed of any change in FF-PFA status, as appropriate, and IPPC pest reporting obligations observed (ISPM 17).	Editorial correction.
[210]	This appendix is for reference purposes only and is not a prescriptive part of the standard.	
[211]	**APPENDIX 2: ~~Guidelines for F~~fruit sampling**	Title simplified in accordance with the SC recommendation on not using the term "guidelines" and to harmonize with the title of

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
		Appendix 1.
[212]	Information about fruit sampling *(Fruit sampling for fruit flies)* is available in the following publication of the Food and Agriculture Organization of the United Nations (FAO) and the International Atomic Energy Agency (IAEA) (in English only): ~~references listed below. The list is not exhaustive.~~ http://www-naweb.iaea.org/nafa/ipc/public/FruitSampling.pdf~~Xxx~~ IPPC Diagnostic protocols adopted as annexes to ISPM 27 *(Diagnostic protocols for regulated pests)* may be useful tools to diagnose the larvae of fruit fly specimens.	The panel agreed to delete the references contained in Appendix 2 and instead refer to an FAO/IAEA publication on fruit sampling because the panel agreed that this would provide ample technical guidance and because it is updated frequently and would therefore remain relevant. Additionally, the references listed in Appendix 2 are also included in the FAO/IAEA publication. [This publication is not available yet, but will be soon online] The panel felt it would be important to link this appendix to the IPPC diagnostic protocols to ensure users of the fruit sampling guidelines would be prompted to use the internationally harmonized diagnostic protocols. Further editorial corrections made.
[213]	~~**Enkerlin, W.R., Lopez, L. & Celedonio, H**. 1996. Increased accuracy in discrimination between captured wild unmarked and released dyed-marked adults in fruit fly (Diptera: Tephritidae) sterile release programs. *Journal of Economic Entomology*, 89(4): 946–949.~~	
[214]	~~**Enkerlin W. & Reyes, J.** 1984. *Evaluacion de un sistema de muestreo de frutos para la deteccion de Ceratitis capitata (Wiedemann)*. 11 Congreso Nacional de Manejo Integrado de Plagas. Asociacion Guatemalteca de Manejo Integrado de Plagas (AGMIP). Ciudad Guatemala, Guatemala, Centro America.~~	
[215]	~~**Programa Moscamed**. 1990. *Manual de Operaciones de Campo*. Talleres Graficos de la Nacion. Gobierno de Mexico. SAGAR//DGSV.~~	
[216]	~~**Programa regional Moscamed**. 2003. *Manual del sistema de detección por muestreo de la mosca del mediterráneo*. 26 pp.~~	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[217]	~~**Shukla, R.P. & Prasad, U.G.** 1985. Population fluctuations of the Oriental fruit fly, *Dacus dorsalis* (Hendel) in relation to hosts and abiotic factors. *Tropical Pest Management*, 31(4): 273–275.~~	
[218]	~~**Tan, K.H. & Serit, M.** 1994. Adult population dynamics of *Bactrocera dorsalis* (Diptera: Tephritidae) in relation to host phenology and weather in two villages of Penang Island, Malaysia. *Environmental Entomology*, 23(2): 267–275.~~	
[219]	~~**Wong, T.Y., Nishimoto, J.I. & Mochizuki, N.** 1983. Infestation patterns of Mediterranean fruit fly and the Oriental fruit fly (Diptera: Tephritidae) in the Kula area of Mavi, Hawaii. *Environmental Entomology*, 12(4): 1031–1039. IV Chemical control.~~	

CONSISTENCY CORRECTIONS IN RELATION TO HARMONIZATION OF FRUIT FLY STANDARDS

(Developed by the TPFF, October 2015; approved by SC May 2016 pending CPM-12 decision on reorganization)

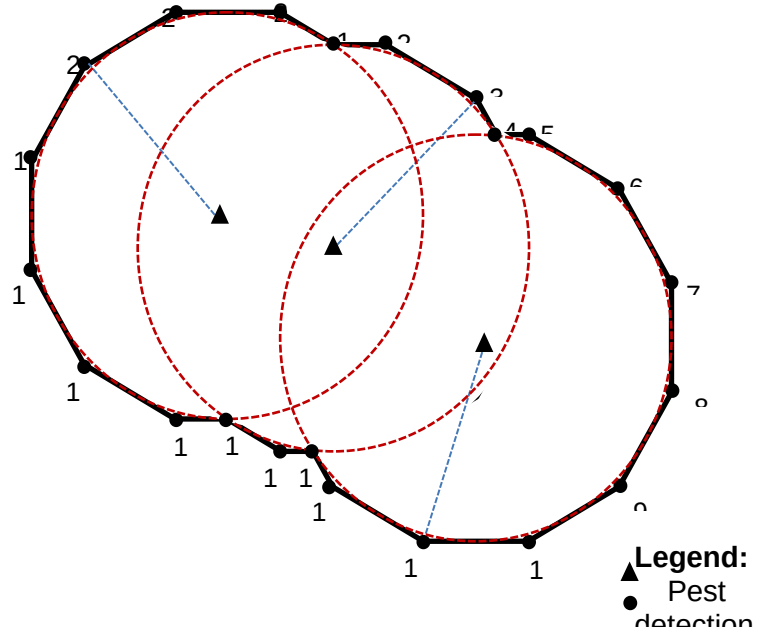
ANNEX 2 (CONTROL MEASURES FOR AN OUTBREAK WITHIN A FRUIT FLY-PEST FREE AREA (2014)) OF ISPM 26

Instructions: Changes to the text are shown in "track change" mode. If paragraphs are to be moved, this is indicated by "Move [para] to before / after [para]".

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[1]	~~This annex was adopted by the Ninth Session of the Commission on Phytosanitary Measures in April 2014.~~ This annex is a prescriptive part of the standard.	The ~~sa~~doption statement appears at the start of the core ISPM.
[2]	**ANNEX 2: Control measures for an outbreak within a fruit fly-pest free area (2014)**	
[3]	~~**BACKGROUND**~~	Deleted to have the same structure as other annexes.
[4]	A fruit fly (Tephritidae) outbreak detected in an~~ fruit fly-pest free area~~ ~~(~~FF-PFA~~)~~ may pose a risk for those importing countries where the fruit fly species is considered a quarantine pest. This annex describes control measures to be taken in a fruit fly eradication area established within an FF-PFA in the event of an outbreak.	Editorial correction (FF-PFA was defined in the core standard and IPPC Style Guide now advises not to redefine in component documents).
[5]	Corrective actions and other phytosanitary measures that may be used in an eradication area within an FF-PFA are covered by this standard.	
[6]	The eradication area and the related control measures are established with the intent to eradicate the target fruit fly species and restore FF-PFA status, to protect the surrounding FF-PFA, and to meet the phytosanitary import requirements of the importing country, where applicable. In particular,	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	control measures are needed because movements of regulated articles from and through an eradication area pose a potential risk of spreading the target fruit fly species.	
[7]	**1. Establishment of an Eradication Area**	
[8]	The ~~national plant protection organization (~~NPPO~~)~~ of the exporting country should declare an outbreak in accordance with this and other relevant ~~international standards for phytosanitary measures~~ISPMs (e.g. ISPM 8, ISPM 9, ~~and~~ ISPM 17).~~.~~ When a target fruit fly species outbreak is detected within an FF-PFA, an eradication area should be established based on a technical evaluation. The pest free status of the eradication area should be suspended. If control measures cannot be applied to establish an eradication area, then the status of the FF-PFA should be revoked in accordance with this standard.	The panel agreed that citing these ISPMs would be helpful and would increase consistency with Annex 1 of ISPM 26. Editorial corrections.
[9]	The eradication area should cover the infested area. In addition, a buffer zone should be established in accordance with this standard, and as determined by delimiting surveys, taking into account the natural dispersal capability of the target fruit fly species, its relevant biological characteristics, and ~~other~~ geographical and environmental factors.	Editorial corrections (dispersal capability and biological characteristics are not geographic and environmental factors so it is incorrect to say "other"; spelling).
[10]	A circle delimiting the minimum size of the eradication area should be drawn, centred on the actual target fruit fly species detection and with a radius large enough to comply with the above considerations, as determined by the NPPO of the exporting country. In the case of several pest detections, several (possibly overlapping) circles should be drawn accordingly, as illustrated in Figure 1.	
[11]	If necessary for the practical implementation of the eradication area, the NPPO of the exporting country may decide to adjust the eradication area to	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	correspond to administrative boundaries or topography, or to approximate the circle with a polygon.	
[12]	A georeferencing device (e.g. ~~global positioning system (~~GPS~~)~~) or map with geographical coordinates may be used for delimiting and enabling recognition of the eradication area. Signposts may be placed along boundaries and on roads to alert the public, and notices may be published to facilitate public awareness.	Editorial correction (was defined in the core standard).
[13]	The NPPO of the exporting country should inform the NPPO of the importing country when a fruit fly outbreak is confirmed and an eradication area is established within an FF-PFA.	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[14]		
[15]		
[16]	**Figure 1.** Example of delimiting circles and approximating polygons to determine the eradication area around three pest detections.	Editorial correction.
[17]	**2. Control Measures**	
[18]	Each stage of the production chain (e.g. growing, sorting, packing, transporting, dispatching) may lead to spread of the target fruit fly species from the eradication area into the FF-PFA. This statement does not apply to any facilities located in the FF-PFA and handling only host fruit from the FF-PFA. Appropriate control measures should be applied to manage the pest	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	risk for the surrounding FF-PFA and the importing country.	
[19]	Control measures in use in other fruit fly-infested areas may be implemented in the eradication area.	
[20]	Control measures may be audited by the NPPO of the importing country, in accordance with the NPPO of the exporting country's requirements.	
[21]	Control measures applied at each stage of the production chain are described in the following sections.	
[22]	**2.1 Production**	
[23]	During the production period, within the eradication area, the NPPO of the exporting country may require control measures to avoid infestation, such as mechanical and cultural controls, insecticide bait application technique, bait stations, male annihilation technique, mass trapping ~~fruit bagging, fruit stripping (i.e. removal of unwanted fruits from trees), protein bait sprays~~, sterile insect technique and~~,~~ ~~parasitoid releases~~biological control~~, field sanitation, male annihilation technique, bait stations or netting~~ (~~more~~ details on these control measures are provided in Annex 3 of this standard).	The panel rearranged and modified terminology of the examples to align them with Annex 3 of ISPM 26. Reference to Annex 3 was added. Further editorial corrections made.
[24]	**2.2 Movement of regulated articles**	
[25]	Movement of regulated articles (e.g. soil, host plants, host fruit) into, from, through or within the eradication area should comply with control measures to prevent the spread of the target fruit fly species and should be accompanied by the necessary documentation to indicate the articles' origin and destination. This also pertains to moving regulated articles for phytosanitary certification.	
[26]	**2.3 Packing and packing facilities**	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[27]	Fruit packing facilities may be located within or outside the eradication area and may pack host fruit grown in or outside the eradication area. Control measures preventing spread of the target fruit fly species should be taken into account in each case.	
[28]	The NPPO of the exporting country should:	
[29]	- register the facility	
[30]	- require control measures to prevent the target fruit fly species from entering or escaping the facility, as appropriate	
[31]	- require and approve methods of physical separation of different host fruit lots (e.g. by using insect-proof packaging) to avoid cross-contamination	
[32]	- require appropriate measures to maintain segregation of host fruits originating from areas of different pest status (e.g. separate locations for reception, processing, storage and dispatch)	
[33]	- require appropriate measures regarding the handling and movement of host fruit through the facility to prevent mixing of fruit from areas of different pest status (e.g. flowcharts, signs and staff training)	
[34]	- require and approve methods of disposal of rejected host fruit from the eradication area	
[35]	- monitor the target fruit fly species at the facility and, if relevant, in the adjacent FF-PFA	
[36]	- verify the packing material is insect-proof and clean	Editorial correction.
[37]	- require appropriate control measures to eradicate target fruit fly species from the facility when they are detected	
[38]	- audit the facility.	
[39]	**2.4 Storage and storage facilities**	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[40]	Fruit storage facilities may be located within or outside the eradication area. Such facilities should be registered with the NPPO of the exporting country and comply with the control measures to prevent the spread of the target fruit fly species; for example, they should:	
[41]	- maintain distinction and separation between host fruit originating from the eradication area and from the FF-PFA	
[42]	- use an approved method of disposal of host fruit from the eradication area that has been rejected as a result of inspection or quality control activities	
[43]	- monitor for the target fruit fly species at the facility and if relevant, in the adjacent FF-PFA	
[44]	- take appropriate control measures to eradicate the target fruit fly species from the facility when detected.	
[45]	**2.5 Processing and processing facilities**	
[46]	If the processing facility is located within the eradication area, host fruit destined for processing (such as juicing, canning and puréeing) does not pose an additional fruit fly risk to the area.	Editorial correction.
[47]	If the facility is located outside the eradication area, the NPPO of the exporting country should require measures within the facility to prevent the escape of the target fruit fly species, through insect-proof reception, storage and processing areas.	
[48]	Monitoring for the target fruit fly species may be conducted at the facility and, if relevant, in the adjacent FF-PFA. Appropriate control measures should be taken to eradicate target fruit fly species from the facility when they are detected.	
[49]	Approved disposal of rejected host fruit and plant waste from the eradication	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	area should be required by the NPPO of the exporting country. Rejected host fruit should be disposed of in such a way that the target fruit fly species are rendered non-viable.	
[50]	**2.6 Treatment and treatment facilities**	
[51]	Treatment facilities should be registered by the NPPO of the exporting country.	
[52]	Post-harvest treatment (e.g. cold treatment, heat treatment, fumigation, irradiation), or in some cases pre-harvest treatment (e.g. bait spray, fruit bagging), may be required for host fruit moving into an FF-PFA or being exported to countries where the target fruit fly species is regulated as a quarantine pest.	Editorial correction.
[53]	Control measures preventing the escape of the target fruit fly species may be required for treatment facilities located within the FF-PFA, if treating regulated articles from the eradication area. The NPPO of the exporting country may require physical isolation within the facility.	
[54]	The NPPO of the exporting country should approve the method of disposal of rejected host fruit from the eradication area to reduce the risk of spread of the target fruit fly species. Disposal methods may include ~~double bagging followed by~~ deep burial or incineration.	Double bagging should not be considered a prerequisite for deep burial and the panel therefore agreed to delete. It may be an option but it is not widely used. The panel acknowledged that this was outside of the scope of this meeting but agreed that the change was essential. Additionally, the change was consistent with wording in Annex 3 of ISPM 26 [46] where bagging is not mentioned in connection with deep burial.
[55]	**2.7 Sale inside the eradication area**	
[56]	Host fruit sold within the eradication area may be at risk of infestation if exposed before being sold (e.g. placed on display in an open air market)	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	and may therefore need to be physically protected, when feasible, to avoid spread of the target fruit fly species while on display and being stored.	
[57]	**3. Documentation and Record -Keeping**	Editorial correction (remove hyphen).
[58]	The control measures, including corrective actions, used in the eradication area should be adequately documented, reviewed and updated (see also ISPM 4). Such documents should be made available to the NPPO of the importing country on request.	
[59]	**4. Termination of Control Measures in the Eradication Area**	
[60]	Eradication of the target fruit fly species in the eradication area should meet the requirements for reinstatement of an FF-PFA status after an outbreak, according to this standard. The declaration of eradication should be based on no further detections of the target fruit fly species for a period determined by its biology and prevailing environmental conditions, as confirmed by surveillance referred to in this standard.[1]	
[61]	The control measures should remain in force until eradication is declared. If eradication is successful, the particular control measures in the eradication area may be terminated and the FF-PFA status should be reinstated. If eradication is unsuccessful, the FF-PFA delimitation should be modified accordingly. The NPPO of the importing country should be notified as appropriate.	

[1] The period starts from the last detection. For some species, no further detection should occur for at least three life cycles; however, the required period should be based on scientific information, including that provided by the surveillance systems in place.

CONSISTENCY CORRECTIONS IN RELATION TO HARMONIZATION OF FRUIT FLY STANDARDS

(Developed by the TPFF, October 2015; approved by SC May 2016 pending CPM-12 decision on reorganization)

ANNEX 3 (PHYTOSANITARY PROCEDURES FOR FRUIT FLY ~~(TEPHRITIDAE)~~ MANAGEMENT) (2015) OF ISPM 26

Instructions: Changes to the text are shown in "track change" mode. If paragraphs are to be moved, this is indicate by "Move [para] to before / after [para]".

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[1]	~~This annex was adopted by the Tenth Session of the Commission on Phytosanitary Measures in March 2015.~~ This annex is a prescriptive part of the standard.	The adoption statement appears at the start of the core ISPM.
[2]	**ANNEX 3: Phytosanitary procedures for fruit fly ~~(Tephritidae)~~ management (2015)**	The panel agreed to include "Tephritidae" only in the titles of the core ISPMs.
[3]	This annex provides guidance~~elines~~ for the application of phytosanitary procedures for fruit fly management.	Editorial change for consistency.
[4]	Various phytosanitary procedures are used for fruit fly suppression, containment, eradication and exclusion. These procedures may be applied to establish and maintain ~~fruit fly pest free areas (~~FF-PFAs~~)~~ (this standard)~~, as well as~~ and ~~–~~to develop a systems approach~~es~~ for fruit flies, which may include the establishment and maintenance of fruit fly areas of low pest prevalence ~~for fruit flies~~ (FF-ALPPs) (ISPM 35 (*Systems approach for pest risk management of fruit flies (Tephritidae)*).~~and (ISPM 30 .(Establishment of areas of low pest prevalence for fruit flies (Tephritidae))),~~	Text modified to align with the proposed reorganization of ISPM 30 to Annex 1 of ISPM 35 and to clarify that FF-ALPPs may be an option under a systems approach to ensure consistency with the reorganization of the standards. Editorial corrections (FF-PFA was defined in the core standard and IPPC Style Guide now advises not to redefine in component documents).
[5]	The phytosanitary procedures include mechanical and cultural controls, insecticide bait application technique (BAT), bait stations, male annihilation technique (MAT), mass trapping, sterile insect technique (SIT), biological control, and controls on the movement of regulated articles. Many of these procedures can be environmentally friendly alternatives to insecticide application for managing fruit flies.	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[6]	**1. Objectives of Fruit Fly Management Strategies**	
[7]	The four strategies used to manage target fruit fly populations are suppression, containment, eradication and exclusion. One or more of these strategies can be used depending on the circumstances and objectives. The corresponding phytosanitary procedures used for fruit fly management should take into account the phytosanitary import requirements of the importing country, fruit fly status in the target area, hosts, host phenology and host susceptibility, pest biology, and economic and technical feasibility of the available phytosanitary procedures, as relevant.	
[8]	**1.1 Suppression**	
[9]	Suppression strategies may be applied for purposes such as to:	
[10]	- reduce a target fruit fly population to below an acceptable level	
[11]	- establish an FF-ALPP (ISPM 22 (*Requirements for the establishment of areas of low pest prevalence*); ISPM ~~30~~35)	
[12]	- implement a corrective action in an FF-ALPP when the specified level of low pest prevalence has been exceeded (ISPM 22; ISPM 35~~0~~)	
[13]	- reduce a target fruit fly population in order to achieve a specified pest population level that can be used as part of a systems approach (ISPM 14 (*The use of integrated measures in a systems approach for pest risk management*); ISPM 35)	
[14]	- precede, as part of a process, target fruit fly population eradication in order to establish an FF-PFA~~.~~ (ISPM 4).	Editorial correction (remove full stop).
[15]	**1.2 Containment**	
[16]	Containment strategies may be applied for purposes such as to:	
[17]	- prevent the spread of a target fruit fly from an infested area to an adjacent FF-PFA	
[18]	- contain an incursion of a target fruit fly into non-infested areas	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[19]	- protect, as a temporary measure, individual areas where target fruit flies have been eradicated as part of an ongoing eradication programme in a larger area.	
[20]	**1.3 Eradication**	
[21]	Eradication strategies may be applied for purposes such as to:	
[22]	- eliminate a fruit fly population in order to establish an FF-PFA (ISPM 4)	
[23]	- eliminate an incursion of a ~~quarantine~~ fruit fly species that is a quarantine pest before establishment can occur (this may be part of a corrective action plan in an FF-PFA if the target fruit fly species is detected).	Editorial correction (for clarity).
[24]	**1.4 Exclusion**	
[25]	Exclusion strategies may be applied to prevent the introduction of a fruit fly into an FF-PFA.	
[26]	**2. Requirements for the Application of the Phytosanitary Procedures**	
[27]	The following requirements should be considered when applying phytosanitary procedures for fruit fly management:	
[28]	**2.1 Fruit fly identification capabilities**	
[29]	Accurate identification of the target fruit fly species should be ensured so that the appropriate strategies and phytosanitary procedures can be selected and applied. ~~National plant protection organizations (~~NPPOs~~)~~ should have access to trained personnel to identify detected specimens of adult and, where possible, immature stages of the target fruit fly species in an expeditious manner (ISPM 6 (*Guidelines for surveillance*)).	Editorial correction.
[30]	**2.2 Knowledge of fruit fly biology**	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[31]	The biology of the target fruit fly species should be known in order to determine the appropriate strategy to address its management and select the phytosanitary procedures that will be applied. Basic information on the target fruit fly species may include life cycle, hosts, host sequence, host distribution and abundance, dispersal capacity, geographical distribution and population dynamics. The climatic conditions may also affect the strategy adopted.	
[32]	**2.3 Area delimitation**	
[33]	The area in which the phytosanitary procedures will be applied should be delimited. Geographical characteristics and host distribution within this area should be known.	
[34]	**2.4 Stakeholder participation**	
[35]	Successful implementation of fruit fly phytosanitary procedures requires active and coordinated participation of interested and affected groups, including government, local communities and industry.	
[36]	**2.5 Public awareness**	
[37]	An ongoing public awareness programme should be put in place to inform interested and affected groups about the pest risk and phytosanitary procedures that will be implemented as part of the fruit fly management strategy. Such a programme is most important in areas where the risk of introduction of the target fruit fly species is high. For the success of the management programme it is important to have the support and participation of the public (especially the local community) within the management programme area and of individuals who travel to or through the area.	Editorial correction (for clarity, so as not to be confused with public awareness programme).
[38]	**2.6 Operational plans**	
[39]	An official operational plan that specifies the required phytosanitary procedures should be developed. This operational plan may include specific requirements for the application of phytosanitary procedures and describe the roles and	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	responsibilities of the interested and affected groups (ISPM 4; ISPM 22).	
[40]	**3. Phytosanitary Procedures Used in Fruit Fly Management Strategies**	
[41]	Fruit fly management strategies may involve the use of more than one phytosanitary procedure.	
[42]	Phytosanitary procedures may be applied in an area, at a place of production or at a production site; during the pre- or post-harvest period; at the packing house; or during shipment or distribution of the commodity. Pest free areas, pest free places of production and pest free production sites may require the establishment and maintenance of an appropriate buffer zone. Appropriate phytosanitary procedures may be applied in the buffer zone if necessary (this standard and ISPM 10 (*Requirements for the establishment of pest free places of production and pest free production sites*)).	Editorial correction (not necessary but aids clarity).
[43]	**3.1 Mechanical and cultural controls**	
[44]	Mechanical and cultural control procedures may be applied in order to reduce the level of fruit fly populations. These controls include phytosanitary procedures such as orchard and field sanitation, fruit stripping, pruning, host plant removal or netting, fruit bagging, host-free periods, use of resistant varieties, trap cropping, ploughing and ground swamping.	
[45]	The effectiveness of field sanitation increases when the collection and disposal of fallen fruit are focused on the preferred hosts and are done continuously on an area-wide basis. For good results, collection and disposal should be done before, during and after harvest.	
[46]	Fruit that remains on the host plants after harvest, fruit rejected because of poor quality during harvest and packing, and fruit on host plants present in the surrounding area should be collected and safely disposed of (e.g. by deep burial).	

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[47]	Elimination or maintaining a low level of vegetation at the place of production will facilitate collection of fallen fruit. In addition, when vegetation is kept low fallen fruit with larvae may be more exposed to direct sunlight and natural enemies, which will contribute to fruit fly larvae mortality.	
[48]	Bagging of fruit and use of exclusion netting can prevent fruit fly infestation of the fruit. Where used, bagging or exclusion netting should be carried out before the fruit becomes susceptible to fruit fly infestation.	
[49]	The pupae of many fruit flies can be targeted by disturbing the soil medium in which they pupate. This can be done by ground swamping (causing pupae anoxia) or ploughing (causing physical damage, desiccation to the pupae and exposing them to natural enemies).	
[50]	**3.2 Insecticide bait application technique**	
[51]	BAT uses an appropriate insecticide mixed together with a food bait. Commonly used food baits include attractants such as hydrolysed protein, high-fructose syrup and molasses, used alone or in combination. This technique is an effective control of adult fruit fly populations and reduces the negative impacts on non-target insects and the environment.	
[52]	Insecticide bait applications should start in time to target maturing adults and to prevent the infestation of fruit. For fruit protection this may be up to three months before the beginning of the harvesting season for fruit intended for export or on detection of the first adult flies or larvae in the field or urban area. Maturing adults should be targeted as this is when protein demands are at their highest. The number of and intervals between applications will depend on the characteristics of the target fruit fly species (biology, abundance, behaviour, distribution, life cycle, etc.), host phenology and weather conditions.	
[53]	Insecticide baits can be applied from the ground or from the air.	

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[54]	**3.2.1 Ground application**	
[55]	Ground application of insecticide bait is usually used for relatively small production areas, such as individual orchards, or in urban areas.	
[56]	The insecticide bait should generally be applied on or inside the middle ~~-~~to ~~-~~top part of the canopy of host and shelter plants, but specific application should relate to the height of the host plant. For low-growing host plants (e.g. cucurbits, tomatoes, peppers), the insecticide bait should be applied on taller plants surrounding the cultivated area that serve as shelter and a source of food. In FF-PFAs, as part of an emergency action plan to eliminate an outbreak, the insecticide bait can also be applied to non-host plants or other appropriate surfaces around the detection site.	Editorial correction.
[57]	**3.2.2 Aerial application**	
[58]	Aerial application of insecticide bait may be used on large production areas and in areas where hosts are scattered in patches over large areas of land. Aerial spraying may be more cost-effective than ground spraying for large-scale programmes, and a more uniform coverage of bait in the target area may be achieved. In some countries, however, aerial spraying may be subject ~~-~~to restrictions due to environmental considerations.	Formatting correction (removal of a non-breaking space).
[59]	Once the treatment area is selected, it may be defined using a georeferencing device and recorded in digitized maps using ~~geographical information systems (~~GIS~~)~~ software in order to ensure the efficient application of bait sprays and reduce the environmental impact.	Editorial correction (GIS was defined in the core standard).
[60]	To treat the target area, insecticide bait ~~applications~~ may not need to be applied as full coverage but only in some swathes, such as every second or third swathe. The altitude and speed of aerial application should be adjusted to conditions such as bait viscosity and nozzle specifications, wind velocity, temperature, cloud cover and topography of the terrain.	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[61]	**3.3 Bait stations**	
[62]	Lure and kill devices known as "bait stations" may be a more environmentally_-friendly control procedure for fruit fly suppression than BAT. Bait stations consist of an attractant and a killing agent that may be contained in a device or directly applied to an appropriate surface. Unlike traps, bait stations do not retain the attracted fruit flies.	Editorial correction.
[63]	Bait stations are suitable for use in, for example, commercial fruit production operations, area-wide fruit fly management programmes, public areas and, in many cases, organic groves. Bait stations may be used in ~~fruit fly pest free areas~~FF-PFAs for population suppression of localized and well-isolated outbreaks. In infested areas known to be fruit fly reservoirs and sources of incursions into FF-ALPPs and FF-PFAs, bait stations should be deployed at high densities.	Editorial correction.
[64]	It is recommended that the attractant used in the bait station be female-biased, thereby directly reducing the overall fruit infestation.	
[65]	**3.4 Male annihilation technique**	
[66]	MAT involves the use of a high density of bait stations consisting of a male lure combined with an insecticide to reduce the male population of target fruit flies to such a low level that mating is unlikely to occur (FAO, 2007).	
[67]	MAT may be used for the control of those fruit fly species of the genera *Bactrocera* and *Dacus* that are attracted to male lures (cuelure or methyl eugenol). Methyl eugenol is more effective than cuelure for male annihilation of species attracted to these lures.	
[68]	**3.5 Mass trapping**	
[69]	Mass trapping uses trapping systems at a high density to suppress fruit fly populations. In general, mass trapping procedures are the same as for trappings~~s~~ used for survey purposes (Appendix 1 of this standard). Traps should be deployed at the	Text added so that the reference to Appendix 1 was clear. Editorial correction (for clarity and because "trapping

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	place of production early in the season when the first adult flies move into the field and populations are still at low levels and should be serviced appropriately.	procedures" were compared with traps, which was incorrect).
[70]	Trap density should be based on such factors as fruit fly density, physiological stage of the fruit fly, efficacy of the attractant and killing agent, phenology of the host and host density. The timing, layout and deployment of traps should be based on the target fruit fly species and host ecological data.	The panel noted that text on the distance from the leading edge of the infestation and risk assessment for FF-PFAs and FF-ALPPs should be added because they are important factors affecting trap densities, and that this should be considered when the standard is revised.
[71]	**3.6 Sterile insect technique**	
[72]	~~Sterile insect technique (~~SIT~~)~~ is a species-specific environmentally ~~-~~friendly technique that can provide effective control of target fruit fly populations (FAO, 2007).	Editorial correction (SIT was defined earlier in this annex).
[73]	SIT is effective only at low population levels of the target species and may be used for:	
[74]	- suppression, where SIT may be a stand-alone phytosanitary procedure or combined with other phytosanitary procedures to achieve and maintain low population levels	
[75]	- containment, where SIT may be particularly effective in areas that are largely pest free (such as buffer zones) but that are subjected to regular pest entries from adjacent infested areas~~.~~	The panel noted that it would be appropriate to add text on the use of SIT as a preventative release to contain introductions or incursions of the pest into FF-PFAs, used in USA and in Mexico. This should be considered when the standard is revised. Editorial correction (remove the full point here if keeping the additional list points).
[76]	- eradication, where SIT may be applied when population levels are low to eradicate the remaining population	
[77]	- exclusion, where SIT may be applied in endangered areas that are subject to high pest pressure from neighbouring areas.	The panel noted that it would be appropriate to add text on the use of SIT as a preventative release to contain introductions or incursions of the pest into FF-PFAs, used in USA and in

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		Mexico. This should be considered when the standard is revised.
[78]	**3.6.1 Sterile fruit fly release**	
[79]	Sterile fruit flies may be released from the ground or from the air. Release intervals should be adjusted according to the longevity of the insect. Sterile fruit flies are generally released once or twice per week but the frequency of release may be influenced by circumstances such as pupae supply, staggered adult fly emergence and unfavourable weather. To establish sterile fruit fly release density, the quality of the sterile fruit flies, the level of the wild population and the desired sterile~~-~~: wild fruit fly ratio should be considered.	
[80]	After release of the sterile fruit flies, trapping and identification of the sterile and wild flies should be performed in order to evaluate the effectiveness of the release procedure and also to prevent unnecessary corrective actions. Released sterile flies should be recaptured in the same traps that are used for detection of the wild population as this provides feedback on whether the desired sterile fruit fly density and sterile : wild fly ratio were attained (FAO, 2007).	
[81]	Ground release may be used when aerial release is neither cost-effective nor efficient (i.e. discontinuous distribution or relatively small area), or where additional releases are required to provide a higher density of fruit flies for a particular reason (e.g. in areas where a specified level of low pest prevalence is exceeded).	Editorial correction.
[82]	Aerial release is more cost-effective than ground release for large-scale programmes and it provides a more uniform sterile fruit fly distribution than ground release, which may clump sterile fruit flies in localized sites or along release routes. Once the release area is selected, it may be defined using a georeferencing device and recorded in digitized maps using GIS software: this will help ensure the efficient distribution of sterile flies. The most common methods for aerial release are chilled adult and paper bag systems (FAO, 2007).	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[83]	To determine the release altitude, several factors should be considered, including wind velocity, temperature, cloud cover, topography of the terrain, vegetation cover, and whether the target area is urban or rural. Release altitudes range from 200 to 600 m above ground level. However, lower release altitudes should be preferred, especially in areas subjected to strong winds (to prevent excessive sterile fruit fly or bag drift) and in areas where predation by birds is high and frequent. Release in the early morning, when winds and temperature are moderate, is preferable.	
[84]	**3.6.2 Sterile fruit fly quality control**	
[85]	Routine and periodic quality control tests should be carried out to determine the effect of mass rearing, irradiation, handling, shipment duration, holding and release~~releasing~~ on the performance of the sterile fruit flies, according to desired quality parameters (FAO/IAEA/USDA, 2014).	Editorial correction.
[86]	**3.7 Biological control**	
[87]	Classic biological control may be used to reduce fruit fly populations. For further suppression, inundative release may be used. During inundative release, large numbers of natural enemies, typically parasitoids, are mass reared and released during critical periods to reduce pest populations. The use of biological control by inundation is limited to those biological control agents for which mass-rearing technology is available. The mass-reared natural enemies should be of high quality so that suppression of the target fruit fly population can be effectively achieved. The release of the biological control agents should be directed towards marginal and difficult to access areas that have high host density and that are known to be fruit fly reservoirs and sources of infestation for commercial fruit production or urban areas.	
[88]	**3.8 Controls on the movement of regulated articles**	
[89]	For FF-PFAs, and under certain circumstances for FF-ALPPs, controls on the movement of regulated articles should be implemented to prevent the entry or	Addition for easy reference.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	spread of target fruit fly species (see details in Annex 1 of this standard).	
[90]	**4. Materials Used in the Phytosanitary Procedures**	
[91]	The materials used in the phytosanitary procedures should perform effectively and reliably at an acceptable level for an appropriate period of time. The devices and equipment should maintain their integrity for the intended duration that they are deployed in the field. The attractants and chemicals should be certified or bio-assayed for an acceptable level of performance.	
[92]	**5. Verification and Documentation**	
[93]	The NPPO should verify the effectiveness of the chosen strategies (suppression, containment, eradication and exclusion) and relevant phytosanitary procedures. The main phytosanitary procedure used for verification is adult and larval surveillance, as described in ISPM 6.	
[94]	NPPOs should ensure that records of information supporting all stages of the suppression, containment, eradication and exclusion strategies are kept for at least ~~two years~~24 months.	For consistency. Months is more accurate than years because, while it seems unlikely, years could be confused as referring to calendar years; for example, records collected in March of one year could be interpreted as needing to be kept only until the end of the following year, which is not 24 months. Alternatively, "two years" could be more accurate as "two years from the date of collection".
[95]	**6. References**	
[96]	**FAO** (Food and Agriculture Organization of the United Nations). 2007. *Guidance for packing, shipping, holding and release of sterile flies in area-wide fruit fly control programmes*~~, ed~~. W. Enkerlin, ed. Joint FAO/IAEA (International Atomic Energy Agency) Programme of Nuclear Techniques in Food and Agriculture. FAO	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	Plant Production and Protection Paper 190. Rome, FAO. 145 + vii pp.	
[97]	**FAO/IAEA/USDA** (Food and Agriculture Organization of the United Nations/International Atomic Energy Agency/United States Department of Agriculture). 2014. *Product quality control for sterile mass-reared and released tephritid fruit flies*. Version 6.0. Vienna, IAEA~~International Atomic Energy Agency~~. 164 pp.	

CONSISTENCY CORRECTIONS IN RELATION TO HARMONIZATION OF FRUIT FLY STANDARDS

(Developed by the TPFF, October 2015; approved by SC May 2016 pending CPM-12 decision on reorganization)

APPENDIX 1 (FRUIT FLY TRAPPING) (2011) OF ISPM 26

Instructions: Changes to the text are shown in "track change" mode. If paragraphs are to be moved, this is indicated by "Move [para] to before / after [para]".
(Note that tables may not show in full)

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[1]	~~This appendix was adopted by the Sixth Session of the Commission on Phytosanitary Measures in March 2011.~~ This appendix is for reference purposes only and is not a prescriptive part of the standard.	The adoption statement appears at the start of the core ISPM.
[2]	**APPENDIX 1: Fruit fly trapping (2011)**	
[3]	This appendix provides detailed information for trapping procedures for fruit fly species (Tephritidae) of economic importance under different pest statuses. Specific traps, in combination with attractants~~,~~ and killing and preserving agents, should be used depending on the technical feasibility, the species of fruit fly and the pest status of the area~~s~~, which can be ~~either~~ an infested area, an area of low pest prevalence (fruit fly area of low pest prevalence (FF-ALPP))~~,~~ or an ~~pest free area (~~FF-PFA~~)~~. It describes the most widely used traps, including materials such as trapping devices and attractants, and trap~~ping~~ densities, as well as procedures including evaluation, data recording and analysis. Additional information about fruit fly trapping is available in the following publication of the Food and Agriculture Organization of the United Nations (FAO) and the~~/~~ International Atomic Energy Agency (IAEA) (in English only): **FAO/IAEA** (Food and Agriculture Organization of the United Nations/International Atomic Energy Agency). 2013. ~~*Trapping manual for area*~~	The panel felt it would be important to link this appendix to the IPPC diagnostic protocols to ensure users of the trapping guidelines would be prompted to use the internationally harmonized diagnostic protocols. Editorial corrections (incorrect to use “either” with more than two options; FF-PFA was defined in the core standard and according to IPPC Style Guide does not need to be redfined in component documents). Reference styled as a bibliographic record according to IPPC Style guide. Hyperlink removed and URL given.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	~~*wide fruit fly programmes*~~*Trapping manual for area-wide fruit fly programmes.* Rome, FAO. ~~(English only).~~ 47 pp. Available at http://www-naweb.iaea.org/nafa/ipc/public/FruitFlyTrapping.pdf~~http://www-naweb.iaea.org/nafa/ipc/public/Trapping-Manual-Final-sept13.pdf~~. ~~IPPC d~~Diagnostic protocols adopted as annexes to ISPM 27 (*Diagnostic protocols for regulated pests*) may be useful tools to diagnose the adult fruit fly specimens ~~(ISPM 27)~~.	Editorial correction.
[4]	**1. Pest S~~s~~tatus and S~~s~~urvey T~~t~~ypes**	Editorial correction.
[5]	There are five pest statuses where surveys may be applied:	
[6]	A. Pest present without control. The pest is present but not subject to any control measures.	
[7]	B. Pest present under suppression. The pest is present and subject to control measures. Includes FF-ALPP.	
[8]	C. Pest present under eradication. The pest is present and subject to control measures. Includes FF-ALPP.	
[9]	D. Pest absent and FF-PFA being maintained. The pest is absent (e.g. eradicated, no pest records, no longer present) and measures to maintain pest absence are being applied.	Editorial correction.
[10]	E. Pest transient. Pest under surveillance and actionable, under eradication.	
[11]	The three types of surveys and corresponding objectives are:	
[12]	- **monitoring surveys**, conducted~~applied~~ to verify the characteristics of the pest population	Editorial correction (surveys cannot be "applied", and "conducted" is the word used in relation to surveys in ISPM 5).
[13]	- **delimiting surveys**, conducted~~applied~~ to establish the boundaries of an area	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	considered to be infested by or free from the pest	
[14]	- **detection surveys**, conductedapplied to determine if the pest is present in an area.	
[15]	Monitoring surveys are necessary to verify the characteristics of the pest population before the initiation or during the application of suppression and eradication measures to verify the population levels and to evaluate the efficacy of the control measures. These surveys are necessary for situations A, B and C. Delimiting surveys are conductedapplied to determine the boundaries of an area considered to be infested by or free from the pest such as boundaries of an established FF-ALPP (situation B) (Annex 1 of ISPM 3530 *(Systems approach for pest risk management of fruit flies (Tephritidae)*) and as part of a corrective action plan when the pest exceeds the established low pest prevalence levels or in an FF-PFA (situation E) as part of a corrective action plan when a detection occurs. Detection surveys are conducted to determine if the pest is present in an area, that is, to demonstrate pest absence (situation D) and to detect a possible entry of the pest into the FF-PFA (pest transient, actionable) (ISPM 8).	Consequential change (ISPM 30 no longer exists). Editorial corrections.
[16]	Additional information on how or when specific types of surveys should be applied can be found in other standards dealing with specific topics such as pest status, eradication, pest free areas or areas of low pest prevalence.	
[17]	**2. Trapping sScenarios**	Editorial correction.
[18]	As the pest status may change over time, the type of survey needed may also change:	
[19]	- Pest present. Starting from an established population with no control (situation A), phytosanitary measures may be applied, and potentially lead toward an FF-ALPP (situation B and C) or an FF-PFA (situation D).	Editorial correction.
[20]	- Pest absent. Starting from an FF-PFA (situation D), either the pest status is either maintained or a detection occurs (situation E), where measures would	Editorial correction (grammatical error).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	~~be applied~~ aimed at restoring the FF-PFA would be applied.	
[21]	**3. Trapping M~~m~~aterials**	Editorial correction.
[22]	The effective use of traps relies on the proper combination of trap, attractant and killing agent to attract, capture, kill and preserve the target fruit fly species for effective identification, counting ~~data collection~~ and data analysis. Traps for fruit fly surveys use the following materials, as appropriate:	Editorial correction.
[23]	- a trapping device	
[24]	- attractants (pheromones, male lures ~~parapheromones~~ and food attractants)	The panel noted that the term "male lures" was used in Annex 3 and that this term was more correct than "parapheromones" and more easily understandable, and it enhanced the consistency with Annex 3. The panel agreed that this should be a global change in the appendix, as the annex has prescriptive character.
[25]	- killing agents in wet and dry traps (with physical or chemical action)	
[26]	- preservation agents (wet or dry traps).	Editorial correction.
[27]	**3.1 Attractants**	
[28]	Some fruit fly species of economic importance and the attractants commonly used to capture them are presented in Table 1. The pr~~P~~resence or absence of a species from this table does not indicate that pest risk analysis has been performed and in no way is presence or absence~~it~~ indicative of the regulatory status of a fruit fly species.	Editorial correction.
[29]	**Table 1.** A number of fruit fly species of economic importance and commonly used attractants	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)		Explanation for change
[30]	~~Scientific name~~Species	**Attractant**	Scientific name changed to "species" as the date of authority is ~~not given and thus~~ the list does not provide the full scientific name. Recent scientific research demonstrates that *Bactrocera invadens, B. papayae* and *B. philippinensis* are merged into *B. dorsalis* and are not separate species. The panel felt that this change was essential, although outside of the scope of this meeting. The panel agreed to add note 4 to other species of the *B. dorsalis* complex because this would clarify which species were included in the complex. The panel included "3C" in *B. dorsalis* because this had been tested for *B. invadens* which had now been merged into *B. dorsalis*. The panel agreed that *B. jarvisi* may be attracted to zingerone and that this had been tested in the field, and added this attractant. The panel felt that these changes were essential, although outside of the scope of this meeting. The paned discussed after the meeting via e-mail taxonomy related with *B. minax/B. citri*. The Panel agreed that *Bactrocera minax* is a synonym of *Bactrocera citri* and agreed that only *B. minax* should be used. The panel felt this change was essential. Editorial corrections (abbreviations not used again within the table do not need to be presented). The table cues may be changed to proceed in the correct order.
	Anastrepha fraterculus (Wiedemann)[4]	Protein attractant (PA)	
	Anastrepha grandis (Macquart)	PA	
	Anastrepha ludens (Loew)	PA, 2C-1[1]	
	Anastrepha obliqua (Macquart)	PA, 2C-1[1]	
	Anastrepha serpentina (Wiedemann)	PA	
	Anastrepha striata (Schiner)	PA	
	Anastrepha suspensa (Loew)	PA, 2C-1[1]	
	Bactrocera carambolae (Drew & Hancock)[4]	Methyl eugenol (ME)	
	Bactrocera caryeae (Kapoor)[4]	ME	
	Bactrocera correcta (Bezzi)	ME	
	Bactrocera dorsalis (Hendel)[4]	ME, 3C[2]	
	~~*Bactrocera invadens* (Drew, Tsuruta, & White)~~	~~ME, 3C[2]~~	
	Bactrocera kandiensis (Drew & Hancock)[4]	ME	
	Bactrocera musae (Tryon)	ME	
	Bactrocera occipitalis (Bezzi)[4]	ME	
	~~*Bactrocera papayae* (Drew & Hancock)~~	~~ME~~	
	~~*Bactrocera philippinensis* (Drew & Hancock)~~	~~ME~~	
	Bactrocera umbrosa (Fabricius)	ME	
	Bactrocera zonata (Saunders)	ME, 3C[2], ammonium acetate (AA)	
	Bactrocera cucurbitae (Coquillett)	Cuelure (CUE), 3C[2], AA	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)		Explanation for change
	Bactrocera neohumeralis (Hardy)	CUE	
	Bactrocera tau (Walker)	CUE	
	Bactrocera tryoni (Froggatt)	CUE	
	Bactrocera ~~citri~~ (Chen) (~~B.~~ minax, Enderlein~~)~~	PA	
	Bactrocera cucumis (French)	PA	
	Bactrocera jarvisi (Tryon)	PA, zingerone	
	Bactrocera latifrons (Hendel)	PA	
	Bactrocera oleae (Gmelin)	PA, ammonium bicarbonate (AC), spiroketal (SK)	
	Bactrocera tsuneonis (Miyake)	PA	
	Ceratitis capitata (Wiedemann)	Trimedlure (TML), Capilure (CE), PA, 3C[2], 2C-2[3]	
	Ceratitis cosyra (Walker)	PA, 3C[2], 2C-2[3]	
	Ceratitis rosa (Karsch)	TML, PA, 3C[2], 2C-2[3]	
	Dacus ciliatus (Loew)	PA, 3C[2], AA	
	Myiopardalis pardalina (Bigot)	PA	
	Rhagoletis cerasi (Linnaeus)	Ammonium salts (AS), AA, AC	
	Rhagoletis cingulata (Loew)	AS, AA, AC	
	Rhagoletis indifferens (Curran)	AA, AC	
	Rhagoletis pomonella (Walsh)	~~b~~Butyl hexanoate ~~(ButH)~~, AS	
	Toxotrypana curvicauda (Gerstaecker)~~—~~	2-~~m~~Methyl-vinylpyrazine ~~(MVP)~~	

[1] Two-component (2C-1) synthetic food attractant (~~of~~ ammonium acetate and putrescine), mainly for female captures.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[31]	[2] Three-component (3C) synthetic food attractant~~, mainly for female captures~~ (ammonium acetate, putrescine, trimethylamine), mainly for female captures.	Editorial corrections to make table note text consistent.
[32]	[3] Two-component (2C-2) synthetic food attractant (~~of~~ ammonium acetate and trimethylamine), mainly for female captures.	
[33]	[4] Taxonomic status of some listed members of the *Bactrocera dorsalis* complex and of *Anastrepha fraterculus* is uncertain.	
[34]		
[35]	**3.1.1 Male-specific attractants**	
[36]	The most widely used attractants are pheromones or male lures ~~parapheromones~~ that are male~~-~~-specific. The male lure ~~parapheromone~~ trimedlure (TML) captures species of the genus *Ceratitis* (including *C. capitata* and *C. rosa*). The male lure ~~parapheromone~~ methyl eugenol (ME) captures a large number of species of the genus *Bactrocera* (including *B. carambolae*, *B. dorsalis*, ~~*B. invadens*~~, *B. musae*, ~~*B. philippinensis*~~ and *B. zonata*). The pheromone spiroketal captures *B. oleae*. The male lure ~~parapheromone~~ cuelure (CUE) captures a large number of other *Bactrocera* species, including *B. cucurbitae* and *B. tryoni*. Male lures ~~Parapheromones~~ are generally highly volatile and can be used with a variety of traps (examples are listed in Table 2a). Controlled-release formulations exist for TML, CUE and ME, providing a longer-lasting attractant for field use. It is important to be aware that some inherent environmental conditions may affect the longevity of pheromone and male lures~~parapheromone attractants~~.	For the changes in this paragraph, see discussions under [23] and [29].
[37]	**3.1.2 Female-biased attractants**	
[38]	Female-specific pheromones~~/parapheromones~~ are not usually commercially available (except, for example, 2-methyl-vinylpyrazine). Therefore, the female-biased attractants (natural, synthetic, liquid or dry) that are commonly used are based on food or host odours (Table 2b). Historically, liquid protein attractants (PAs) have been used to capture a wide range of ~~different~~ fruit fly species. Liquid PAs~~protein attractants~~ capture both females and males. These liquid PAs ~~attractants~~ are generally less sensitive than the male lures~~parapheromones~~. In	Editorial correction ("wide range" and "different" are redundant; once an abbreviation is defined it should be used).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	addition, liquid PAs ~~attractants~~ capture high numbers of non-target insects and require more frequent servicing.	
[39]	Several food-based synthetic attractants have been developed using ammonia and its derivatives. These~~This~~ may reduce the number of non-target insects captured. For example, for capturing *C. capitata* a synthetic food attractant consisting of three components (ammonium acetate, putrescine and trimethylamine) is used. For capturing ~~of~~ *Anastrepha* species the trimethylamine component may be removed. A synthetic attractant lasts approximately four to ten~~4–10~~ weeks, depending on climatic conditions. It captures few non-target insects and significantly fewer male than female fruit flies, making this attractant suited for use in sterile fruit fly release programmes. New synthetic food attractant technologies are available ~~for use~~, including the long-lasting three-component and two-component mixtures contained in the same patch, as well as the three component~~s~~ mixture incorporated in a single cone-shaped plug ~~(Tables 1 and 3)~~.	Editorial corrections (assume "these" refers to plural attractants; IPPC Style Guide advice for numbers; for clarity; reference to tables 1 and 3 is not needed because the paragraph is self-explanatory and there are already references to tables 1 and 3 in paragraphs [28] and [59]).
[40]	~~In addition, b~~Because food-foraging female and male fruit flies respond to synthetic food attractants at the sexually immature adult stage, these attractant types are capable of detecting female fruit flies earlier and at lower population levels than liquid PAs~~protein attractants~~.	Editorial correction (unclear reference: in addition to what?; abbreviation use).
[41]	**Table 2a.** Attractants and traps for male fruit fly surveys	For the changes see Attachment 1.
[42]	**Table 2b.** Attractants and traps for female-biased fruit fly surveys	For the changes see Attachment 1.
[43]	**Table 3.** List of attractants and field longevity	For the changes see Attachment 1.
[44]	**3.2 Killing and preserving agents**	
[45]	Traps retain attracted fruit flies through the use of killing and preserving agents. In some dry traps, killing agents are a sticky material or a toxicant. Some organophosphates may act as a repellent at higher doses. The use of insecticides in traps is subject to the registration and approval of the product in the respective	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	national legislation.	
[46]	In other traps, liquid is the killing agent. When liquid PAsprotein attractants are used, mix borax to three percent3% concentration is mixed in to preserve the captured fruit flies. SomeThere are PAsprotein attractants that are formulated with borax, and thus no additional borax is required. When water is used in hot climates, ten percent10% propylene glycol is added to prevent evaporation of the attractant and to preserve captured flies.	Editorial correction (for sense).
[47]	**3.3 Commonly used fruit fly traps**	
[48]	This section describes commonly used fruit fly traps. The list of traps is not comprehensive; other types of traps may achieve equivalent results and may be used for fruit fly trapping.	
[49]	Based on the killing agent, there are three types of traps commonly used:	
[50]	- **Dry traps.** The fly is caught on a sticky material board or killed by a chemical agent. Some of the most widely used dry traps are Cook and Cunningham (C&C) trap, ChamP (CH) trap, Jackson trap (JT) or /Delta trap, Lynfield trap (LT), open bottom dry trap (OBDT) or Phase IV trap, red sphere (RS) trap, Steiner trap (ST), and yellow panel (YP) trap and /Rebell (RB) traps.	Editorial corrections (abbreviations defined here at first use).
[51]	- **Wet traps.** The fly is captured and drowns in the attractant solution or in water with surfactant. One of the most widely used wet traps is the McPhail (McP) trap. The Harris trap is also a wet trap, with a more limited use.	Editorial corrections.
[52]	- **Dry or wet traps.** These traps can be used either dry or wet. Some of the most widely used are eEasy trap (ET), Multilure trap (MLT) and Tephri (TP) trap.	Editorial corrections (full stop in bold).
[53]	**3.3.1 Cook and Cunningham (C&C) trap**	Editorial corrections (this heading level should be numbered; abbreviation use (already defined, and abbreviations should not

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
		be defined in headings in any case)).
[54]	~~*General d*~~*Description*	Editorial correction as "general" assumes a detailed description to come at a later stage. In the final formatted ISPM, this should be an in-line heading, in italics. The same applies to all "Description" headings of sections 3.3.2 to 3.3.15.
[55]	The C&C trap consists of three removable creamy white panels, spaced approximately 2.5 cm apart. The two outer panels are made of rectangular paperboard measuring 22.8 cm × 14.0 cm. One or both panels are coated with sticky material (Figure 1). The adhesive panel has one or more holes that~~which~~ allow air to circulate ~~through~~. The trap is used with a polymeric panel containing an olfactory attractant (usually TML~~trimedlure~~), which is placed between the two outer panels. The polymeric panels come in two sizes – standard and half ~~panel~~. The standard panel (15.2 cm × 15.2 cm) contains 20 g ~~of~~ TML, while the half size panel (7.6 cm × 15.2 cm) contains 10 g. The entire unit is held together with clips~~,~~ and is suspended in the tree canopy with a wire hanger.	Editorial corrections.
[56]	*Use*	In the final formatted ISPM, this should be an in-line heading, in italics. The same applies to all "Use" headings of sections 3.3.2 to 3.3.15.
[57]	As a result of the need for economical highly sensitive delimiting trapping of *C. capitata*, polymeric panels were developed for the controlled release of greater amounts of TML. These~~This~~ keep~~s~~ the release rate constant for a longer period of time, reducing hand labour and increasing sensitivity. The C&C trap with its multipanel construction has significant adhesive surface area for fly capture.	Editorial correction (spelling; grammar; comma for sense).
[58]	- For the species for which the trap and attractant is used, see Table 2a.	
[59]	- For rebaiting (field longevity), see Table 3.	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[60]	- For use under different scenarios and recommended densities, see Table 4d.	
[61]	**3.3.2 ChamP trap ~~(CH)~~**	Editorial correction.
[62]	~~*General d*~~*Description*	
[63]	The ~~ChamP~~ CH trap is a hollow, YP~~yellow panel~~-type trap with two perforated sticky side panels. When the two panels are folded, the trap is rectangular in shape (18 cm × 15 cm), and a central chamber is created to place the attractant (Figure 2). A wire hanger placed at the top of the trap is used to place it on branches.	Editorial correction (abbreviation use).
[64]	*Use*	
[65]	The CH~~ChamP~~ trap can accommodate patches, polymeric panels~~,~~ and plugs. It is equivalent to a YP~~ellow panel~~ trap and ~~/~~Rebell trap in sensitivity.	Editorial corrections.
[66]	- For the species for which the trap and attractant is used, see Table 2 (a and b).	
[67]	- For rebaiting (field longevity), see Table 3.	
[68]	- For use under different scenarios and recommended densities, see Table~~s~~ 4 (b and ~~4~~c).	Editorial correction (for consistency with [66]).
[69]	**3.3.3 Easy trap ~~(ET)~~**	Editorial correction.
[70]	*General description*	
[71]	The ~~Easy trap~~ ET is a two-part rectangular plastic container with an inbuilt hanger. It is 14.5 cm high, 9.5 cm wide and~~,~~ 5 cm deep and can hold 400 ml of ~~liquid~~ solution (Figure 3). The front part is transparent and the rear part is yellow. The transparent front of the trap contrasts with the yellow rear enhancing the trap's ability to catch fruit flies. It combines visual effects with male lure ~~parapheromone~~ and food-based attractants.	Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[72]	*Use*	
[73]	The trap is multipurpose. It can be used dry baited with male lures ~~parapheromones~~ (e.g. TML, CUE, ME) or synthetic food attractants (e.g. 3C and both combinations of 2C attractants) and a retention system such as dichlorvos. It can also be used wet baited with liquid PAs,~~protein attractants~~ holding up to 400 ml of mixture. When synthetic food attractants are used, one of the dispensers (the one containing putrescine) is attached inside ~~to~~ the yellow part of the trap and the other dispensers are left free.	Editorial corrections.
[74]	The ET~~Easy trap~~ is one of the most economical traps commercially available. It is easy to carry, handle and service, providing the opportunity to service a greater number of traps per person~~man~~-hour than some other traps.	Editorial corrections (gender-neutral language, see FAO Style Guide).
[75]	- For the species for which the trap and attractant is used, see Table 2 (a and b).	
[76]	- For rebaiting (field longevity), see Table 3.	
[77]	- For use under different scenarios and recommended densities, see Table 4d.	
[78]	**3.3.4 Fluorescent yellow sticky "cloak" trap ~~(PALz)~~**	Editorial correction.
[79]	*General description*	
[80]	The fluorescent yellow sticky "cloak" trap (PALz) ~~trap~~ is prepared from fluorescent yellow plastic sheets (36 cm × 23 cm). One side is covered with sticky material. When setting the trap up, the sticky sheet is placed around a vertical branch or a pole in a "cloak-like" manner (Figure 4), with the sticky side facing outward, and the back corners are fastened together with clips.	
[81]	*Use*	
[82]	The trap uses the optimal combination of visual (fluorescent yellow) and chemical (cherry fruit fly synthetic bait) attractant cues. The trap is kept in place by a piece	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	of wire, attached to the branch or pole. The bait dispenser is fastened to the front top edge of the trap, with the bait hanging in front of the sticky surface. The sticky surface of the trap has a capture capacity of about 500 to 600 fruit flies. Insects attracted by the combined action of these two stimuli are caught on the sticky surface.	
[83]	- For the species for which the trap and attractant is used, see Table 2b.	
[84]	- For rebaiting (field longevity), see Table 3.	
[85]	- For use under different scenarios and recommended densities, see Table 4e.	
[86]	3.3.5 **Jackson trap ~~(JT)~~ or Delta trap**	Editorial correction.
[87]	*General description*	
[88]	The ~~Jackson trap~~ JT is hollow, delta~~-~~shaped and made of a white waxed cardboard. It is 8 cm high, 12.5 cm long and 9 cm wide (Figure 5). Additional parts include a white or yellow rectangular insert of waxed cardboard, which is covered with a thin layer of adhesive used to trap fruit flies once they land inside the trap body; a polymeric plug or cotton wick in a plastic basket or wire holder; and a wire hanger placed at the top of the trap body.	Editorial corrections.
[89]	*Use*	
[90]	This trap is mainly used with male lures ~~parapheromone attractants~~ to capture male fruit flies. The attractants used with JT or ~~/~~Delta traps are TML, ME and CUE. When ME and CUE are used a toxicant must be added.	Editorial correction.
[91]	For many years this trap has been used in exclusion, suppression or eradication programmes for multiple purposes, including population ecology studies (seasonal abundance, distribution, host sequence, etc.); detection and delimiting trapping; and surveying sterile fruit fly populations in areas subjected to sterile fly mass releases. JT or~~/~~ Delta traps may not be suitable for some environmental conditions	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	(e.g. rain or dust).	
[92]	The JT or ~~/~~Delta traps are some of the most economical traps commercially available. They are easy to carry, handle and service, providing the opportunity of servicing a greater number of traps per person~~man~~-hour than some other traps.	Editorial corrections.
[93]	- For the species for which the trap and attractant is used, see Table 2a.	
[94]	- For rebaiting (field longevity), see Table 3.	
[95]	- For use under different scenarios and recommended densities, see Table~~s~~ 4 (b and ~~4~~d).	Editorial correction.
[96]	**3.3.6 Lynfield trap ~~(LT)~~**	Editorial correction.
[97]	*General description*	
[98]	The conventional ~~Lynfield trap~~ LT consists of a disposable~~,~~ clear plastic~~,~~ cylindrical container measuring 11.5 cm high with a 10 cm diameter base and 9 cm diameter screw-top lid. There are four entry holes evenly spaced around the wall of the trap (Figure 6). Another version of the LT~~Lynfield trap~~ is the Maghreb-Med trap, also known as the Morocco trap (Figure 7).	Editorial corrections.
[99]	*Use*	
[100]	The trap uses an attractant and insecticide system to attract and kill target fruit flies. The screw-top lid is usually colour-coded to the type of attractant being used (red, Capilure (CE)/TML; white, ME; yellow, CUE). To hold the attractant a 2.5 cm screw-tip cup hook (opening squeezed closed) screwed through the lid from above is used. The trap uses the male lures ~~male-specific parapheromone attractants~~ CUE, ~~Capilure~~ (CE~~)~~, TML and ME.	Editorial corrections (abbreviation use).
[101]	CUE and ME attractants, which are ingested by the male fruit fly, are mixed with malathion. However, because CE and TML are not ingested by either *C. capitata* or *C. rosa*, a dichlorvos-impregnated matrix is placed inside the trap to kill fruit	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	flies that enter.	
[102]	- For the species for which the trap and attractant is used, see Table 2 (a and b).	
[103]	- For rebaiting (field longevity), see Table 3.	
[104]	- For use under different scenarios and recommended densities, see Table~~s~~ 4 (b and ~~4~~d).	Editorial correction.
[105]	3.3.7 **McPhail ~~(McP)~~ trap ~~type~~**	Editorial correction.
[106]	*General description*	
[107]	The conventional ~~McPhail~~ (McP~~)~~ trap is a transparent glass or plastic~~,~~ pear-shaped invaginated container. The trap is 17.2 cm high and 16.5 cm wide at the base and holds up to 500 ml of solution (Figure 8). The trap parts include a rubber cork or plastic lid that seals the upper part of the trap and a wire hook to hang the trap~~s~~ on tree branches. A plastic version of the McP~~McPhail~~ trap is 18 cm high and 16 cm wide at the base and holds up to 500 ml of solution (Figure 9). The top part is transparent and the base is yellow.	Editorial corrections.
[108]	*Use*	
[109]	For this trap to function properly it is essential that the body stays clean. Some designs have two parts in which the upper part and base of the trap can be separated, allowing for easy ~~service (~~rebaiting~~)~~ and inspection of fruit fly captures.	Editorial correction. The term has already been used for other traps.
[110]	This trap uses a liquid food attractant, based on hydrolysed protein or torula yeast/borax tablets. Torula tablets are more effective than hydrolysed protein~~s~~ over time because the pH is stable at 9.2. The level of pH in the mixture plays an important role in attracting fruit flies. Fewer fruit flies are attracted to the mixture as the pH becomes more acidic.	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[111]	To bait with yeast tablets, mix three to five torula tablets in 500 ml ~~of~~ water or follow the manufacturer's recommendation. Stir to dissolve the tablets. To bait with protein hydrolysate, mix protein hydrolysate and borax (if not already added to the protein) in water to reach five to nine percent~~5–9%~~ hydrolysed protein concentration and three percent~~3%~~ ~~of~~ borax.	
[112]	The nature of its attractant means this trap is more effective at catching females. Food attractants are generic by nature, and so McP traps tend to also catch a wide range of other non-target tephritid and non-tephritid fruit flies in addition to the target species.	
[113]	McP ~~type~~ traps are used in fruit fly management programmes in combination with other traps. In areas subjected to suppression and eradication actions, these traps are used mainly to monitor female populations. Female catches are crucial in assessing the amount of sterility induced to a wild population in a sterile insect technique (SIT) programme. In programmes releasing only sterile males or in a male annihilation technique ~~(MAT)~~ programme, McP traps are used as a population detection tool by targeting feral females, whereas other traps (e.g. JT~~Jackson traps~~), used with male-specific attractants, catch the released sterile males, and their use should be limited to programmes with an SIT component. Furthermore, in fruit fly-free areas, McP traps are an important part of the non-indigenous fruit fly trapping network because of their capacity to capture fruit fly species of quarantine importance for which no specific attractants exist.	Editorial correction (confusing terminology).
[114]	McP traps with liquid PA~~protein attractant~~ are labour~~-~~intensive. Servicing and rebaiting take time, and the number of traps that can be serviced in a normal working day is half that of some of the other traps described in this appendix.	Editorial correction.
[115]	- For the species for which the trap and attractant is used, see Table 2b.	
[116]	- For rebaiting (field longevity), see Table 3.	
[117]	- For use under different scenarios and recommended densities, see Table~~s~~ 4	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	(a, 4b, 4d and 4e).	
[118]	**3.3.8 Modified funnel trap ~~(VARs+)~~**	Editorial correction.
[119]	*General description*	
[120]	The modified funnel trap (VARs+) consists of a plastic funnel and a lower catch container (Figure 10). The top roof has a large (5 cm diameter) hole, over which an upper catch container (transparent plastic) is placed.	Editorial correction.
[121]	*Use*	
[122]	As~~Since~~ it is a non-sticky trap design, it has a virtually unlimited catch capacity and very long field life. The bait is attached to the roof, so that the bait dispenser is positioned in~~to~~ the middle of the large hole on the roof. A small piece of matrix impregnated with a killing agent is placed inside both the upper and the lower catch containers to kill fruit flies that enter.	Editorial corrections.
[123]	- For the species for which the trap and attractant is used, see Table 2a.	
[124]	- For rebaiting (field longevity), see Table 3.	
[125]	- For use under different scenarios and recommended densities, see Table 4d.	
[126]	**3.3.9 Multilure trap ~~(MLT)~~**	Editorial correction.
[127]	*General description*	
[128]	The Multilure trap (MLT) is a version of the McP~~hail~~ trap described previously. The trap is 18 cm high and 15 cm wide at the base and can hold up to 750 ml of ~~liquid~~ solution (Figure 11). It consists of a two-piece plastic invaginated cylindrical~~er shaped~~ container. The top part is transparent and the base is yellow. The upper part and base of the trap separate, allowing the trap to be serviced and rebaited. The transparent upper part of the trap contrasts with the yellow base enhancing the trap's ability to catch fruit flies. A wire hanger, placed on top of the	Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	trap body, is used to hang the trap from tree branches.	
[129]	*Use*	
[130]	This trap follows the same principles as those of the McP trap. However, an MLT used with dry synthetic attractant is more efficient and selective than an MLT or McP trap used with liquid PA~~protein attractant~~. Another important difference is that an MLT with a dry synthetic attractant allows for ~~a~~ cleaner servicing and is much less labour~~-~~ intensive than a McP trap. When synthetic food attractants are used, dispensers are attached to the inside walls of the upper cylindrical part of the trap or hung from a clip at the top. For this trap to function properly it is essential that the upper part stays transparent.	Editorial corrections.
[131]	When the MLT is used as a wet trap a surfactant should be added to the water. In hot climates ten percent~~10%~~ propylene glycol can be used to decrease water evaporation and decomposition of captured fruit flies.	Editorial correction.
[132]	When the MLT is used as a dry trap, a suitable (non-repellent at the concentration used) insecticide such as dichlorvos or a deltamethrin (DM) strip is placed inside the trap to kill the fruit flies. DM is applied to a polyethylene strip placed on the upper plastic platform inside the trap. Alternatively, DM may be used in a circle of impregnated mosquito net and will retain its killing effect for at least six months under field conditions. The net must be fixed on the ceiling inside the trap using adhesive material.	
[133]	- For the species for which the trap and attractant is used, see Table 2b.	
[134]	- For rebaiting (field longevity), see Table 3.	
[135]	- For use under different scenarios and recommended densities, see Table~~s~~ 4 (a~~, 4b, 4c and 4~~d).	Editorial correction.
[136]	**3.3.10 Open bottom dry trap ~~(OBDT)~~ or ~~(~~Phase IV~~)~~ trap**	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[137]	*General description*	
[138]	The~~is~~ OBDT or Phase IV trap is an open-bottom cylindrical dry trap that can be made from opaque green plastic or wax-coated green cardboard. The cylinder is 15.2 cm high and 9 cm in diameter at the top and 10 cm in diameter at the bottom (Figure 12). It has a transparent top, three holes (each of 2.5 cm diameter) equally spaced around the wall of the cylinder midway between the ends, and an open bottom, and is used with a sticky insert. A wire hanger, placed on top of the trap body, is used to hang the trap from tree branches.	Editorial correction.
[139]	*Use*	
[140]	A food-based synthetic chemical female–biased attractant can be used to capture *C. capitata*. However, it also serves to capture males. Synthetic attractants are attached to the inside walls of the cylinder. Servicing is easy because the sticky insert permits easy removal and replacement, similar to the inserts used in the JT. This trap is less expensive than the plastic or glass McP~~-type~~ traps.	Editorial corrections.
[141]	- For the species for which the trap and attractant is used, see Table 2b.	
[142]	- For attractants used and rebaiting (field longevity), see Table 3.	
[143]	- For use under different scenarios and recommended densities, see Table 4d.	
[144]	**3.3.11 Red sphere trap ~~(RS)~~**	Editorial correction.
[145]	*General description*	
[146]	The RS trap is a red sphere 8 cm in diameter (Figure 13). The trap mimics the size and shape of a ripe apple. A green version of this trap is also used. The trap is covered with a sticky material and baited with the synthetic fruit odour butyl hexanoate, which has a fragrance like a ripe fruit. Attached to the top of the sphere is a wire hanger used to hang it from tree branches.	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[147]	*Use*	
[148]	The red or green traps can be used unbaited, but they are much more efficient in capturing fruit flies when baited. Fruit flies that are sexually mature and ready to lay eggs are attracted to this trap.	
[149]	Many types of insects will be caught by these traps. It will be necessary to positively identify the target fruit fly from the non-target insects likely to be present on the traps.	
[150]	- For the species for which the trap and attractant is used, see Table 2b.	
[151]	- For rebaiting (field longevity), see Table 3.	
[152]	- For use under different scenarios and recommended densities, see Table 4e.	
[153]	3.3.12 **Sensus trap** ~~(SE)~~	Editorial correction.
[154]	*General description*	
[155]	The Sensus (SE) trap consists of a vertical plastic bucket 12.5 cm ~~in~~ high and 11.5 cm in diameter (Figure 14). It has a transparent body and a blue overhanging lid, which has a hole just underneath it. A wire hanger placed on top of the trap body is used to hang the trap from tree branches.	Editorial correction.
[156]	*Use*	
[157]	The trap is dry and uses male lures ~~male-specific parapheromones~~ or, for female-biased captures, dry synthetic food attractants. A dichlorvos block is placed in the comb on the lid to kill the flies.	
[158]	- For the species for which the trap and attractant is used, see Table 2 (a and b).	
[159]	- For rebaiting (field longevity), see Table 3.	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[160]	- For use under different scenarios and recommended densities, see Table 4d.	
[161]	**3.3.13 Steiner trap ~~(ST)~~**	Editorial correction.
[162]	*General description*	
[163]	The ~~Steiner trap~~ ST is a horizontal~~,~~ clear plastic cylinder with openings at each end. The conventional ST~~Steiner trap~~ is 14.5 cm long and 11 cm in diameter (Figure 15). There are a number of versions of this~~Steiner~~ trap~~s~~. These include one~~the Steiner trap of~~ that is 12 cm long and 10 cm in diameter (Figure 16) and one 14 cm long and 8.5 cm in diameter (Figure 17). A wire hanger, placed on top of the trap body, is used to hang the trap from tree branches.	Editorial corrections.
[164]	*Use*	
[165]	This trap uses the male lures ~~male-specific parapheromone attractants~~ TML, ME and CUE. The attractant is suspended from the centre of the inside of the trap. The attractant may be a cotton wick soaked in 2–3 ml of a mixture of male lure ~~parapheromone~~ or a dispenser with the attractant and an insecticide (usually malathion, dibrom or DM~~deltamethrin~~) as a killing agent.	Editorial correction (DM was defined earlier in the appendix).
[166]	- For the species for which the trap and attractant is used, see Table 2a.	
[167]	- For rebaiting (field longevity), see Table 3.	
[168]	- For use under different scenarios and recommended densities, see Table~~s~~ 4 (b and ~~4~~d).	Editorial correction.
[169]	**3.3.14 Tephri trap ~~(TP)~~**	Editorial correction.
[170]	*General description*	
[171]	The ~~Tephri~~ TP~~trap~~ is similar to the~~a~~ McP trap. It is a vertical cylinder 15 cm high and 12 cm in diameter at the base and can hold up to 450 ml of ~~liquid~~ solution (Figure 18). It has a yellow base and a clear top, which can be separated to	Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	facilitate servicing. There are entrance holes around the top of the periphery of the yellow base, and an invaginated opening in the bottom. Inside the top is a platform to hold attractants. A wire hanger, placed on top of the trap body, is used to hang the trap from tree branches.	
[172]	*Use*	
[173]	The trap is baited with hydrolysed protein at nine percent~~9%~~ concentration; however, it can also be used with other liquid PAs~~protein attractants~~ as described for the conventional glass McP trap or with the female dry synthetic food attractant and with TML in a plug or liquid as described for the JT or~~/~~ Delta trap and YP~~Yellow panel~~ trap~~s~~. If the trap is used with liquid PAs~~protein attractants~~ or with dry synthetic attractants combined with a liquid retention system and without the side holes, the insecticide will not be necessary. However, when used as a dry trap and with side holes, an insecticide solution (e.g. malathion) soaked into a cotton wick or other killing agent is needed to avoid escape of captured insects. Other suitable insecticides are dichlorvos or ~~deltamethrin (~~DM~~)~~ strips placed inside the trap to kill the fruit flies. DM is applied in a polyethylene strip, placed on the plastic platform inside the top of the trap. Alternatively, DM may be used in a circle of impregnated mosquito net and will retain its killing effect for at least six months under field conditions. The net must be fixed on the ceiling of the inside of the trap using adhesive material.	Editorial corrections.
[174]	- For the species for which the trap and attractant is used, see Table 2 (a and b).	
[175]	- For rebaiting (field longevity), see Table 3.	
[176]	- For use under different scenarios and recommended densities, see Table~~s~~ 4 (b and ~~4~~d).	Editorial correction.
[177]	**3.3.15 Yellow panel trap and~~(YP)/~~ Rebell trap ~~(RB)~~**	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[178]	*General description*	
[179]	The ~~Yellow panel~~ YP trap ~~(YP)~~ consists of a yellow rectangular cardboard plate (23 cm × 14 cm) coated with plastic (Figure 19). The rectangle is covered on both sides with a thin layer of sticky material. The RB~~Rebell~~ trap is a three-dimensional YP-type trap with two crossed yellow rectangular plates (15 cm × 20 cm) made of plastic (polypropylene), making them extremely durable (Figure 20). The trap is also coated with a thin layer of sticky material on both sides of both plates. A wire hanger, placed on top of the trap body, is used to hang it from tree branches.	Editorial corrections.
[180]	*Use*	
[181]	These traps can be used as visual traps alone and baited with TML, spiroketal or ammonium salts (ammonium acetate). The attractants may be contained in controlled-release dispensers such as a polymeric plug. The attractants are attached to the face of the trap. The attractants can also be mixed into the cardboard's coating. The two-dimensional design and greater contact surface make these traps more efficient, in terms of fly captures, than the JT and McP~~hail-type~~ trap~~s~~. It is important to consider that these traps require special procedures for transportation, submission and fruit fly screening methods because they are so sticky that specimens can be destroyed in handling. Although these traps can be used in most types of control programme applications, their use is recommended for the post-eradication phase and for fruit fly ~~-~~free areas, where highly sensitive traps are required. These traps should not be used in areas subjected to mass release of sterile fruit flies because of the large number of released fruit flies that would be caught. It is important to note that their yellow colour and open design allow them to catch other non-target insects, including natural enemies of fruit flies and pollinators.	Editorial corrections.
[182]	- For the species for which the trap and attractant is used, see Table 2 (a and b).	
[183]	- For rebaiting (field longevity), see Table 3.	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[184]	- For use under different scenarios and recommended densities, see Table~~s~~ 4 (b~~, 4c, 4d and 4~~e).	Editorial correction.
[185]	**4. Trapping ~~p~~Procedures**	Editorial correction.
[186]	**4.1 Spatial distribution of traps**	
[187]	The spatial distribution of traps will be guided by the purpose of the survey, the intrinsic characteristics of the area, the biological characteristics of the fruit fly and its interactions with its hosts, as well as the efficacy of the attractant and trap. In areas where continuous compact blocks of commercial orchards are present and in urban and suburban areas where hosts exist, traps are usually deployed in a grid system, which may have a uniform distribution.	
[188]	In areas with scattered commercial orchards, in rural areas with hosts and in marginal areas where hosts exist, trap networks are normally distributed along roads that provide access to host material.	Editorial correction.
[189]	In suppression and eradication programmes, an extensive trapping network should be deployed over the entire area that is subject to surveillance and control actions.	
[190]	Trapping networks are also placed as part of early detection programmes for target fruit fly species. In this case traps are placed in high-risk areas such as points of entry, fruit markets, urban areas and garbage dumps, as appropriate. Traps in these locations~~This~~ can be ~~further~~ supplemented by traps placed along roadsides to form transects and in~~at~~ production areas close to or adjacent to land borders, ~~ports~~ points of entry~~ies~~ and national roads.	Editorial corrections (grammar). SC proposed additional change from "ports of entry" to "points of entry" to use Glossary term.
[191]	**4.2 Trap deployment ~~(placement)~~**	Editorial (described in the text).
[192]	Trap deployment involves the actual placement of the traps in the field. One of the most important factors of trap deployment is selecting an appropriate trap site. It is important to have a list of the primary, secondary and occasional fruit fly hosts, and their phenology, distribution and abundance. With this basic information, it is	Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	possible to properly place and distribute the traps in the field, and this information~~it~~ also allows for effective planning of a programme of trap relocation.	
[193]	When possible, pheromone traps should be placed in mating areas. Fruit flies normally mate in the crown of host plants or close by, selecting semi-shaded spots ~~and~~ usually on the upwind side of the crown. Other suitable trap sites are the eastern side of the tree, which gets the sunlight in the early hours of the day, and resting and feeding areas in plants that provide shelter and protect fruit flies from strong winds and predators. In specific situations trap hangers may need to be coated with an appropriate insecticide to prevent ants from eating captured fruit flies.	Editorial corrections.
[194]	~~Protein~~ PA traps should be deployed in shaded areas in host plants. In this case traps should be deployed in primary host plants during their fruit maturation period. In the absence of primary host plants, secondary host plants should be used. In areas with no host plants identified, traps should be deployed in plants that can provide shelter, protection and food to adult fruit flies.	Editorial corrections.
[195]	Traps should be deployed in the middle to the top part of the host plant canopy, depending on the height of the host plant, and oriented towards the upwind side. Traps should not be exposed to direct sunlight, strong winds or dust. It is of vital importance to have the trap entrance clear from twigs, leaves and other obstructions such as spider webs to allow proper airflow and easy access for the fruit flies.	
[196]	Placement of traps in the same tree baited with different attractants should be avoided because it may cause interference among attractants and a reduction of trap efficiency. For example, placing a *C. capitata* male-specific TML trap and a PA~~protein attractant~~ trap in the same tree will cause a reduction of female capture in the PA~~protein~~ trap~~s~~ because TML acts as a female repellent.	Editorial corrections.
[197]	Traps should be relocated following the maturation phenology of the fruit hosts present in the area and biology of the fruit fly species. By relocating the traps it is possible to follow the fruit fly population throughout the year and increase the	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	number of sites being checked for fruit flies.	
[198]	**4.3 Trap mapping**	
[199]	Once traps are deployed at carefully selected sites at the correct density and distributed in an appropriate pattern, the location of the traps must be recorded. It is recommended that the location of traps should be geo-referenced with the use of ~~global positioning system (~~GPS~~)~~ equipment, where available. A map or sketch of the trap location and the area around the traps should be prepared.	Editorial correction (GPS defined in core ISPM).
[200]	~~The application of~~ GPS and ~~geographic information systems (~~GIS~~)~~ have proven to be very powerful tools in the management of trapping networks ~~has proved to be a very powerful tool~~. GPS allows each trap to be geo-referenced through geographical coordinates, which are then used as input information in a GIS.	Editorial correction (for sense: “application” is not the tool).
[201]	In addition to GPS location data or in the event that GPS data are~~is~~ not available for trap location~~s~~, reference for the trap location should include visible landmarks. In the case of traps placed in host plants located in suburban and urban areas, references should include the full address of the property where the traps were~~was~~ placed. Trap reference should be clear enough to allow control teams and supervisors who service the traps to find the trap easily.	Editorial correction (grammar).
[202]	A database or trapping book of all traps with their corresponding coordinates should be kept, together with the records of trap services, date of collection, collector, rebaiting, trap captures, and if possible notes on the collection site such as ecological characteristics. GIS provides high-resolution maps showing the exact location of each trap and other valuable information such as exact location of fruit fly detections, historical ~~profiles of the~~ geographical distribution patterns of the fruit flies, relative size of the populations in given areas and spread of the fruit fly population in case of an outbreak. This information is extremely useful in planning control activities, ensuring that bait sprays and sterile fruit fly releases are accurately placed and cost-effective in their application.	Editorial (redundancy).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[203]	**4.4 Trap servicing and inspection**	
[204]	Trap servicing intervals are specific to each trapping system and are based on the half-life of the attractant, noting that actual timings should be supported by field testing and validation (see Table 3). Capturing fruit flies will depend, in part, on how well the trap is serviced. Trap servicing includes rebaiting and maintaining the trap in a clean and appropriate operating condition. Traps should be in a condition to consistently kill and retain in good condition any target flies that have been captured.	Editorial correction.
[205]	Attractants have to be used in the appropriate volumes and at the appropriate concentrations and replaced at the recommended intervals, as indicated by the manufacturer. The release rate of attractants varies considerably with environmental conditions. The release rate is generally high in hot and dry areas, and low in cool and humid areas. Thus, in cool climates traps may have to be rebaited less often than in hot conditions.	Editorial correction (grammar).
[206]	Inspection intervals (i.e. checking for fruit fly captures) should be adjusted according to the prevailing environmental conditions, pest situations and biology of fruit flies, on a case-by-case basis. The interval can range from one day up to 30 days, for example,~~e.g.~~ seven days in areas where fruit fly populations are present and 14 days in fruit fly free areas. In the case of delimiting surveys inspection intervals may be more frequent, with two to three days being the most common interval.	Editorial correction.
[207]	It is recommended to a~~A~~void handling more than one lure type at a time if more than one lure type is being used at a single locality. Cross-contamination between traps of different attractants ~~types~~ (e.g. CUE~~ue~~ and ME) reduces trap efficacy and makes laboratory identification unduly difficult. When changing attractants, it is important to avoid spillage or contamination of the external surface of the trap body or the ground. Attractant spillage or trap contamination would reduce the chances of fruit flies entering the trap. For traps that use a sticky insert to capture fruit flies, it is important to avoid contaminating areas in the trap that are not	Editorial correction (active voice not generally used in this appendix).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	meant for capturing fruit flies with the sticky material. This also applies to leaves and twigs that surround the trap. Attractants, by their nature, are highly volatile and care should be taken when storing, packaging, handling and disposing of lures to avoid compromising the attractant efficacy and operator safety.	
[208]	The number of traps serviced per day per person will vary depending on the type of trap, trap density, environmental and topographic conditions, and experience of the operators. Where a large trap network is in place, it may need to be serviced over a number of days. In this case, the network may be serviced through a number of "routes" or "runs" thatwhich systematically ensure all traps within the network are inspected and serviced, and none isare missed.	Editorial corrections (grammar).
[209]	**4.5 Trapping records**	
[210]	The following information should be included in order to keep proper trapping records thatas they provide confidence in the survey results: trap location, plant where the trap is placed, trap and attractant type, servicing and inspection dates, and target fruit fly capture. Any other information considered necessary can be added to the trapping records. Retaining results over a number of seasons can provide useful information on spatial changes in fruit fly populations.	Editorial corrections (sense).
[211]	**4.6 Flies per trap per day**	
[212]	Flies per trap per day (FTD) is a population index that indicates the average number of flies of the target species captured per trap per day during a specified period in which the trap was exposed in the field (see also Annex 2 of ISPM 35).	Cross- reference to the prescriptive annex on FTD was added.
[213]	The function of this population index is to have a comparative measure of the size of the adult pest population in a given space and time.	
[214]	It is used as baseline information to compare the size of the population before, during and after the application of a fruit fly control programme. The FTD should be used in all reports of trapping.	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[215]	~~The~~ FTD is comparable within a programme; however, for meaningful comparisons between programmes, it should be based on the same fruit fly species, trapping system and trap density.	Editorial correction.
[216]	In areas where sterile fruit fly release programmes are in operation FTD is used to measure the relative abundance of the sterile and wild fruit flies.	
[217]	FTD is the result of dividing the total number of fruit flies captured (F) by the product obtained from multiplying the total number of inspected traps (T) by the average number of days between trap inspections (D). The formula is as follows:	
[218]	$FTD = \frac{F}{T \times D}$	
[219]	**5. Trap Dd~~d~~ensities**	Editorial correction.
[220]	Establishing a trap~~ping~~ density appropriate to the purpose of the survey is critical and underpins confidence in the survey results. ~~The t~~Trap densit~~y~~ies need~~s~~ to be adjusted based on many factors including type of survey, trap efficiency, location (type and presence of host, climate and topography), pest situation and lure type. In terms of type and presence of host~~s~~, as well as the risk involved, the following types of location may be of concern:	Editorial corrections.
[221]	- production areas	
[222]	- marginal areas	
[223]	- urban areas	
[224]	- points of entry (and other high-risk areas such as fruit markets).	
[225]	Trap densit~~y~~ies may ~~also~~ vary as a gradient from production areas to marginal areas, urban areas and points of entry. For example, in a pest free area, a higher density of traps is required at high-risk points of entry and a lower density in	Editorial corrections. Area of low pest prevalence is defined in Annex 3.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	commercial orchards. Or, in an area where suppression is applied, such as in an ~~area of low pest prevalence~~ALPP or an area under a systems approach where the target species is present, the reverse occurs, and trap~~ping~~ densit~~y~~ies ~~for~~ that pest should be higher in the place of production ~~field~~ and decrease towards points of entry. Other situations such as high-risk urban areas should be taken into consideration when assessing trap~~ping~~ densit~~y~~ies.	To use Glossary term ("production field" is not defined).
[226]	Table~~s~~ 4 (a~~–~~4f) show~~s~~ suggested trap densities for various fruit fly species based on common practice. These densities have been determined taking into consideration research results, feasibility and cost~~-~~effectiveness. Trap densities are ~~also~~ dependent on associated surveillance activities, such as the type and intensity of fruit sampling to detect immature stages of fruit flies. In ~~those~~ cases where trapping surveillance programmes are complemented with fruit sampling activities, trap densities could be lower than the suggested densities shown in Table~~s~~ 4 (a~~–~~4f).	Editorial correction (Table 4 is one table with parts).
[227]	The suggested trap densities presented in Table~~s~~ 4 (a–4f) ~~have been made also~~ tak~~e~~ing into account the following technical factors:	Editorial corrections.
[228]	- various survey objectives and pest status	
[229]	- target fruit fly species (Table 1)	
[230]	- pest risk associated with working areas (production and other areas).	
[231]	Within the delimited area, the suggested trap density should be applied in areas with a significant likelihood of capturing fruit flies such as areas with primary hosts and possible pathways (e.g. production areas versus industrial areas).	
[232]	Table 4a. Trap densities suggested for *Anastrepha* spp.	Editorial correction in all tables 4a to 4f: "delimitation" survey changed to "delimiting" in the last row. Note for all tables: numbers in table cells should have the same number of decimal places e.g. "0.25–0.5" should be "0.25–

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
		0.50".
[233]	Trapping / Trap type1 / Attractant / Trap density/km2 (2): Production area / Marginal / Urban / Points of entry3 Monitoring survey, no control — MLT/McP — 2C-1/PA — 0.25–1 — 0.25–0.5 — 0.25–0.5 — 0.25–0.5 Monitoring survey for suppression — MLT/McP — 2C-1/PA — 2–4 — 1–2 — 0.25–0.5 — 0.25–0.5 Delimiting survey in an FF-ALPP after an unexpected increase in population — MLT/McP — 2C-1/PA — 3–5 — 3–5 — 3–5 — 3–5 Monitoring survey for eradication — MLT/McP — 2C-1/PA — 3–5 — 3–5 — 3–5 — 3–5 Detection survey in an FF-PFA to verify pest absence and for exclusion — MLT/McP — 2C-1/PA — 1–2 — 2–3 — 3–5 — 5–12 Delimit<u>ing</u>~~ation~~ survey in an FF-PFA after a detection in addition to detection survey4 — MLT/McP — 2C-1/PA — 20–50 — 20–50 — 20–50 — 20–50 1 Different traps can be combined to reach the total number.	
[234]	(2) Refers to the total number of traps.	
[235]	3 Also other high-risk sites.	

<table>
<tr><th>Para. No.</th><th>Proposal for consistency change (underline = addition; strikethrough = deletion)</th><th>Explanation for change</th></tr>
<tr><td>[236]</td><td>4 This range includes high-density trapping in the immediate area of the detection (core area). However, it may decrease towards the surrounding trapping zones.</td><td></td></tr>
<tr><td>[237]</td><td>
<table>
<tr><th>Trap type</th><th></th><th>Attractant</th><th></th></tr>
<tr><td>McP</td><td>McPhail trap</td><td>2C-1</td><td>AA+Pt</td></tr>
<tr><td></td><td></td><td>AA</td><td>Ammonium acetate</td></tr>
<tr><td></td><td></td><td>Pt</td><td>Putrescine</td></tr>
<tr><td>MLT</td><td>Multilure trap</td><td>PA</td><td>Protein attractant</td></tr>
</table>
</td><td>It is suggested to treat tables 4a to 4f as parts of one table and have one list of all abbreviations used and table notes (most of which are common to all tables) at the bottom of 4f.

There is a problem with the abbreviations list: FF-PFA and FF-ALPP definitions are missing. Also note that in Tables 4b to 4f there was “PFA” where I think “FF-PFA” was meant (I changed it).

The MLT entry should appear directly under McP.</td></tr>
<tr><td>[238]</td><td>Table 4b. Trap densities suggested for Bactrocera spp. responding to methyl eugenol ~~(ME)~~, cuelure ~~(CUE)~~ and food attractants (~~PA =~~ protein attractants)</td><td>Editorial correction (abbreviations are defined below the table and they complicate the table caption).</td></tr>
<tr><td>[239]</td><td>
<table>
<tr><th rowspan="2">Trapping</th><th rowspan="2">Trap type1</th><th rowspan="2">Attractant</th><th colspan="2">Trap density/km2 (2)</th><th colspan="2">Trap types to be placed in alphabetical order.</th></tr>
<tr><th>Production area</th><th>Marginal</th><th>Urban</th><th>Points of entry3</th></tr>
<tr><td>Monitoring survey, no control</td><td>JT/ST/TP/LT/MM/MLT/McP/ET</td><td>ME/CUE/PA</td><td>0.25–1.0</td><td>0.2–0.5</td><td>0.2–0.5</td><td>0.2–0.5</td></tr>
<tr><td>Monitoring survey for suppression</td><td>JT/ST/TP/LT/MM/MLT/McP/ET</td><td>ME/CUE/PA</td><td>2–4</td><td>1–2</td><td>0.25–0.5</td><td>0.25–0.5</td></tr>
<tr><td>Delimiting survey in an FF-ALPP after an unexpected increase in</td><td>JT/ST/TP/MLT/LT/MM/Mc</td><td>ME/CUE/PA</td><td>3–5</td><td>3–5</td><td>3–5</td><td>3–5</td></tr>
</table>
</td><td></td></tr>
</table>

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change

	population	P/YP/ET				
	Monitoring survey for eradication	JT/ST/TP/MLT/LT/MM/McP/ET	ME/CUE/PA	3–5	3–5	3–5 3–5
	Detection survey in an FF-PFA to verify pest absence and for exclusion	CH/ST/LT/MM/MLT/McP/TP/YP/ET	ME/CUE/PA	1	1	1–5 3–12
	Delimiting~~ation~~ survey in an FF-PFA after a detection in addition to detection survey4	JT/ST/TP/MLT/LT/MM/McP/YP/ET	ME/CUE/PA	20–50	20–50	20–50 20–50

1 Different traps can be combined to reach the total number.

[240]	(2) Refers to the total number of traps.	
[241]	3 Also other high-risk sites.	
[242]	4 This range includes high-density trapping in the immediate area of the detection (core area).	
[243]	However, it may decrease towards the surrounding trapping zones.	Move this line to [243] (it should run on after "(core area)".)
[244]	Trap type CH ChamP trap ET Easy trap JT Jackson trap LT Lynfield trap Attractant ME Methyl eugenol CUE Cuelure PA Protein attractant	Editorial correction (Methyl eugenol presented as two words elsewhere in the appendix).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change

McP McPhail trap

MLT Multilure trap

MM Maghreb-Med or Morocco trap

ST Steiner trap

TP Tephri trap

YP Yellow panel trap

[245] Table 4c. Trap densities suggested for *Bactrocera oleae*

[246]

Trapping	Trap type1	Attractant	Trap density/km2 (2)			
			Production area	Marginal	Urban	Points of entry3
Monitoring survey, no control	MLT/CH/YP/ET/McP	AC+SK/PA	0.5–1.0	0.25–0.5	0.25–0.5	0.25–0.5
Monitoring survey for suppression	MLT/CH/YP/ET/McP	AC+SK/PA	2–4	1–2	0.25–0.5	0.25–0.5
Delimiting survey in an FF-ALPP after an unexpected increase in population	MLT/CH/YP/ET/McP	AC+SK/PA	3–5	3–5	3–5	3–5
Monitoring survey for eradication	MLT/CH/YP/ET/McP	AC+SK/PA	3–5	3–5	3–5	3–5

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change

Detection survey in an FF-PFA to verify pest absence and for exclusion	MLT/CH/YP/ET/McP	AC+SK/PA	1	1	2–5	3–12
Delimiting<s>ation</s> survey in an FF-PFA after a detection in addition to detection survey4	MLT/CH/YP/ET/McP	AC+SK/PA	20–50	20–50	20–50	20–50

1 Different traps can be combined to reach the total number.

[247] (2) Refers to the total number of traps.

[248] 3 Also other high-risk sites.

[249] 4 This range includes high-density trapping in the immediate area of the detection (core area). However, it may decrease towards the surrounding trapping zones.

[250]

Trap type		Attractant	
CH	ChamP trap	AC	Ammonium bicarbonate
ET	Easy trap	PA	Protein attractant
McP	McPhail trap	SK	Spiroketal
MLT	Multilure trap		
YP	Yellow panel trap		

Table 4d. Trap densities suggested for Ceratitis spp.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)							Explanation for change
[251]	Trapping	Trap type1	Attractant	Trap density/km2 (2)				
				Production area	Marginal	Urban	Points of entry 3	
	Monitoring survey, no control4	JT/MLT/McP/ OBDT/ST/SE/ET/ LT/TP/VARs+/CH	TML/CE/3C/ 2C-2/PA	0.5–1.0	0.25–0.5	0.25–0.5	0.25–0.5	
	Monitoring survey for suppression	JT/MLT/McP/ OBDT/ST/SE/ET/ LT/MMTP/VARs+/CH	TML/CE/3C/ 2C-2/PA	2–4	1–2	0.25–0.5	0.25–0.5	
	Delimiting survey in an FF-ALPP after an unexpected increase in population	JT/YP/MLT/McP/ OBDT/ST/ET/LT/MM/TP/VARs+/CH	TML/CE/3C/ PA	3–5	3–5	3–5	3–5	
	Monitoring survey for eradication5	JT/MLT/McP/ OBDT/ST/ET/LT/MM/TP/VARs+/CH	TML/CE/3C/ 2C-2/PA	3–5	3–5	3–5	3–5	
	Detection survey in an FF-PFA to verify pest absence and for	JT/MLT/McP/ST/ ET/LT/MM/CC/ VARs+/CH	TML/CE/3C/ PA	1	1–2	1–5	3–12	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	exclusion5 Delimiting~~ati on~~ survey in an FF-PFA after a detection in addition to detection survey6 JT/YP/MLT/McP/OBDT/ST//ET/LT/MM/TP/VARs+/CH TML/CE/3C/PA 20–50 20–50 20–50 20–50 1 Different traps can be combined to reach the total number.	
[252]	(2) Refers to the total number of traps.	
[253]	3 Also other high-risk sites.	
[254]	4 1:1 ratio (one~~1~~ female trap per male trap).	Editorial correction.
[255]	5 3:1 ratio (three~~3~~ female traps per male trap).	Editorial correction.
[256]	6 This range includes high-density trapping in the immediate area of the detection (core area). However, it may decrease towards the surrounding trapping zones (ratio 5:1~~:,~~ five~~5~~ female traps per male trap).	Editorial correction.
[257]	Trap type Attractant CC Cook and Cunningham ~~(C&C) t~~Trap (with TML for male capture) 2C-2 CH ChamP trap 3C ET Easy trap (with 2C and 3C attractants for female-biased captures) CE	Editorial corrections. (AA+TMA) (AA+Pt+TMA) Capilure

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change

	JT	Jackson trap (with TML for male capture)	AA	Ammonium acetate
	LT	Lynfield trap (with TML for male capture)	PA	Protein attractant
	McP	McPhail trap	Pt	Putrescine
	MLT	Multilure trap (with 2C and 3C attractants for female-biased captures)	TMA	Trimethylamine
	MM	Maghreb-Med or Morocco trap	TML	Trimedlure
	OBDT	Open bBottom dDry tTrap (with 2C and 3C attractants for female-biased captures)		
	SE	Sensus trap (with CE for male captures and with 3C for female-biased captures)		
	ST	Steiner trap (with TML for male capture)		
	TP	Tephri trap (with 2C and 3C attractants for female-biased captures)		
	VARs +	Modified funnel trap		
	YP	Yellow panel trap		

[258]	Table 4e. Trap densities suggested for Rhagoletis spp.						
[259]	Trapping	Trap type1	Attractant	Trap density/km2 (2)			
				Production area	Marginal	Urban	Points of entry3

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change

Monitoring survey, no control	RB/RS/PALz /YP	BuH/AS	0.5–1.0	0.25–0.5	0.25–0.5	0.25–0.5
Monitoring survey for suppression	RB/RS/PALz /YP	BuH/AS	2–4	1–2	0.25–0.5	0.25–0.5
Delimiting survey in an FF-ALPP after an unexpected increase in population	RB/RS/PALz /YP	BuH/AS	3–5	3–5	3–5	3–5
Monitoring survey for eradication	RB/RS/PALz /YP	BuH/AS	3–5	3–5	3–5	3–5
Detection survey in an FF-PFA to verify pest absence and for exclusion	RB/RS/PALz /YP	BuH/AS	1	0.4–3	3–5	4–12
Delimiting~~ation~~ survey in an FF-PFA after a detection in addition to detection survey4	RB/RS/PALz /YP	BuH/AS	20–50	20–50	20–50	20–50

1 Different traps can be combined to reach the total number.

[260]	(2) Refers to the total number of traps.	
[261]	3 Also other high-risk sites.	
[262]	4 This range includes high-density trapping in the immediate area of the detection (core area). However, it may decrease towards the surrounding trapping zones.	
[263]	Trap type Attractant AS Ammonium salt	Editorial correction (to match use in text).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change

RB Rebell trap BuH Butyl hexanoate

RS Red sphere trap

PALz Fluorescent yellow sticky "cloak" trap

YP Yellow panel trap

[264] Table 4f. Trap densities suggested for Toxotrypana curvicauda

[265]

Trapping	Trap type1	Attractant	Trap density/km2 (2)			
			Production area	Marginal	Urban	Points of entry 3
Monitoring survey, no control	GS	MVP	0.25–0.5	0.25–0.5	0.25–0.5	0.25–0.5
Monitoring survey for suppression	GS	MVP	2–4	1	0.25–0.5	0.25–0.5
Delimiting survey in an FF-ALPP after an unexpected increase in population	GS	MVP	3–5	3–5	3–5	3–5
Monitoring survey for eradication	GS	MVP	3–5	3–5	3–5	3–5
Detection survey in an FF-PFA to verify pest absence and for exclusion	GS	MVP	2	2–3	3–6	5–12
Delimiting~~ation~~ survey in an FF-PFA after a detection in	GS	MVP	20–50	20–50	20–50	20–

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	addition to detection survey4 50 1 Different traps can be combined to reach the total number.	
[266]	(2) Refers to the total number of traps.	
[267]	3 Also other high-risk sites.	
[268]	4 This range includes high-density trapping in the immediate area of the detection (core area). However, it may decrease towards the surrounding trapping zones.	
[269]	Trap type Attractant GS Green sphere trap MVP Papaya fruit fly pheromone (2-methyl-vinylpyrazine) **6. Supervision ~~a~~Activities**	Editorial correction. Editorial correction.
[270]	Supervision of trapping activities includes assessing the quality of the materials used and reviewing the effectiveness of the use of these materials and trapping procedures.	
[271]	The materials used should perform effectively and reliably at an acceptable level for a prescribed period of time. The traps themselves should maintain their integrity for the entire duration that they are anticipated to remain in the field. The attractants should be certified or bio-assayed by the manufacturer for an acceptable level of performance based on their anticipated use.	Editorial correction (spelling).
[272]	The effectiveness of trapping should be officially reviewed periodically by individuals not directly involved in conducting trapping activities. The timing of review will vary by programme, but it is recommended to occur at least twice a year in programmes that run for six months or longer. The review should address all aspects related to the ability of trapping to detect targeted fruit flies within the time frame required to meet programme outcomes, for example, ~~e.g.~~ e~~E~~arly	Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	detection of a fruit fly entry. Aspects of a review include quality of trapping materials, record_ ~~-~~keeping, layout of the trapping network, trap mapping, trap placement, trap condition, trap servicing, trap inspection frequency, and capability for fruit fly identification.	
[273]	The trap deployment should be evaluated to ensure that the prescribed types and densities of traps are in place. Field confirmation is achieved through inspection of individual routes.	
[274]	Trap placement should be evaluated for appropriate host selection, trap relocation schedule, height, light penetration, fruit fly access to trap, and proximity to other traps. Host selection, trap relocation and trap proximity to other traps can be evaluated from the records for each trap route. Host selection, trap relocation~~placement~~ and trap proximity to other traps can be further evaluated by field examination.	Editorial correction (for sense and accuracy).
[275]	Traps should be evaluated for their overall condition, correct attractant, appropriate trap servicing and inspection intervals, correct identifying markings (such as trap identification and date placed), evidence of contamination and proper warning labels. Evaluation~~This~~ is performed in the field at each site where a trap is placed.	Editorial correction.
[276]	Evaluation of identification capability can occur via target fruit flies that have been marked in some manner in order to distinguish them from wild trapped fruit flies. These marked fruit flies are placed in traps in order to evaluate the operator's diligence in servicing the traps, competence in recognizing the targeted fruit fly species, and knowledge of the proper reporting procedures once a fruit fly is found. Commonly used marking systems are fluorescent dyes or wing clipping.	
[277]	In some programmes that survey for eradication or to maintain FF-PFAs, the fruit flies may also be marked by using sterile irradiated fruit flies in order to further reduce the chance~~s~~ of the marked fruit flies~~y~~ being falsely identified as ~~a~~ wild fruit flies~~y~~ ~~and~~ resulting in unnecessary actions being taken by the programme. A slightly different method is necessary under a sterile fruit fly release programme in	Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	order to evaluate personnel on their ability to accurately distinguish target wild fruit flies from the released sterile fruit flies. The marked fruit flies used are sterile and lack ~~the~~ fluorescent dye, but are marked physically by wing clipping or some other method. These fruit flies are placed into the trap samples after they have been collected in the field but before they are inspected by the operators.	
[278]	The review should be summarized in a report detailing how many inspected traps on each route were found to be in compliance with the accepted standards in categories such as trap mapping, placement, condition, and servicing and inspection intervals. ~~Aspects that were found to be deficient should be identified, and s~~Specific recommendations should be made to correct aspects found to be ~~these~~ deficient~~cies~~.	Editorial corrections (for sense: redundant to say both "found" and "identified" for deficient aspects).
[279]	Proper record ~~-~~keeping is crucial to the appropriate functioning of trapping. The records for each trap route should be inspected to ensure that they are complete and up to date. Field confirmation can then be used to validate the accuracy of the records. Maintenance of voucher specimens of collected species of regulated fruit fly species is recommended.	Editorial correction.
[280]	**7. Bibliography~~References~~**	Change to correct terminology. As explained in IPPC Style Guide: "A bibliography is a list of publications the author has used in their study for the preparation of the document, but not necessarily to the extent that these need to be quoted or referenced in the document. A bibliography contains entries that may or may not be referenced in the text." "The *References* section contains a list of the sources of all references and quotations cited in the text."
[281]	~~This listing is for reference purposes only and it is not comprehensive.~~	Deleted as unclear what "reference purposes only" actually means. Also, it is known that bibliographies are not necessarily a

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
		complete list of all possible sources on a subject.
[282]	**Baker, R., Herbert, R., Howse, P.E. & Jones, O.T.** 1980. Identification and synthesis of the major sex pheromone of the olive fly (*Dacus oleae*). *Journal of the~~.~~ Chemical~~.~~ Society~~.~~, Chemical~~.~~ Communications~~,.~~,* 1: 52–53.	Editorial correction.
[283]	**Calkins, C.O., Schroeder, W.J. & Chambers, D.L.** 1984. The probability of detecting the Caribbean fruit fly, *Anastrepha suspensa* (Loew) (Diptera: Tephritidae) with various densities of McPhail traps. *Journal of~~.~~ Economic~~.~~ Entomology~~.,~~* 77: 198–201.	Editorial correction.
[284]	**Campaña Nacional Contra Moscas de la Fruta~~,~~** (DGSV/CONASAG/SAGAR). 1999. *Apéndice Técnico para el Control de Calidad del Trampeo para Moscas de la Fruta del Género* Anastrepha *spp.* México D.F.~~ febrero de 1999.~~ 15 pp.	Editorial correction. Further corrections, if known, could add publisher name and clarify what the abbreviations in parentheses refer to.
[285]	**Conway, H.E. & Forrester, O.T.** 2007. Comparison of Mexican fruit fly (Diptera: Tephritidae) capture between McPhail traps with Torula~~ Yeast~~ and Multilure t~~T~~raps with Biolures in South Texas. *Florida Entomologist~~,~~* 90(3): 579~~–~~–580.	Editorial corrections.
[286]	**Cowley, J.M., Page, F.D., Nimmo, P.R. & Cowley, D.R.** 1990. Comparison of the effectiveness of two traps for *Bactrocera tryoni* (Froggatt) (Diptera: Tephritidae) and implications for quarantine surveillance systems. ~~*J.*~~ *Australian Journal of Entomology~~, Soc.,~~* 29: 171–176.	Editorial correction. I found the article in a different journal.
[287]	**Drew, R.A.I.** 1982. Taxonomy. *In* R.A.I. Drew, G.H.S. Hooper & M.A. Bateman, eds. *Economic fruit flies of the South Pacific region*, 2nd edn, pp. 1–97. Brisbane, Australia, Queensland Department of Primary Industries. 150 pp.	Editorial corrections.
[288]	**Drew, R.A.I. & Hooper, G.H.S.** 1981. The response of fruit fly species (Diptera; Tephritidae) in Australia to male attractants. ~~*J.*~~ *Australian Journal of Entomology~~, Entomol. Soc.,~~* 20: 201–205.	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[289]	**Epsky, N.D., Hendrichs, J., Katsoyannos, B.I., Vasquez, L.A., Ros, J.P., Zümreoglu, A., Pereira, R., Bakri, A., Seewooruthun, S.I. & Heath, R.R.** 1999. Field evaluation of female-targeted trapping systems for *Ceratitis capitata* (Diptera: Tephritidae) in seven countries. *Journal of. Economic. Entomology*,., 92(1): 156–164.	Editorial corrections.
[290]	**FAO/IAEA** (Food and Agriculture Organization of the United Nations/International Atomic Energy Agency). 2013. *Trapping manual for area-wide fruit fly programmes.* Rome, FAO. ~~(English only).~~ 47 pp. Available at http://www-naweb.iaea.org/nafa/ipc/public/FruitFlyTrapping.pdf~~http://www-naweb.iaea.org/nafa/ipc/public/Trapping-Manual-Final-sept13.pdf~~.	Updated reference to the Trapping manual (previously noted under IAEA only) added.
[291]	**Fay, H.A.C.** 2012. A highly effective and selective male lure for *Bactrocera jarvisi* (Tryon) (Diptera: Tephritidae). ~~*Australian. Journal of. Entomology*,.~~ 51: 189–~~–~~187.	Reference added to support the inclusion of the male lure zingerone for *B. jarvisi*. Editorial correction.
[292]	**Heath, R.R., Epsky, N.D., Guzman, A., Dueben, B.D., Manukian, A. & Meyer, W.L.** 1995. Development of a dry plastic insect trap with food-based synthetic attractant for the Mediterranean and the Mexican fruit fly (Diptera: Tephritidae). *Journal of. Economic. Entomology*,., 88: 1307–1315.	Editorial correction.
[293]	**Heath, R.H., Epsky, N., Midgarden, D. & Katsoyannos, B.I.** 2004. Efficacy of 1,4-diaminobutane (putrescine) in a food-based synthetic attractant for capture of Mediterranean and Mexican fruit flies (Diptera: Tephritidae). *Journal of. Economic. Entomology*,., 97(3): 1126–1131.	Editorial corrections.
[294]	**Hill, A.R.** 1987. Comparison between trimedlure and Ce~~c~~apilure® – Aa~~a~~ttractants for male *Ceratitis capitata* (Wiedemann) (Diptera Tephritidae). ~~*J. Australian. Journal of Entomology*,. *Soc.*,~~ 26: 35–36.	Editorial corrections.
[295]	**Holler, T., Sivinski, J., Jenkins, C. & Fraser, S.** 2006. A comparison of yeast	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	hydrolysate and synthetic food attractants for capture of *Anastrepha suspensa* (Diptera: Tephritidae). *Florida Entomologist*, 89(3): 419–420.	
[296]	**IAEA** (International Atomic Energy Agency). 1996. *Standardization of medfly trapping for use in sterile insect technique programmes*. Final report of Coordinated Research Programme 1986–1992. IAEA-TECDOC-883. Vienna, IAEA.	Editorial correction.
[297]	—— 1998. *Development of female medfly attractant systems for trapping and sterility assessment*. Final report of ~~a~~ Coordinated Research Programme 1995–1998. IAEA-TECDOC-1099. Vienna, IAEA. 228 pp.	Editorial corrections.
[298]	~~—— 2003. *Trapping guidelines for area-wide fruit fly programmes*. Joint FAO/IAEA Division, Vienna, Austria. 47 pp.~~	
[299]	—— 2007. *Development of improved attractants and their integration into fruit fly SIT management programmes*. Final report of ~~a~~ Coordinated Research Programme 2000–2005. IAEA-TECDOC-1574. Vienna, IAEA. 230 pp.	Editorial corrections.
[300]	**Jang, E.B., Holler, T.C., Moses, A.L., Salvato, M.H. & Fraser, S.** 2007. Evaluation of a single-matrix food attractant Tephritid fruit fly bait dispenser for use in feral trap detection programs. *Proceedings of the~~.~~ Hawaiian Entomological~~.~~ Society~~,.,~~* 39: 1–8.	Editorial correction.
[301]	**Katsoyannos, B.I.** 1983. Captures of *Ceratitis capitata* and *Dacus oleae* flies (Diptera, Tephritidae) by McPhail and Rebell color traps suspended on citrus, fig and olive trees on Chios, Greece. *In* R. Cavalloro, ed. *Fruit flies of economic importance*. Proceedings of the~~.~~ CEC/IOBC International~~.~~ Symposium~~,.~~ Athens, November~~.~~ 1982, pp. 451–456.	Editorial corrections.
[302]	—— 1989. Response to shape, size and color. *In* A.S. Robinson & G. Hooper, eds. *World cCrop pPests*, Vol.~~ume~~ 3A, *Fruit flies, their biology, natural enemies and control*, pp. 307–324. Amsterdam, Elsevier Science Publishers~~ B.V.,~~	Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	~~Amsterdam~~.	
[303]	**Lance, D.R. & Gates, D.B.** 1994. Sensitivity of detection trapping systems for Mediterranean fruit flies (Diptera: Tephritidae) in southern California. *Journal of~~.~~ Economic~~.~~ Entomology~~,.,~~* 87: 1377.	Editorial correction.
[304]	**Leonhardt, B.A., Cunningham, R.T., Chambers, D.L., Avery, J.W. & Harte, E.M.** 1994. Controlled-release panel traps for the Mediterranean fruit fly (Diptera: Tephritidae). *Journal of~~.~~ Economic~~.~~ Entomology~~,.,~~* 87: 1217–1223.	Editorial correction.
[305]	**Martinez, A.J., Salinas, E.~~-~~J. & Rendón, P.** 2007. Capture of *Anastrepha* species (Diptera: Tephritidae) with Multilure traps and Biolure attractants in Guatemala. *Florida Entomologist~~,.,~~* 90(1): 258–263.	Editorial correction.
[306]	**Prokopy, R.J.** 1972. Response of apple maggot flies to rectangles of different colors and shades. *Environmental~~.~~ Entomology~~,.,~~* 1: 720–726.	Editorial correction.
[307]	**Robacker, D.C. & Czokajlo, D.** 2006. Effect of propylene glycol antifreeze on captures of Mexican fruit flies (Diptera: Tephritidae) in traps baited with BioLures and AFF lures. *Florida Entomologist*, 89(2): 286–287.	Editorial correction.
[308]	**Robacker, D.C. & Warfield, W.C.** 1993. Attraction of both sexes of Mexican fruit fly, *Anastrepha ludens*, to a mixture of ammonia, methylamine, and putrescine. *Journal of~~.~~ Chemical~~.~~ Ecology~~,.,~~* 19: 2999–3016.	Editorial correction.
[309]	**Schutze, M.K., Aketarawong, N., Amornsak, W., Armstrong, K.F., Augustinos, A.A., Barr, N., Bo, W., Bourtzis, K., Boykin, L.M., Cáceres, C., Cameron, S.L., Chapman, T.A., Chinvinijkul, S., Chomič, A., De Meyer, M., Drosopoulou, E., Englezou, A., Ekesi, S., Gariou-Papalexiou, A., Geib, S.M., Hailstones, D., Hasanuzzaman, M., Haymer, D., Hee~~-~~, A.K.W., Hendrichs, J., Jessup, A., Ji, Q., Khamis, F.M., Krosch, M.N., Leblanc, L., Mahmood, K., Malacrida, A.R., Mavragani-Tsipidou, P., Mwatawala, M., Nishida, R., Ono, H., Reyes, J., Rubinoff, D., San Jose, M., Shelly, T.E., Srikachar, S., Tan, K.H., Thanaphum, S., Ul-Haq, I., Vijaysegaran, S., Wee, S.L., Yesmin, F.,**	Reference added to support the change in taxonomy for synonymization of four species to a single biological species, *B. dorsalis*. Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	Zacharopoulou, A. & Clarke, A.R. 2014. Synonymization of key pest species within the *Bactrocera dorsalis* species complex (Diptera: Tephritidae): ~~t~~Taxonomic changes based on 20 years of integrative morphological, molecular, cytogenetic, behavioral, and chemoecological data. *Systematic Entomology*, 40: 456–~~-~~471.	
[310]	**Tan, K.H.** 1982. Effect of permethrin and cypermethrin against *Dacus dorsalis* in relation to temperature. *Malaysian Applied Biology*~~,~~ 11: 41–45.	Editorial correction.
[311]	**Tan, K.H., Nishida, R., Jang, E.B. & Shelly, T.E.** 2014. Pheromones, male lures, and trapping of tephritid fruit flies. *In* T. Shelly, N. Epsky, E. Jang, J. Reyes-Flores & R. Vargas, eds. *Trapping and the detection, control, and regulation of tephritid fruit flies: Lures, area-wide programs, and trade implications*, pp. 15–74. Dordrecht, Springer. 638 pp.	Reference added to support the change in the definition of "parapheromone" and its replacement by "male lure". Editorial corrections.
[312]	**Thomas, D.B.** 2003. Nontarget insects captured in fruit fly (Diptera: Tephritidae) surveillance traps. *Journal of~~-~~ Economic~~-~~ Entomology*~~,~~ 96(6): 1732–1737.	Editorial correction.
[313]	**Tóth, M., Szarukán, I., Voigt, E. & Kozár, F.** 2004. Hatékony cseresznyelégy- (*Rhagoletis cerasi* L., Diptera, Tephritidae) csapda kifejlesztése vizuális és kémiai ingerek figyelembevételével. [Importance of visual and chemical stimuli in the development of an efficient trap for the European cherry fruit fly (*Rhagoletis cerasi* L.) (Diptera, Tephritidae).] *Növényvédelem*~~,~~ 40: 229–236.	Editorial corrections (italics).
[314]	**Tóth, M., Tabilio, R. & Nobili, P.** 2004. Különféle csapdatípusok hatékonyságának összehasonlitása a földközi-tengeri gyümölcslégy (*Ceratitis capitata* Wiedemann) hímek fogására. [Comparison of efficiency of different trap types for capturing males of the Mediterranean fruit fly *Ceratitis capitata* Wiedemann (Diptera: Tephritidae).] *Növényvédelem*~~,~~ 40 :179–183.	Editorial correction (italics).
[315]	—— 2006. Le trappole per la cattura dei maschi della Mosca mediterranea della frutta. *Frutticoltura*~~,~~ 68(1): 70–73.	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[316]	**Tóth, M., Tabilio, R., Nobili, P., Mandatori, R., Quaranta, M., Carbone, G. & Ujváry, I.** 2007. A földközi-tengeri gyümölcslégy (*Ceratitis capitata* Wiedemann) kémiai kommunikációja: alkalmazási lehetŒségek észlelési és rajzáskövetési célokra. [Chemical communication of the Mediterranean fruit fly (*Ceratitis capitata* Wiedemann): Application opportunities for detection and monitoring.] *Integr. Term. Kert. Szántóf. Kult.*, 28: 78–88.	Editorial correction. The Secretariat notes that it was not possible to find online the full name of this journal.
[317]	**Tóth, M., Tabilio, R., Mandatori, R., Quaranta, M. & Carbone, G.** 2007. Comparative performance of traps for the Mediterranean fruit fly *Ceratitis capitata* Wiedemann (Diptera: Tephritidae) baited with female-targeted or male-targeted lures. *International Journal of Horticultural Science*, 13: 11–14.	Editorial correction. Move this reference to just after the one at [313] ("Mandatori" before "Nobili").
[318]	**Tóth, M. & Voigt, E.** 2009. Relative importance of visual and chemical cues in trapping *Rhagoletis cingulata* and *R. cerasi* in Hungary. *J. Pest. Sci.* (submitted).	The Secretariat notes that this article cannot be found online in this journal. Perhaps it was submitted, but not accepted. Perhaps it was eventually published in another journal.
[319]	**Voigt, E. & Tóth, M.** 2008. Az amerikai keleti cseresznyelegyet és az európai cseresznyelegyet egyaránt fogó csapdatípusok. [Trap types catcing both *Rhagoletis cingulata* and *R. cerasi* equally well.] *Agrofórum*, 19: 70–71.	Editorial correction.
[320]	**Wall, C.** 1989. Monitoring and spray timing. *In* A.R. Jutsum & R.F.S. Gordon, eds. *Insect pheromones in plant protection*, pp. 39–66. New York, NY, Wiley. 369 pp.	Editorial correction.
[321]	**White, I.M. & Elson-Harris, M.M.** 1994. *Fruit flies of economic significance: Their identification and bionomics*. Australian Centre for International Agricultural Research (ACIAR), 17–21.	The Secretariat notes that this article needs to be checked: what was given as a journal name is an organization, not a journal. Googling seems to show it is a book published by ACIAR and CABI but then it is not clear why page numbers are cited.
[322]	**Wijesuriya, S.R. & De Lima, C.P.F.** 1995. Comparison of two types of traps and lure dispensers for *Ceratitis capitata* (Wiedemann) (Diptera: Tephritidae). *Australian Journal of Entomology*, 34: 273–275.	Editorial correction.

ATTACHMENT 1

Table 2a. Attractants and traps for male fruit fly surveys

Fruit fly species	Attractant and trap ~~(see below for abbreviations)~~																									
	TML/CE											ME								CUE							
	CC	CH	ET	JT	LT	MM	ST	SE	TP	YP	VARs+	CH	ET	JT	LT	MM	ST	TP	YP	CH	ET	JT	LT	MM	ST	TP	YP
Anastrepha fraterculus																											
Anastrepha ludens																											
Anastrepha obliqua																											
Anastrepha striata																											
Anastrepha suspensa																											
Bactrocera carambolae												x	x	x x	x	x	x	x	x x								
Bactrocera caryeae												x	x	x ~~x~~	x	x	x	x	x ~~x~~								
Bactrocera ~~citri (B.~~ minax~~)~~																											
Bactrocera correcta												x	x	x	x	x	x	x	x								
Bactrocera cucumis																											
Bactrocera cucurbitae																				x	x	x	x	x	x	x	x
Bactrocera dorsalis												x	x	x	x	x	x	x	x								
~~*Bactrocera invadens*~~												~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~								
Bactrocera kandiensis												x	x	x	x	x	x	x	x								
Bactrocera latifrons																											
Bactrocera occipitalis												x	x	x	x	x	x	x	x								
Bactrocera oleae																											
~~*Bactrocera papayae*~~												~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~								
~~*Bactrocera philippinensis*~~												~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~								
Bactrocera tau																				x	x	x	x	x	x	x	x
Bactrocera tryoni																				x	x	x	x	x	x	x	x
Bactrocera tsuneonis																											
Bactrocera umbrosa												x	x	x	x	x	x ~~x~~	x	x								
Bactrocera zonata												x	x	x	x	x	x ~~x~~	x	x								
Ceratitis capitata		x	x	x	x	x	x	x	x	x	x																

Fruit fly species	Attractant and trap ~~(see below for abbreviations)~~																									
	TML/CE											ME								CUE							
	CC	CH	ET	JT	LT	MM	ST	SE	TP	YP	VARs+	CH	ET	JT	LT	MM	ST	TP	YP	CH	ET	JT	LT	MM	ST	TP	YP
Ceratitis cosyra																											
Ceratitis rosa		x	x	x	x	x	x	x	x	x	x																
Dacus ciliatus																											
Myiopardalis pardalina																											
Rhagoletis cerasi																											
Rhagoletis cingulata																											
Rhagoletis indifferens																											
Rhagoletis pomonella																											
Toxotrypana curvicauda																											

Attractant abbreviations

CE Capilure ~~TML Trimedlure~~
CUE Cuelure ~~CE Capilure~~
ME Methyl eugenol
TML Trimedlure ~~CUE Cuelure~~

Trap abbreviations

CC Cook and Cunningham ~~(C&C)~~ trap
CH ChamP trap
ET Easy trap
JT Jackson trap
LT Lynfield trap
MM Maghreb-Med or Morocco trap
SE Sensus trap~~ST Steiner trap~~
ST Steiner trap ~~SE Sensus trap~~
TP Tephri trap
VARs+ Modified funnel trap
YP Yellow panel trap

Table 2b. ~~-~~ Attractants and traps for female-biased fruit fly surveys

Fruit fly species	Attractant and trap ~~(see below for abbreviations)~~																								
	3C							2C-2					2C-1	PA			SK+AC		AS (AA, AC)				BuH			MVP
	ET	SE	MLT	OBDT	LT	MM	TP	ET	MLT	LT	MM	TP	MLT	ET	McP	MLT	CH	YP	RB	RS	YP	PALz	RS	YP	PALz	GS
Anastrepha fraterculus															x~~X~~	x										
Anastrepha grandis															x~~X~~	x										
Anastrepha ludens													x		x~~X~~	x										
Anastrepha obliqua													x		x~~X~~	x										
Anastrepha striata															x~~X~~	x										
Anastrepha suspensa													x		x~~X~~	x										
Bactrocera carambolae															x~~X~~	x										
Bactrocera caryeae															x~~X~~	x										
Bactrocera ~~citri (B. minax)~~															x~~X~~	x										
Bactrocera correcta															x	x										
Bactrocera cucumis															x	x										
Bactrocera cucurbitae			x												x	x										
Bactrocera dorsalis			x												x	x										
~~*Bactrocera invadens*~~			~~x~~												~~x~~	~~x~~										
Bactrocera kandiensis															x	x										
Bactrocera latifrons															x	x										
Bactrocera occipitalis															x	x										
Bactrocera oleae														x	x	x	x	x			x	x				
~~*Bactrocera papayae*~~															~~x~~	~~x~~										
~~*Bactrocera philippinensis*~~															~~x~~	~~x~~										
Bactrocera tau															x	x										
Bactrocera tryoni															x	x										
Bactrocera tsuneonis															x	x										

Fruit fly species	Attractant and trap ~~(see below for abbreviations)~~																								
	3C							2C-2					2C-1	PA			SK+AC		AS (AA, AC)				BuH			MVP
	ET	SE	MLT	OBDT	LT	MM	TP	ET	MLT	LT	MM	TP	MLT	ET	McP	MLT	CH	YP	RB	RS	YP	PALz	RS	YP	PALz	GS
Bactrocera umbrosa															x	x										
Bactrocera zonata			x												x	x										
Ceratitis capitata	x	x	x	x~~X~~	x	x	x	x~~X~~	x	x	x	x		x	x	x										
Ceratitis cosyra			x						x						x	x										
Ceratitis rosa		x	x						x						x	x										
Dacus ciliatus			x												x	x										
Myiopardalis pardalina															x	x										
Rhagoletis cerasi																			x	x	x	x	x	x	x	
Rhagoletis cingulata																					x	x		x	x	
Rhagoletis indifferens																				x	x					
Rhagoletis pomonella																			x		x	x	x			
Toxotrypana curvicauda																										x

Attractant abbreviations

2C-1 (AA+Pt)~~3C (AA+Pt+TMA)~~
2C-2 (AA+TMA)
3C (AA+Pt+TMA)~~2C-1 (AA+Pt)~~
AA Ammonium acetate ~~PA Pprotein attractant~~
AC Ammonium (bi)carbonate
AS Ammonium salts ~~SK Sspiroketal~~
~~AC Aammonium (bi)carbonate~~
BuH Butyl hexanoate ~~AS Aammonium salts~~
MVP Papaya fruit fly pheromone~~AA Aammonium acetate~~
(2-methyl vinylpyrazine)~~BuH Bbutyl hexanoate~~
PA Protein attractant ~~MVP Ppapaya fruit fly pheromone~~
Pt Putrescine ~~(2-methyl vinylpyrazine)~~
SK Spiroketal
TMA Trimethylamine ~~Pt Pputrescine~~
~~TMA tTrimethylamine~~

Trap abbreviations

CH	ChamP trap	McP	McPhail trap	RS	Red sphere trap
ET	Easy trap	MLT	Multilure trap	SE	Sensus trap
GS	Green sphere trap	OBDT	Open bottom dry trap	TP	Tephri trap
LT	Lynfield trap	PALz	Fluorescent yellow sticky “cloak” trap	YP	Yellow panel trap
MM	Maghreb-Med or Morocco trap	RB	Rebell trap		

Table 3. List of attractants and field longevity

Common name	~~Attractant~~ aAbbreviation~~s~~	Formulation	Field longevity[1] (weeks)
Male luresParapheromones			
Trimedlure	TML	Polymeric plug	4–10
		Laminate	3–6
		Liquid	1–4
		PolyethylenePE bag	4-5
Methyl eugenol	ME	Polymeric plug	4–10
		Liquid	4–8
Cuelure	CUE	Polymeric plug	4–10
		Liquid	4–8
Capilure (TML plus extenders)	CE	Liquid	12–36
Pheromones			
Papaya fruit fly (*TToxotrypana curvicauda*)	MVP	Patches	4–6
(2-methyl-6-vinylpyrazine)			
Olive flies (spiroketal)	SK	Polymer	4–6
Food-based attractants			
Torula yeast/borax	PA	Pellet	1–2
Protein derivatives	PA	Liquid	1–2
Ammonium acetate	AA	Patches	4–6
		Liquid	1
		Polymer	2–4
Ammonium (bi)carbonate	AC	Patches	4–6
		Liquid	1
		Polymer	1–4
Ammonium salts	AS	Salt	1
Putrescine	Pt	Patches	6–10
Trimethylamine	TMA	Patches	6–10
Butyl hexanoate	BuH	Vial	2

Ammonium acetate + Putrescine + Trimethylamine	3C (AA+Pt+TMA)	Cone/patches	6–10
Ammonium acetate + Putrescine + Trimethylamine	3C (AA+Pt+TMA)	Long-lasting patches	18–26
Ammonium acetate + Trimethylamine	2C-2 (AA+TMA)	Patches	6–10
Ammonium acetate + Putrescine	2C-1 (AA+Pt)	Patches	6–10
Ammonium acetate / Ammonium carbonate	AA/AC	Polyethylene~~PE~~ bag with~~.~~ Aluminium foil cover	3–4

[1] Based on half-life. Attractant longevity is indicative only. Actual timing should be supported by field testing and validation.

CONSISTENCY CORRECTIONS IN RELATION TO HARMONIZATION OF FRUIT FLY STANDARDS

(Developed by the TPFF, October 2015; approved by SC May 2016 pending CPM-12 decision on reorganization)

ANNEX 1 (Establishment of areas of low pest prevalence for fruit flies (2008)) (ex ISPM 30), including APPENDIX 1 (Typical applications of an FF-ALPP) (ex Appendix 2 of ISPM 30), and ANNEX 2 (Parameters used to estimate the level of fruit fly prevalence) (ex Annex 1 of ISPM 30) of ISPM 35 (*Systems approach for pest risk management of fruit flies (Tephritidae)*)

Existing text from ex ISPM 30 is indicated in red text except for ex ISPM 30 Annex 2 which is indicated in green text because it was merged into section 8 on corrective action plans.

New text and proposed changes to existing text are indicated in black text or in track changes mode. Some text has been highlighted to indicate a special change, as it would otherwise not be clear. The "explanation column" clarifies this.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[1]	This annex is a prescriptive part of the standard. ~~***Adoption***~~ **ANNEX 1 Establishment of areas of low pest prevalence for fruit flies**	Existing text from ex ISPM 30 is indicated in red.
[2]	~~This standard was adopted by the Third Session of the Commission on Phytosanitary Measures in April 2008.~~	Deleted as not appropriate here.
[3]	~~**INTRODUCTION**~~	Deleted as merged with ISPM 35.
[4]	~~**Scope**~~	Deleted as merged with ISPM 35.
[5]	~~This standard provides guidelines for the establishment and maintenance of areas of low pest prevalence for fruit flies (FF-ALPPs) by a national plant protection organization~~	Most of this paragraph was deleted, the rest (highlighted) integrated into the scope of ISPM 35.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	~~(NPPO). Such areas may be utilized as official pest risk management measures alone, or as part of a systems approach, to facilitate trade of fruit fly host products, or to minimize the spread of regulated fruit flies within an area. This standard applies to fruit flies (Tephritidae) of economic importance.~~	
[6]	~~**References** [standard text to be inserted]~~	Deleted as merged with ISPM 35.
[7]	~~**Definitions**~~	Deleted as merged with ISPM 35.
[8]	~~**Definitions of phytosanitary terms used in the present standard can be found in ISPM 5 (*Glossary of phytosanitary terms*).**~~	Deleted as merged with ISPM 35.
[9]	~~**Outline of Requirements**~~	Deleted as merged with ISPM 35
[10]	This annex provides guidance for~~on~~ the ~~The general requirements for~~ establishment and maintenance by an~~the~~ NPPO of an ~~area of low pest prevalence for fruit flies (~~FF-ALPP~~)~~ with the aim to facilitate trade by minimizing the risk of introduction or spread of regulated fruit flies. The guidance covers:	Text integrated from [25]. Editorial corrections (abbreviations that are defined in the core standard need not be re-defined in the component documents).
[11]	• confirming the operational and economic feasibility of the FF-ALPP	
[12]	• describing the purpose of the FF-ALPP~~area~~	Editorial correction.
[13]	• listing the target fruit fly species~~(s)~~ for the FF-ALPP	
[14]	• operational plans	
[15]	• determination of the FF-ALPP	
[16]	• documentation and record keeping	
[17]	• supervision activities.	
[18]	~~For the establishment of the FF-ALPP, parameters used to estimate the level of fruit fly prevalence and the efficacy of trapping devices for surveillance should be determined~~	Moved to ISPM 35 [12].

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	~~as stated in Annex 1. Surveillance, control measures and corrective action planning are required for both establishment and maintenance. Corrective action planning is described in Annex 2.~~	
[19]	~~Other specific requirements include phytosanitary procedures, as well as suspension, loss and reinstatement of the status of the FF-ALPP.~~	Moved to ISPM 35 [12].
[20]	Information on the typical applications of an FF-ALPP is available in Appendix 1 of this annex.	Appendix 2 of ex ISPM 30 has been renumbered Appendix 1 of Annex 1 of ISPM 35 and reference added for clarity.
[21]	~~**BACKGROUND**~~	Deleted as merged with ISPM 35.
[22]	~~The International Plant Protection Convention (IPPC, 1997) contains provisions for areas of low pest prevalence (ALPPs), as does the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures (Article 6 of the WTO-SPS Agreement). ISPM 22:2005 describes different types of ALPPs and provides general guidance on the establishment of ALPPs. ALPPs may also be used as part of a systems approach (ISPM 14:2002).~~	First part deleted and two last sentences (highlighted) moved to ISPM 35.
[23]	~~Fruit flies are a very important group of pests for many countries because of their potential to cause damage to fruits and restrict national and international trade for plant products that are hosts of fruit flies.~~	Deleted as duplication of first paragraph of Background of ISPM 35.
[24]	~~The high probability of introduction of fruit flies associated with a wide range of hosts results in restrictions imposed by many importing countries and the need for phytosanitary measures to be applied in exporting countries related to movement of host material or regulated articles to ensure that the risk of introduction is appropriately mitigated.~~	Deleted as duplicated in the introductory remarks of this annex and also covered by the scope of ISPM 35.
[25]	~~This standard provides guidance for the establishment and maintenance by the NPPO of FF-ALPPs with the aim to facilitate trade by minimizing the risk of introduction or spread of regulated fruit flies.~~	Integrated into the introductory remarks of this annex ([10]).
[26]	FF-ALPPs are generally used as buffer zones for ~~fruit fly pest free areas (~~FF-PFAs~~)~~, fruit fly free places of production or fruit fly free production sites (either as a permanent buffer zone or as part of an eradication process), or for export purposes, usually in conjunction with other risk mitigation measures as a component of an FF-SA ~~systems~~	Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	approach (this which may include all or part of an FF-ALPP that acts as a buffer zone).	
[27]	They may occur naturally (and subsequently be verified, declared and monitored or otherwise managed); they may occur as a result of pest control practices during crop production that suppress the population of fruit flies in an area to limit their impact on the crop; or they may be established as a result of control practices that reduce the number of fruit flies in the area to a specified low level.	
[28]	The decision to establish an FF-ALPP may be closely linked to market access as well as to economic and operational feasibility.	
[29]	If an FF-ALPP is established for the export of fruit fly host commodities, the parameters for the establishment and maintenance of the FF-ALPP should be determined and agreed to in conjunction with the importing country, and in consideration of the guidanceguidelines presented in this standardannex and in accordance with ISPM 29 (*Recognition of pest free areas and areas of low pest prevalence*):2007.	Editorial correction (to avoid use of "guidelines").
[30]	The requirements for the establishment of FF-ALPPs in this standard annex can also be applied for movement of fruit between FF-ALPPs within a country.	Editorial correction as the reference is to FF-ALPPs only.
[31]	~~The target pests for which this standard was developed include insects of the order Diptera, family Tephritidae, of the genera *Anastrepha*, *Bactrocera*, *Ceratitis*, *Dacus*, *Rhagoletis* and *Toxotrypana*.~~	Deleted as ISPM 35 has "Tephritidae" in the title hence the specification is superfluous in this annex.
[32]	~~**REQUIREMENTS**~~	
[33]	~~**1. General Requirements**~~	
[34]	The concepts and provisions of ISPM 22:2005 (*Requirements for the establishment of areas of low pest prevalence*) apply to the establishment and maintenance of areas of low pest prevalenceALPPs for a specified pest, or a group of pests, including fruit flies, and therefore ISPM 22 should be referred to in conjunction with this standard annex.	Editorial corrections (the ISPM title was given in the core ISPM and doesn't need to be given again in component documents).
[35]	An FF-ALPP may be established in accordance with this standard annex under a variety of situations. Some situations may require the application of the full range of elements described inprovided by this standard annex, whereas others may require the	Editorial corrections ("elements provided by this standard" reads oddly).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	application of only some of those elements.	
[36]	Phytosanitary measures and specific procedures as further described in this ~~standard~~ annex may be required for the establishment and maintenance of an FF-ALPP by the NPPO. The decision to establish an ~~official~~ FF-ALPP may be based on all or some of the technical factors described~~provided~~ in this ~~standard~~ annex, as appropriate. They include factors~~components~~ such as pest biology and control methods, which will vary according to the species of fruit fly for which the FF-ALPP is being established.	Editorial corrections (for clarity, consistency). On "official", IPPC Style Guide says: "Anything "established, authorized or performed by an NPPO" is by definition "official". Many Glossary terms are defined as "official" (e.g. area, inspection, phytosanitary action, phytosanitary measure, quarantine, surveillance, test, treatment). It is therefore recommended not to use the word "official" where it is redundant."
[37]	The establishment of an ~~official~~ FF-ALPP should be considered against the overall operational and economic feasibility of establishing a programme to meet and maintain the low pest level and the objectives of the FF-ALPP.	Editorial correction (see explanation at [36]).
[38]	An FF-ALPP may be established~~applied~~ to facilitate the movement of fruit fly hosts from one FF-ALPP to another area of the same fruit fly pest status in order to protect areas endangered by a regulated fruit fly pest.	Editorial correction (consistency of terminology, sense).
[39]	The essential prerequisite for the establishment of an FF-ALPP is an area ~~that exists naturally, or that can be established, and~~ that can be delimited, monitored and verified by the NPPO to be of a specified fruit fly low pest prevalence level. The area may occur naturally as a result of climatic, biological or geographical factors that reduce or limit the fruit fly population through all or part of the year, it~~The area~~ may be in place to protect an FF-PFA or to support sustainable crop production, or it may have developed in response to suppression or eradication actions. ~~It may occur naturally as a result of climatic, biological or geographical factors that reduce or limit the fruit fly population through all or part of the year.~~	Editorial correction (for logical flow of information and elimination of redundancy).
[40]	An area can be defined as an FF-ALPP for one or more target fruit fly species. However, for an FF-ALPP covering multiple target fruit fly species, trapping devices and their deployment densities and locations should be specified (see Appendix 1 of ISPM 26)~~,~~ and low pest prevalence levels determined for each target fruit fly species.	Cross-reference added to enhance clarity. Editorial correction (need to remove comma to ensure "determined for each..." applies to "trapping devices..." too).
[41]	FF-ALPPs should include public awareness programmes of a ~~similar~~ nature ~~as~~ outlined in ~~section 1.1 of~~ ISPM 26~~:2006~~.	
[42]	**1.~~1~~ Operational P~~p~~lans**	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[43]	An official operational plan is needed to specify the phytosanitary procedures required to establish and maintain an FF-ALPP.	Potentially, “official” may be deleted (see explanation at [36]).
[44]	The operational plan should describe the main tasks~~procedures~~ to be carried out such as surveillance activities, procedures to maintain the specified level of low pest prevalence, preparation of the corrective action plan, and any others ~~procedures~~ that are required to achieve the objective of the FF-ALPP.	Editorial correction.
[45]	**~~1.~~2. Determination of an FF-ALPP**	
[46]	Elements to be considered in the determination of an FF-ALPP are as follows:	
[47]	• delimitation of the area (size ~~of location~~, detailed maps including an accurate description of the boundaries or global positioning system (GPS) coordinates for~~showing~~ the boundaries, natural barriers, ~~entry~~ points of entry, location of commercial and, as appropriate, non-commercial hosts of the target fruit fly and urban areas)	Editorial corrections.
[48]	• target fruit fly species and its/their seasonal and spatial distribution within the area	
[49]	• location, abundance and seasonality of hosts, including, wherever possible, specification of~~ying~~ primary (biologically preferred) hosts	
[50]	• climatic characteristics, including rainfall, relative humidity, temperature, and prevailing wind speed and direction	
[51]	• ~~identification of~~ factors limiting and keeping fruit fly population(s) at low levels.	Editorial correction (the factors not the identification of them are elements to be considered; plural option consistent with list item 3, “its/their”).
[52]	In areas where the prevalence of fruit flies is naturally at a low level because of climatic, geographical or other reasons (e.g. natural enemies, availability of suitable hosts, host seasonality), the target fruit fly population may already be below the specified level of low pest prevalence without applying any control measures. In such cases, surveillance should be undertaken over an appropriate length of time to validate the low pest prevalence status and this status may be recognized in accordance with ~~with the~~	Consequential change. The panel agreed that the cross-~~-~~reference to ISPM 8 section 3.1.1 was not fully appropriate because only one of the examples in this section would be applicable. Rather, the panel felt that a general reference to ISPM here was helpful because determination of status is dealt with throughout ISPM 8. Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	~~examples listed in section 3.1.1 of~~ ISPM 8 *(Determination of pest status in an area)*~~:1998~~. If, however, the fruit flies are detected above the specified level of low pest prevalence (e.g. because of extraordinary climatic conditions) corrective actions should be applied. ~~Guidelines for c~~Corrective action plans are described~~provided~~ in ~~Annex 2~~section 8 of this annex.	Change to avoid use of "guidelines".
[53]	**~~1.~~3. Documentation and ~~r~~Record -K~~k~~eeping**	Editorial correction.
[54]	The phytosanitary procedures used for the determination, establishment, verification and maintenance of an FF-ALPP should be adequately documented. These procedures should be reviewed and updated regularly, including the corrective actions if required (as described in ISPM 22~~:2005~~). It is recommended that a manual of procedures relating to the operational plan be prepared for the FF-ALPP.	
[55]	Documentation for determination and establishment may include:	
[56]	• list of fruit fly hosts known to occur in the area, including seasonality and commercial fruit production in the area (ISPM XX)	Cross-reference to ISPM on host status added to enhance clarity.
[57]	• delimitation records: detailed maps showing the boundaries, natural barriers and points where fruits may enter the area; description of agro-ecological features such as soil type, the location of main host areas of the target fruit fly, and marginal and urban host areas; and climatic conditions, for example rainfall, relative humidity, temperature, and prevailing wind speed and direction	Editorial correction.
[58]	• surveillance records:	
[59]	- trapping: types of surveys, number and type of traps and lures, frequency of trap inspection, trap density, trap array, trapping time and duration, number of target fruit flies captured by species for each trap, trap servicing (see Appendix 1 of ISPM 26)	Cross-~~-~~reference added to enhance clarity.
[60]	- fruit sampling: type, quantity, date, frequency and result (see Appendix 2 of ISPM 26)	Cross-reference added to enhance clarity.
[61]	• record of control measures used for fruit flies and other pests that may have an	Editorial correction (for consistency with "type(s)").

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	effect on fruit fly populations: type(s) and location(s).	
[62]	For verification and maintenance, documentation should include the data recorded to demonstrate the population levels of the target fruit fly species are below the specified level of low pest prevalence. The records of surveys and results of other operational procedures should be retained for at least 24 months. If the FF-ALPP is being used for export purposes, records should be made available to the NPPO of the relevant importing country on request and verification may take place if necessary.	
[63]	Corrective action plans should also be developed and maintained (see section ~~2.4~~ 8 of this annex).	Consequential change.
[64]	**~~1.~~4. Supervision A~~a~~ctivities**	Editorial correction.
[65]	The FF-ALPP programme, including applicable domestic regulations, surveillance procedures (e.g. trapping, fruit sampling) and corrective action plans, should comply with officially approved procedures. These procedures may include official delegation of responsibility ~~assigned~~ to key personnel, for example:	Editorial correction ("delegation" and "assigned" are redundant). Check whether "officially" and "official" can be deleted (see explanation at [36]).
[66]	• a person with defined authority and responsibility to ensure that the systems and ~~/~~procedures are implemented and maintained appropriately	
[67]	• entomologist(s) with responsibility for the identification of fruit flies to species level.	
[68]	The NPPO should evaluate and audit the operation of the procedures for the establishment and maintenance of the FF-ALPP to ensure that effective management is maintained even where the responsibility to carry out specific activities has been delegated ~~to~~ outside the NPPO. Supervision of operational procedures include~~s~~:	Editorial corrections.
[69]	• operation of surveillance procedures	
[70]	• surveillance capability	
[71]	• trapping materials (traps, attractants) and procedures	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[72]	• identification capability	
[73]	• application of control measures	
[74]	• documentation and record ~~-~~keeping	Editorial correction.
[75]	• implementation of corrective actions.	
[76]	~~**2. Specific Requirements**~~	
[77]	~~**2.1**~~**5. Establishment of an~~~~the~~ **FF-ALPP**	Editorial correction (for consistency of the headings in this annex).
[78]	Elements for consideration when establishing an FF-PFA are described in~~in sections 2.1 and 2.2 of~~ ISPM 26~~:2006~~ ~~-~~and may also be applied to establishing an FF-ALPP, as defined in the following subsections.	The panel felt that it was not needed to refer to the specific sections as ISPM 26 deals with establishment of PFAs throughout and that it would be more helpful to have a more general reference. Editorial corrections.
[79]	~~**2.1**~~**5.1 Determination of the specified level of low pest prevalence**	
[80]	Specified levels of low pest prevalence will depend on the level of risk associated with the target fruit fly species–host–area interaction. These levels should be established by the NPPO of the country where the FF-ALPP is located and with sufficient precision to allow assessment of whether surveillance data and protocols are adequate to determine that pest prevalence is below these levels.	
[81]	Individual NPPOs may draw on a variety of ~~different~~ factors when determining exactly what an appropriate level of pest prevalence should be for a given FF-ALPP. Some commonly considered factors include the following:	Editorial correction (redundancy).
[82]	• levels stipulated by trading partners in order for trade to proceed	
[83]	• levels in use by other NPPOs for the same or similar fruit fly species, hosts and agro~~-~~ecological conditions (including experience and historical data gained from the operation of other FF-ALPPs as to what levels are required to be maintained to achieve pest free fruits).	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[84]	Establishment of the parameters used to estimate the level of fruit fly prevalence is described in Annex 2~~1~~ of this standard.	Consequential change.
[85]	**~~2.1~~5.2 Geographical description**	
[86]	The NPPO defines the limits of a proposed FF-ALPP. Isolation of the area (physical or geographical) is not necessarily required for the establishment of an FF-ALPP~~s~~.	Editorial correction.
[87]	Boundaries used to describe the delimitation of the FF-ALPP should be established and closely related to the relative presence of hosts of the target fruit fly species or adjusted to readily recognizable boundaries.	
[88]	**5.3 Surveillance activities before ~~prior to~~ establishment**	Editorial correction.
[89]	Before~~Prior to~~ the establishment of an FF-ALPP, surveillance to assess the presence and level of prevalence of the target fruit fly species should be undertaken for a period determined by its biology and~~,~~ behaviour as well as~~,~~ climatic characteristics of the area, host availability and appropriate technical considerations. This surveillance should continue for at least 12 consecutive months.	Editorial corrections.
[90]	**~~2.2~~6. Phytosanitary P~~p~~rocedures**	Editorial correction.
[91]	**~~2.2~~6.1 Surveillance activities**	
[92]	Surveillance systems based on trapping are similar in any type of area of low pest prevalence~~ALPP~~. The surveillance used in an FF-ALPP may include those processes described in ISPM 6 *(Guidelines for Surveillance)*~~:1997~~, ~~section 2.2.2.1 on~~ the trapping procedures ~~of~~ described in Appendix 1 of ISPM 26~~:2006~~ and any other relevant scientific information.	
[93]	Fruit sampling is not widely used as a routine surveillance method ~~is not widely used~~ for monitoring fruit flies in low pest prevalence areas except in areas where sterile insect technique (SIT) is applied, where it may be a major tool (see Appendix 2 of ISPM 26).	Editorial correction.
[94]	The NPPO may complement trapping for adults with fruit sampling for larvae. Fruit	Editorial correction (“alone” removed for consistency with same text in [182]).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	sampling may be especially useful for surveillance for fruit flies when no traps are available. If larvae are detected by~~in~~ fruit sampling, it may be necessary to rear the larvae to adults in order to identify them. This is the case particularly if multiple species of fruit flies may be present. However, fruit sampling ~~alone~~ will not provide sufficient accuracy for describing the size of the population and should not be solely relied on to validate or verify the FF-ALPP status. Surveillance procedures may include those fruit sampling procedures described in ~~section 2.2.2.2 on~~ Appendix 2 of ISPM 26 ~~fruit sampling procedures of ISPM 26:2006.~~	
[95]	The presence and distribution of fruit fly commercial and non-commercial hosts should be recorded separately ~~identifying commercial and non-commercial hosts~~. This information will help in planning ~~the~~ trapping and ~~host~~ fruit sampling activities and may help in anticipating the potential ease or difficulty of establishing and maintaining the status of the relevant pest in the ~~area~~FF-ALPP.	Ink amendment for consistency with terminology used in other FF standards. Firstly, fruit is sampled, secondly it is determined if it is a host (i.e. it is not necessarily a host). Editorial corrections (for sense and redundancy). (Note that "phytosanitary status" was changed to "status of relevant pest in the area" as noted by CPM-10 (2015))
[96]	The NPPO should have, or have access to, appropriate identification capabilities for identification of the target fruit fly species detected during the surveys (whether adult or larvae). This capability should also exist for the ongoing verification of FF-ALPP status for the target fruit fly species.	
[97]	**~~2.2~~6.2 Reduction and maintenance of target fruit fly species population level**	
[98]	Specific control measures may be applied to reduce fruit fly populations to or below the specified level of low pest prevalence. Suppression of fruit fly populations may involve the use of more than one control option; some of these are described in ~~section 3.1.4.2 of ISPM 22:2005 and~~ Annex ~~-~~3 of ISPM 26~~:2006~~.	The panel considered that Annex 3, adopted only in 2015 and therefore not previously included here, was much more relevant as a reference, than both ISPM 22 and Annex 1 of ISPM 26, in this section because of its ample guidance.
[99]	Because~~Since~~ the target fruit fly species are either endemic or established in the area, preventive control measures to maintain fruit fly populations at or below the specified level of low pest prevalence are nearly always necessary (some FF-ALPPs may occur naturally). Efforts should be made by NPPOs to select those measures with least environmental impact.	Editorial correction.
[100]	Available methods ~~may~~ include:	Editorial correction ("may" not needed in this context of list of available methods that may be *used*, also for consistency with [143]).

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[101]	• chemical control (e.g. selective insecticide bait, aerial and ground spraying, bait stations and male annihilation technique)	
[102]	• physical control (e.g. fruit bagging)	
[103]	• use of beneficial organisms (e.g. natural enemies, SIT)	
[104]	• cultural control (e.g. stripping and destruction of mature and fallen fruit, elimination or replacement of other host plants by non-host plants where appropriate, early harvesting, discouraging intercropping with fruit fly host plants, pruning before the fruiting period, use of perimeter trap hosts).	
[105]	**6~~2.2~~.3 Phytosanitary measures related to movement of host material or regulated articles**	
[106]	Phytosanitary measures may be required to reduce the risk of entry of the specified pests into the FF-ALPP. These are outlined in ~~section 3.1.4.3 of ISPM 22:2005 and~~ Annex 3 of ISPM 26.	The panel considered that Annex 3, adopted only in 2015 and therefore not previously included here, was much more relevant as a reference, than ISPM 22 because of its ample guidance.
[107]	**6~~2.2~~.4 Domestic declaration of an FF-ALPP**	
[108]	The NPPO should verify the status of the FF-ALPP (in accordance with ISPM 8~~:1998~~) specifically by confirming compliance with the procedures established in accordance with this ~~standard~~ annex (surveillance and controls). The NPPO should declare and notify the establishment of the FF-ALPP, as appropriate.	
[109]	~~To verify the status of the FF-ALPP and f~~For the purposes of internal management, the continuing FF-ALPP status should be verified after it has been established and any phytosanitary measures for the maintenance of the FF-ALPP have been put in place.	Editorial correction (sense).
[110]	**~~2.3~~7. Maintenance of an~~the~~ FF-ALPP**	Editorial correction (for consistency of headings in this annex).
[111]	Once the FF-ALPP is established, the NPPO should maintain the relevant documentation and verification procedures (auditable), and continue the application of phytosanitary procedures as described in section ~~2.2~~ 6 of this ~~standard~~ annex.	Consequential change.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[112]	**~~2.3~~7.1 Surveillance**	
[113]	In order to maintain the FF-ALPP status, the NPPO should continue surveillance, as described in section ~~2.2.1~~ 6.1 of this ~~standard~~ annex.	Consequential change.
[114]	**~~2.3~~7.2 Control m~~M~~easures to maintain low prevalence levels of target fruit fly species**	Editorial corrections.
[115]	In most cases the control measures ~~as~~ identified in section ~~2.2.2~~ 6.2 of this annex may be applied to maintain the FF-ALPP, because~~since~~ the target fruit flies are still present in the established area.	Consequential change. Editorial corrections.
[116]	If the monitored fruit fly prevalence level is observed to be increasing (but remains below the specified level for the area), a threshold set by the NPPO for the application of additional control measures may be reached. At this point the NPPO may require implementation of such measures as described in~~(~~ Annex 3 of ISPM 26~~e.g. as described in section 3.1.4.2 of ISPM 22:2005~~). This threshold should be set to provide adequate warning that~~of potentially exceeding~~ the specified level of low pest prevalence will potentially be exceeded and therefore avert suspension.	The panel considered that Annex 3, adopted only in 2015 and therefore not previously included here, was much more relevant as a reference in this section than ISPM 22 because of its ample guidance. Editorial corrections.
[117]	**8.~~2.4~~ Corrective A~~a~~ction P~~p~~lans**	Ex ISPM 30 Annex 2 (indicated in green text) was merged into the section on corrective action plans. This is therefore not new text (and should not be edited), but is new in this standard. The panel considered adding the full heading of ex Annex 2 ("guidelines on corrective action plans for fruit flies in an FF-ALPP) but agreed instead to keep the simple title. First, this would be consistent with Annex 1 of ISPM 26 and second, because this section is within the annex on FF-ALPP, the specification was deemed superfluous. Editorial correction.
[118]	A corrective action plan for the FF-ALPP should be applied by the NPPO when the population level of the target fruit fly exceeds the specified level of low pest prevalence. ~~Annex 2 provides guidelines on corrective action plans for FF-ALPPs.~~	Reference to Annex 2 deleted as section 8 has been expanded to include all the information previously contained in Annex 2.
[119]	**8.1 Preparation of the corrective action plan** Faults in the phytosanitary procedures or their application (e.g. inadequate trapping or pest control measures, inadequate documentation) or the detection of a population level	Heading added for clearer structure now that the ex ISPM 30 Annex 2 has been incorporated into this annex.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	exceeding the specified level of low pest prevalence for the target fruit fly species in the FF-ALPP should trigger the implementation~~application~~ of a corrective action plan. The objective of the corrective action plan is to ensure procedures and their applications are adequate and suppression of the fruit fly population to below the specified level for low pest prevalence is achieved as soon as possible. It is the responsibility of the NPPO to ensure that appropriate corrective action plans are developed. Corrective action plans should not be repeatedly implemented because this may lead to a ~~loss~~ revocation of FF-ALPP status and the need to re-establish the area in accordance with the guidance~~guidelines~~ in~~of~~ this ~~standard~~annex.	Consequential change of "loss" to "revocation". Editorial correction ("faults in the phytosanitary procedures"; a plan is not "applied", and "implementation" is used at [121]; to avoid use of "guidelines").
[120]	The corrective action plan should be prepared taking into account the biology of the target fruit fly species, the geography of the FF-ALPP, climatic conditions, phenology, and host abundance and distribution within the area.	
[121]	The elements required for implementation of a corrective action plan include:	
[122]	• a declaration of suspension of FF-ALPP ~~of~~ status, where appropriate	Editorial correction.
[123]	• a legal framework under which the corrective action plan can be applied	Editorial correction.
[124]	• time frames~~scales~~ for the initial response and follow-up activities	Editorial correction.
[125]	• a delimiting survey (trapping and fruit sampling) and application of the suppression actions	Editorial correction.
[126]	• identification capability	
[127]	• the availability of sufficient operational resources	
[128]	• effective communication within the NPPO and with the NPPO(s) of the relevant importing country(ies), including provision of contact details of all parties involved	
[129]	• a detailed map and definition of the suspension area	
[130]	• revision and rectification of operational procedures~~, or~~	Editorial correction.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[131]	• a range of control measures ~~available~~ (e.g. pesticides).	Editorial correction.
[132]	**8.~~21~~ Implementation~~Application~~ of the corrective action plan**	Editorial correction (numbering was out of sequence; see note at [119]).
[133]	8.2.1~~(1)~~ *Notice to implement corrective actions*	Editorial correction (this level of heading should be numbered).
[134]	The NPPO notifies interested stakeholders and parties, including relevant importing countries, when initiating the implementation~~application~~ of a corrective action plan. The NPPO is responsible for supervising the implementation of corrective measures.	Editorial correction.
[135]	Notification should include the reason for initiating the implementation of the plan; that is, ~~i.e.~~ faulty procedures found or ~~exceeding~~ the specified level of low pest prevalence exceeded.	Editorial correction (for consistency because applying the plan, implementing the plan, initiating the plan have all been used).
[136]	8.2.2~~(2)~~ *Determination of the pest status*	(Note that "phytosanitary status" was changed to "pest status" as noted by CPM-10 (2015))
[137]	Immediately after detecting a population level higher than the specified level of low pest prevalence, a delimiting survey (which may include the deployment of additional traps, fruit sampling of host fruits and increased trap inspection frequency) should be carried out~~implemented~~ to determine the size of the affected area and more precisely gauge the level of the fruit fly prevalence.	Editorial correction (a survey is not really "implemented").
[138]	8.2.3~~(3)~~ *Suspension of FF-ALPP status*	
[139]	If the specified level of low pest prevalence of the target fruit fly species is exceeded or faulty procedures are found, the FF-ALPP status should be suspended as stated in section ~~2.5.~~9.1 of this ~~standard~~ annex.	Consequential change.
[140]	8.2.4~~(4)~~ *Rectification of procedural faults*	
[141]	Faulty procedures and associated documentation should be immediately reviewed to identify the source of the fault(s). The source and corrective action taken should be documented and the modified procedures monitored to ensure compliance with the objectives of the FF-ALPP.	
[142]	8.2.5~~(5)~~ *Implementation of control measures in the affected area*	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[143]	Specific suppression actions should immediately be implemented in the affected area(s). Available methods include:	
[144]	• selective insecticide ~~-~~bait treatments (aerial and/or ground spraying and bait stations)	Editorial correction.
[145]	• SIT~~sterile insect technique~~	Editorial correction (SIT has been define earlier in the annex so the abbreviation should be used).
[146]	• male annihilation technique	
[147]	• collection and destruction of affected fruit	
[148]	• stripping and destruction of host fruits, if possible	
[149]	• insecticide treatments (ground, cover).	
[150]	8.2.6~~(6)~~ *Notification of relevant agencies*	
[151]	Relevant NPPOs and other agencies should be kept informed of corrective actions. Information on pest reporting requirements under the IPPC is provided in ISPM 17 *(Pest reporting)*~~:2002~~.	
[152]	**~~2.5~~9. Suspension, R~~r~~einstatement and ~~loss~~ R~~r~~evocation of FF-ALPP status**	Change in consistency with ISPM 26 changes. Editorial correction.
[153]	**~~2.5~~9.1 Suspension ~~of FF-ALPP status~~**	Headings aligned with the analogous headings in ISPM 26.
[154]	If the specified level of low pest prevalence of the target fruit fly species is exceeded either throughout the whole FF-ALPP ~~area~~ or within a part of the FF-ALPP, the entire FF-ALPP is normally suspended. However, where the affected area within the FF-ALPP can be identified and clearly delimited, ~~then~~ the FF-ALPP may be redefined to suspend only that area.	Editorial correction (“A” in “ALPP” is “area” so it’s incorrect to say “ALPP area”).
[155]	Relevant importing NPPOs should be notified without undue delay of these actions (further information on pest reporting requirements is provided in ISPM 17~~:2002~~).	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[156]	Suspension may also apply if faults in the application of the procedures are found (e.g. ~~for example,~~ inadequate trapping, pest control measures or documentation).	Editorial correction.
[157]	If an FF-ALPP is suspended, an investigation by the NPPO should be initiated to determine the cause of the failure and introduce measures to prevent such failures from reoccurring.	
[158]	When an FF-ALPP is suspended, the criteria for reinstatement should be made clear.	
[159]	**~~2.5~~9.2 Reinstatement ~~of FF-ALPP status~~**	
[160]	Reinstatement of FF-ALPP status applies only to suspended areas and may take place when one or both of these criteria have been met:	Editorial correction (to address problem at [161]).
[161]	• the population level no longer exceeds the specified level of low pest prevalence and this is maintained for a period determined by the biology of the target fruit fly species and the prevailing environmental conditions~~; and/or~~	Editorial correction.
[162]	• faulty procedures have been corrected and verified.	
[163]	Once the specified level of low pest prevalence has been achieved and maintained ~~as required above~~ and/or procedural faults have been rectified through the application of corrective actions contained in the plan, the FF-ALPP status can be reinstated. If the FF-ALPP is established for export of host fruits, records regarding the reinstatement should be made available to the NPPO(s) of the relevant importing country(ies) on request and verification may take place if necessary.	Editorial correction ("as required above" does not make sense, possibly "as described above, but it's not necessary; "and/or" in line with []160]/[161]; option for plural NPPOs as for plural countries).
[164]	**~~2.5~~9.3 ~~Loss~~ Revocation ~~of FF-ALPP status~~**	Change in consistency with ISPM 26 changes.
[165]	~~Loss of~~ The FF-ALPP status should ~~occur~~ be revoked after suspension if reinstatement has failed to take place within a justifiable time frame, taking into account the biology of the fruit fly target species. Relevant importing NPPOs should be notified without undue delay of the change in status of the FF-ALPP (further information on pest reporting requirements is provided in ISPM 17).	
[166]	In the event that FF-ALPP status is ~~lost~~ revoked, the procedures for establishment and maintenance outlined in this ~~standard~~annex should be followed to achieve the FF-ALPP	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	status again, and should take into account all background information related to the area.	
[167]	This annex is a prescriptive part of the standard.	
[168]	**ANNEX ~~1~~2: Parameters used to estimate the level of fruit fly prevalence**	
[169]	Parameters used to determine the level of fruit fly prevalence in the FF-ALPP are defined by the NPPO. The most widely used parameter is flies per trap per day (FTD). More precise spatial data may be presented on the basis of trap density (i.e. FTD per unit area) or temporally for each trap present in an area over time.	
[170]	~~The~~ FTD is an index used to estimate the population by averaging the number of flies captured by one trap in one day. This parameter estimates the relative number of fruit fly adults in a given time and space. It provides baseline information to compare fruit fly populations in~~among~~ different places and/or across time.	Editorial corrections.
[171]	The FTD index is the result of dividing the total number of captured flies (F) by the product obtained from multiplying the total number of inspected traps (T) by the average number of days the traps were exposed in the field (D). The formula is as follows:	Editorial corrections (to remove redundancy with [173] to [176] and to match [217] in Appendix 1 of ISPM 26].
[172]	$\frac{F}{T \times D}$	
[173]	~~Where~~	
[174]	~~F = total number of flies captured~~	
[175]	~~T = number of inspected traps~~	
[176]	~~D = number of days traps were exposed in the field.~~	
[177]	In cases where traps are regularly inspected on a weekly basis, or longer in the case of winter surveillance operations, the parameter may be “flies per trap per week” (FTW). FTW~~It~~ estimates the number of flies captured by one trap in one week. ~~Thus,~~ FTD can be obtained from FTW by dividing by seven~~7~~. Any significant changes in the status of any parameters critical to the efficacy of the FF-ALPP should be reviewed and modified,	Editorial corrections.

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	as appropriate.	
[178]	Specified levels of low pest prevalence, as expressed in FTD values, should be established in relation to the risk of infestation of the fruits that are intended to be protected by the FF-ALPP, and in relation to any specific related objectives of the FF-ALPP (e.g. fruit ~~-~~fly free commodities for export). In situations where a single FF-ALPP contains more than one host species (i.e. the ALPP is intended to protect more than one target fruit fly host), the specified level of low pest prevalence should be based on scientific information relating to each host of the fruit fly species, and the risks of infestation and comparative preferences of the target fruit fly species for the different hosts. However, in situations where the FF-ALPP is established to protect only one type of host, consideration should be given to the level of infestation expected on that host. In such situations, lower specified levels of low pest prevalence are usually established for the primary host~~(~~s~~)~~ of the target fruit fly species and comparatively higher levels for secondary hosts.	Editorial corrections.
[179]	The biology of the target fruit flies (including number of generations per year, host range, host species present in the area, temperature thresholds, behaviour, reproduction and dispersion capacity) plays a major role in establishing appropriate specified levels of low pest prevalence. For an FF-ALPP with several hosts present, the established specified levels of low pest prevalence should reflect host diversity and abundance, host preference and host sequence for each target fruit fly species present. Although an FF-ALPP may have different specified levels of low pest prevalence for each relevant fruit fly target species, those levels should remain fixed for the whole area and duration of the FF-ALPP operation.	
[180]	The e~~E~~fficiency of the types of traps and attractants used to estimate the levels of the pest population and the procedures applied for servicing the traps should be taken into consideration. The rationale is that different trap efficiencies could lead to different FTD results at the same location for a given population, so they have a significant effect on~~in~~ measuring the prevalence level of the target fruit fly species. Thus, when specifying the level of low pest prevalence accepted in terms of an FTD value, the efficacy of the trapping system should be stated as well.	Editorial corrections.
[181]	Once a specified level of low pest prevalence has been established for a given situation using a specific lure or ~~/~~attractant, the lure or ~~/~~attractant used in the FF-ALPP must not be changed or modified until an appropriate specified level of low pest prevalence is determined for the new formulation. For FF-ALPPs with multiple target fruit fly species	Editorial correction to avoid the use of "/".

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
	present that are attracted to different lures/attractants, trap placement should take into consideration possible interactive effects between themlures/attractants.	
[182]	Fruit sampling can be used as a complementary surveillance method to trapping to assess the profile of the fruit fly population levels, particularly if traps are not available for target species. Fruit sampling should be done on known hosts. It should be taken into account that efficacy of fruit sampling depends on sample size, frequency and timing. Fruit sampling may include rearing larvae to identify the fruit fly species. If fruit cutting is done, the efficacy of visually detecting larvae should be considered. However, fruit sampling will not provide sufficient accuracy for describing the size of the population and should not be solely relied on to validate or verify the FF-ALPP status.	
[183]	This annex is a prescriptive part of the standard.	
[184]	ANNEX 2: Guidelines on corrective action plans for fruit flies in an FF-ALPP	"Guidelines on" and "for fruit flies in an FF-ALPP" were not incorporated into section 8 in line with the SC decision to avoid using "guidelines" in titles of ISPMs (and hence also heading) and for consistency with Annex 1 of ISPM 26.
[185]	Faults in the procedures or their application (e.g. inadequate trapping or pest control measures, inadequate documentation) or the detection of a population level exceeding the specified level of low pest prevalence for the target fruit fly species in the FF-ALPP should trigger the application of a corrective action plan. The objective of the corrective action plan is to ensure procedures and their applications are adequate and suppression of the fruit fly population to below the specified level for low pest prevalence is achieved as soon as possible. It is the responsibility of the NPPO to ensure that appropriate corrective action plans are developed. Corrective action plans should not be repeatedly implemented because this may lead to a loss of FF-ALPP status and the need to re-establish the area in accordance with the guidelines of this standard.	
[186]	The corrective action plan should be prepared taking into account the biology of the target fruit fly species, the geography of the FF-ALPP, climatic conditions, phenology, and host abundance and distribution within the area.	
[187]	The elements required for implementation of a corrective action plan include:	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[188]	• ~~declaration of suspension of FF-ALPP of status, where appropriate~~	
[189]	• ~~legal framework under which the corrective action plan can be applied~~	
[190]	• ~~time scales for the initial response and follow-up activities~~	
[191]	• ~~delimiting survey (trapping and fruit sampling) and application of the suppression actions~~	
[192]	• ~~identification capability~~	
[193]	• ~~availability of sufficient operational resources~~	
[194]	• ~~effective communication within the NPPO and with the NPPO(s) of the relevant importing country(ies), including provision of contact details of all parties involved~~	
[195]	• ~~a detailed map and definition of the suspension area~~	
[196]	• ~~revision and rectification of operational procedures, or~~	
[197]	• ~~range of control measures available e.g. pesticides.~~	
[198]	~~**Application of the corrective action plan**~~	
[199]	~~(1) *Notice to implement corrective actions*~~	
[200]	~~The NPPO notifies interested stakeholders and parties, including relevant importing countries, when initiating the application of a corrective action plan. The NPPO is responsible for supervising the implementation of corrective measures.~~	
[201]	~~Notification should include the reason for initiating the plan i.e. faulty procedures or exceeding the specified level of low pest prevalence.~~	
[202]	~~(2) *Determination of the phytosanitary status*~~	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[203]	~~Immediately after detecting a population level higher than the specified level of low pest prevalence, a delimiting survey (which may include the deployment of additional traps, fruit sampling of host fruits and increased trap inspection frequency) should be implemented to determine the size of the affected area and more precisely gauge the level of the fruit fly prevalence.~~	
[204]	~~(3) *Suspension of FF-ALPP status*~~	
[205]	~~If the specified level of low pest prevalence of the target fruit fly species is exceeded or faulty procedures are found, the FF-ALPP status should be suspended as stated in section 2.5.1 of this standard.~~	
[206]	~~(4) *Rectification of procedural faults*~~	
[207]	~~Faulty procedures and associated documentation should be immediately reviewed to identify the source of the fault(s). The source and corrective action taken should be documented and the modified procedures monitored to ensure compliance with the objectives of the FF-ALPP.~~	
[208]	~~(5) *Implementation of control measures in the affected area*~~	
[209]	~~Specific suppression actions should immediately be implemented in the affected area(s). Available methods include:~~	
[210]	~~• selective insecticide-bait treatments (aerial and/or ground spraying and bait stations)~~	
[211]	~~• sterile insect technique~~	
[212]	~~• male annihilation technique~~	
[213]	~~• collection and destruction of affected fruit~~	
[214]	~~• stripping and destruction of host fruits, if possible~~	
[215]	~~• insecticide treatments (ground, cover).~~	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[216]	~~*(6) Notification of relevant agencies*~~	
[217]	~~Relevant NPPOs and other agencies should be kept informed of corrective actions. Information on pest reporting requirements under the IPPC is provided in ISPM 17:2002.~~	
[218]	~~This appendix is for reference purposes only and is not a prescriptive part of the standard.~~	
[219]	~~**APPENDIX 1: Guidelines on trapping procedures**~~	Deleted as this appendix was a duplication of Appendix 1 of ISPM 26, which has elaborated text and was adopted more recently. The relevant cross-reference was added in the text of the annex.
[220]	~~Information about trapping is available in the following publication of the International Atomic Energy Agency (IAEA):~~	
[221]	~~**IAEA**. 2003. *Trapping guidelines for area-wide fruit fly programmes*. Vienna, Austria, Joint FAO/IAEA Division. 47 pp.~~	
[222]	~~This publication is widely available, easily accessible and generally recognized as authoritative.~~	
[223]	This appendix is for reference purposes only and is not a prescriptive part of the ~~standard~~annex.	
[224]	**APPENDIX ~~2~~1 OF ANNEX 1: Typical applications of an FF-ALPP**	
[225]	**1. ~~An~~ FF-ALPP~~s~~ as ~~a~~ B~~b~~uffer Z~~z~~one~~s~~**	Editorial correction.
[226]	In cases where the biology of the target fruit fly species is such that it is likely to disperse from an infested area into a protected area, it may be necessary to define a buffer zone with a low fruit fly prevalence (as described in ISPM 26~~:2006~~). Establishment of the FF-ALPP and FF-PFA should occur at the same time, enabling the FF-ALPP to be defined for the purpose of protecting the FF-PFA.	Editorial correction.
[227]	**1.1 Determination of an FF-ALPP as a buffer zone**	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[228]	Determination procedures draw upon those listed in section ~~1.~~2 of this ~~standard~~ annex. In addition, in delimiting the buffer zone, detailed maps may be included showing the boundaries of the area to be protected, the distribution of hosts, host location, urban areas, ~~entry~~ points of entry and control checkpoints. It is also relevant to include data related to natural biogeographical features such as ~~prevalence~~ incidence of other hosts, climate, and location of valleys, plains, deserts, rivers, lakes and sea, as well as other areas that function as natural barriers. The size of the buffer zone in relation to the size of the area being protected will depend on the biology of the target fruit fly species (including behaviour, reproduction and dispersal capacity), the intrinsic characteristics of the protected area, and the economic and operational feasibility of establishing the FF-ALPP.	Consequential change. Editorial corrections. On "prevalence" the IPPC Style Guide says: The word "prevalence" only exists in the Glossary within the term "area of low pest prevalence". It should only be used in this context. Use of the term "prevalence" on its own should be avoided, as it is sometimes wrongly used in draft ISPMs to mean "incidence" (a term that is defined in the Glossary).
[229]	**1.2 Establishment of an FF-ALPP as a buffer zone**	
[230]	The establishment procedures are described in section 5~~2.1~~ of this ~~standard~~ annex. The movement of relevant fruit fly host commodities into the area may need to be regulated. Additional information can be found in ~~section 2.2.3 of~~ ISPM 26~~:2006~~.	Consequential change.
[231]	**1.3 Maintenance of an FF-ALPP as a buffer zone**	
[232]	Maintenance procedures include those listed in section 7 ~~2.3~~ of this ~~standard~~ annex. Because~~Since~~ the buffer zone has features similar to the area or place of production it protects, procedures for maintenance may include those listed for the FF-PFA as described in ~~section 2.3 of~~ ISPM 26~~:2006~~ and ~~sections 3.1.4.2, 3.1.4.3 and 3.1.4.4 of~~ ISPM 22~~:2005~~. The importance of information dissemination may also be considered in the maintenance of an FF-ALPP as a buffer zone.	Consequential change. Cross-~~-~~reference to sections was deleted as the panel felt it was clear where to look for guidance in ISPM 26 and ISPM 22 respectively. Editorial correction.
[233]	**2. FF-ALPPs for E~~e~~xport P~~p~~urposes**	Editorial correction.
[234]	FF-ALPPs may be used to facilitate fruit exports from the area. In most cases the FF-ALPP is the main component of a systems approach as a pest risk mitigation measure. Examples of measures and/or factors used in conjunction with FF-ALPPs include:	
[235]	• pre- and post-harvest treatments	
[236]	• production of secondary hosts or non-hosts in preference to primary hosts	

Para. No.	Proposal for consistency change (underline = addition; strikethrough = deletion)	Explanation for change
[237]	• export of host material to areas not at risk during particular seasons	
[238]	• physical barriers (e.g. pre-harvest bagging, insect-proof structures).	
[239]	**2.1 Determination of an FF-ALPP for export purposes**	
[240]	Determining procedures may include those listed in section ~~1.~~2 of this ~~standard~~ annex. In addition, the following elements should be considered for the determination of an FF-ALPP for export purposes:	Consequential change. Editorial correction (for clarity).
[241]	• ~~a list of~~ products (hosts) of interest	Editorial correction.
[242]	• ~~a list of~~ other commercial and non-commercial hosts of the target fruit fly species present but not intended for export and their level of occurrence, as appropriate	Editorial correction.
[243]	• ~~additional information such as any~~ historical records in connection with biology, occurrence and control of the target fruit fly species or any other fruit fly species that may be present in the FF-ALPP, and any other information, as appropriate.	Editorial correction.
[244]	**2.2 Maintenance of an FF-ALPP for export purposes**	
[245]	Maintenance procedures may include those described in ~~section 2.3.~~7.2 of this ~~standard~~ annex and should be applied if hosts are available. If appropriate, surveillance may continue at a lower frequency during the off-season period. The~~is~~ frequency will depend on the biology of the target fruit fly species and its relationship with hosts present during the off-season period.	Consequential change. Editorial correction.