[PleaseReview document review. Review title: 2024 First consultation:Draft revision of ISPM 26 (Establishment and maintenance of pest free areas for fruit flies(Tephritidae). Document title: 2021-010\_Draft\_ISPM\_26\_eng.docx]

***[1]*****COVER PAPER – BACKGROUND**

***[2]****(Prepared by secretariat)*

***[3]Outcome from the Standards Committee (SC) May 2024 meeting***

***[4]***The Standards Committee (SC), at its May 2024 meeting, agreed that this draft ISPM on revision of ISPM 26 (*Establishment and maintenance of pest free areas for fruit flies (Tephritidae*)) (2021-010) would be presented to IPPC contracting parties and regional plant protection organizations (RPPOs) for consultation period in 2024.

***[5]***The SC also discussed that the Expert Working Group (EWG) that developed the draft ISPM, had identified the removal of Annex 3 and the two appendices from the draft ISPM 26 as an implementation issue but had not had enough time to update or recommend revisions to these resources.

***[6]Transition of Annex 3 and Appendix 1 and 2 to Guidance Material***

***[7]***The SC, at its May 2024 meeting, agreed that Annex 3, Appendix 1 and Appendix 2 of the currently adopted ISPM 26 will be moved to guidance material so that they could be updated more easily.

***[8]***The SC also agreed to include a reference or link to the implementation material in the draft standard and provide continued access to the guidance being moved in the event of a delay between the publication of the revised ISPM 26 and the publication of the associated guidance material.

***[9]***Moreover, the SC requestedthat the secretariat investigate how best to make available Annex 3, Appendix 1 and Appendix 2.

***[10]Guidance material for ISPM 26***

***[11]***A proposal to develop guidance material for ISPM 26 had been submitted during the 2023 Call for Topics: Standards and Implementation. CPM-18 (2024) agreed to accept the recommendation of the Implementation and Capacity Development Committee (IC) that, instead of adding a new topic, the submitted topic be integrated into an existing one – the revision of the IPPC Guide for establishing and maintaining pest free areas (topic Pest free areas (2017-044)). See CPM-18 (2024), agenda item 16.5.

***[12]*DRAFT REVISION OF ISPM 26: Establishment and maintenance of pest free areas for fruit flies (Tephritidae) (2021-010)**

***[13]*Status box**

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| ***[14]***This is not an official part of the standard and it will be modified by the IPPC Secretariat after adoption. |
| ***[15]*Date of this document** | ***[16]***2024-05-16 |
| ***[17]*Document category** | ***[18]***Draft revision of ISPM |
| ***[19]*Current document stage** | ***[20]****To* first consultation  |
| ***[21]*Major stages** | ***[22]***2022-04 CPM-16 added topic *Revision of ISPM 26 (*Establishment of pest free areas for fruit flies (Tephritidae)*)* (2021-010) to the work programme with priority 2.***[23]***2022-11 Standards Committee (SC) approved Specification 75 (*Revision of ISPM 26 (*Establishment of pest free areas for fruit flies (Tephritidae)*)*).***[24]***2023-07 Expert working group drafted the revised standard.***[25]***2024-05 SC revised and approved for first consultation.  |
| ***[26]*Steward history** | ***[27]***2022-05 SC Joanne WILSON (NZ, Lead Steward)***[28]***2022-05 SC Prudence ATTIPOE (GH, Assistant Steward) |
| ***[29]*Notes** | ***[30]***This section will remain on the drafts going for consultation but will be deleted before adoption.***[31]***2023-07 Expert working group added “and maintenance” to the title (subsequently agreed by SC, 2024-05)***[32]***2024-02 Edited***[33]***2024-05 Edited |

***[34]***Adoption

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

***[36]***INTRODUCTION

***[37]***Scope

***[38]***This standard provides guidance for the establishment and maintenance of pest free areas for fruit flies (Tephritidae) of economic importance.

***[39]***If a country has declared a fruit fly to be absent in an area in accordance with ISPM 8 (*Determination of pest status in an area*), then establishing and maintaining a pest free area in accordance with this standard should not be required by importing countries unless there is technical justification.

***[40]***Bibliography

***[41]***References

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

***[43]*IPPC Secretariat**. 1997. *International Plant Protection Convention*. IPPC Secretariat. Rome, FAO. <https://www.ippc.int/en/about/convention-text/>

***[44]***Further reading

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

***[46]*IPPC Secretariat**. 2019. *Guide for establishing and maintaining pest free areas – Understanding the principal requirements for pest free areas, pest free places of production, pest free production sites and areas of low pest prevalence*. IPPC Secretariat. Rome, FAO. xviii + 107 pp. <https://www.ippc.int/en/publications/90620/>

***[47]***Definitions

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

***[49]***Outline of requirements

***[50]***A fruit fly pest free area (FF-PFA) is a phytosanitary measure that may be used to facilitate safe trade and protect plant resources. National plant protection organizations (NPPOs) should consider an FF-PFA to be a phytosanitary measure that, when used alone, is sufficient for managing the pest risk posed by a specified fruit fly.

***[51]***Requirements include programmes to establish and maintain an FF-PFA, surveillance activities, appropriate corrective actions in the event of pest detections, proper documentation of activities and appropriate record-keeping, and transparency and stakeholder communication.

***[52]***This standard includes specific requirements for buffer zones, surveillance activities (fruit fly trapping and host sampling), corrective action planning and control measures, and the suspension, reinstatement and withdrawal of FF-PFA status.

***[53]***BACKGROUND

***[54]***Fruit flies are a very important group of pests for many countries because of their potential to cause damage in fruits and the potential for restrictions to be placed on access to international markets for host plants of fruit flies. This standard therefore provides specific guidance on establishing and maintaining pest free areas for fruit flies.

***[55]***A pest free area is “an area in which a specific pest is absent as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained” (ISPM 5). This standard, which focuses specifically on fruit flies, supplements the more general guidance on pest free areas provided in ISPM 4 (*Requirements for the establishment of pest free areas*). The measures in this standard target insects of the economically important species of the order Diptera, family Tephritidae, such as the genera *Anastrepha*, *Bactrocera*, *Ceratitis*, *Dacus*, *Rhagoletis* and *Zeugodacus*.

***[56]***Areas initially free from fruit flies may remain naturally free from fruit flies as a result of the presence of physical barriers or climatic conditions, or they may be maintained free through movement restrictions and related measures (even though fruit flies have the potential to establish there). Areas where fruit flies are present may be made free by an eradication programme (ISPM 9 (*Guidelines for pest eradication programmes*)). ISPM 4 provides general guidance on the establishment of pest free areas.

***[57]***In this standard, the pest specified in an FF-PFA is referred to as the “target fruit fly” regardless of whether it is a single species or multiple species.

***[58]***IMPACTS ON BIODIVERSITY AND THE ENVIRONMENT

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

***[60]***General Requirements

***[61]***When initiating, establishing or maintaining an FF-PFA, NPPOs should follow the requirements outlined in ISPM 4 and this standard.

***[62]***Measures and specific procedures described in this standard may be required for the establishment and maintenance of an FF-PFA. The decision to establish an FF-PFA may be made based on the technical factors provided in this standard, such as but not limited to the biology and ecology of the target fruit fly, the size of the area, the population levels and dispersal pathways of the target fruit fly, the geographical isolation of the area and the availability of methods for eradication of the target fruit fly. ISPM 4 should be referred to in conjunction with this standard because its requirements apply to the establishment and maintenance of pest free areas.

***[63]***If an FF-PFA is established and maintained in accordance with this standard, importing countries should not require additional phytosanitary measures specific to the target fruit fly for host commodities within the FF-PFA.

***[64]***1. Communication and stakeholder engagement

***[65]***A public-awareness programme is important in areas where the risk of introduction is higher. An important factor in the establishment and maintenance of an FF-PFA is the support and participation of the public close to the area (especially the local community) and individuals who travel to or through the area, including parties with direct and indirect interests. The public and stakeholders should be informed through different media (e.g. written, radio, television) of the importance of establishing and maintaining the pest free status of the area, and of avoiding the introduction or reintroduction of potentially infested host material. This may contribute to and improve compliance with the various measures used to establish and maintain the FF-PFA. The public-awareness programme should be ongoing while the FF-PFA is being maintained.

***[66]***2. Supervision activities

***[67]***The FF-PFA programme, including regulatory control, surveillance procedures (e.g. trapping, host sampling – see details in Annex 1) and corrective action planning should comply with officially approved procedures. In circumstances where an entity is authorized to undertake certain activities on behalf of an NPPO, this should be done in accordance with ISPM 45 (*Requirements for national plant protection organizations if authorizing entities to perform phytosanitary actions*).

***[68]***The effectiveness of the programme should be monitored periodically by the NPPO of the exporting country. In this standard, the “NPPO of the exporting country” refers to the NPPO of the country in which the FF-PFA is situated, unless stated otherwise.

***[69]***3. Documentation and record-keeping

***[70]***The measures used to establish and maintain an FF-PFA should be adequately documented as phytosanitary procedures. They should be reviewed and updated regularly, and they should include corrective actions if required (see also ISPM 4).

***[71]***The records of surveys, detections, outbreaks (including incursions) and the results of other operational procedures should be retained for at least 24 months. Such records should be made available to the NPPO of the importing country on request.

***[72]***Specific requirements

***[73]***4. Initiation of a fruit fly pest free area

***[74]***When initiating the establishment of an FF-PFA, the NPPO of the exporting country should:

* ***[75]***delimit the area proposed as an FF-PFA (maps or coordinates showing the boundaries, natural barriers, entrance points and host area locations, and, where necessary, buffer zones);
* ***[76]***specify the target fruit fly and its distribution within, and adjacent to, the proposed area;
* ***[77]***list the commercial and non-commercial host species of the target fruit fly in the proposed area;
* ***[78]***describe the climatic conditions in the proposed area (e.g. rainfall, relative humidity, temperature, prevailing wind speed and direction); and
* ***[79]***record any other relevant information.

***[80]***For further guidance on establishing and describing a pest free area, see ISPM 4.

***[81]***5. Establishment of the fruit fly pest free area

***[82]***5.1 Establishment of a buffer zone

***[83]***A buffer zone should be established around the area proposed as an FF-PFA if geographical isolation is not considered adequate to prevent introduction to, or reinfestation of, the area or where there are no other means of preventing fruit fly movement into the area. Factors that should be considered when determining the boundaries of a buffer zone include:

* ***[84]***the biology and ecology of the target fruit fly;
* ***[85]***pest pressure from the target fruit fly in neighbouring areas;
* ***[86]***host availability, cropping systems, natural vegetation;
* ***[87]***the climatic conditions in the area;
* ***[88]***the geography of the area;
* ***[89]***the capacity for natural spread through identified pathways;
* ***[90]***the ability to implement a system to monitor the effectiveness of the buffer zone (e.g. trapping network); and
* ***[91]***pest-control strategies that may be used.

***[92]***5.2 Surveillance activities for the establishment of the fruit fly pest free area

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

***[94]***If specific surveillance is needed, it should be conducted in accordance with Annex 1. A regular detection survey programme should be implemented. For attractant-responsive species, trapping should be used to determine fruit fly absence or presence in the area. Host sampling may be used to complement the trapping programme in cases where trapping is less effective, (e.g. if species are less attractant-responsive) or instead of the trapping programme where species are not responsive to specific attractants.

***[95]***When specific surveillance is used during the establishment of the FF-PFA, it should be undertaken for a period determined by:

* ***[96]***the biology and the ecology of the target fruit fly;
* ***[97]***the climatic conditions in the area; and
* ***[98]***the sensitivity of the survey method used (e.g. how effective a trapping grid is at detecting an established population).

***[99]***The NPPO of the exporting country should have in place, or have ready access to, adequate infrastructure and trained personnel to identify specimens of the target fruit fly in a timely manner, preferably within 48 hours. Continuous access to expertise may be necessary during the establishment phase.

***[100]***5.3 Controls on the movement of regulated articles

***[101]***Controls on the movement of regulated articles should be applied to prevent the target fruit fly entering and establishing in the area proposed as an FF-PFA. These controls depend on the assessed pest risk (after identification of likely pathways and regulated articles) and should include:

* ***[102]***regulation of the target fruit fly, pathways and articles that require control in relation to the proposed FF-PFA;
* ***[103]***imposition of domestic restrictions, phytosanitary import requirements, or other measures to control the movement of regulated articles into or through the area; and
* ***[104]***inspection and testing of regulated articles where technically justified, examination of the relevant documentation and, where necessary for cases of non-compliance, the application of appropriate measures (e.g. treatment, rejection, destruction).

***[105]***5.4 Additional technical information for the establishment of the fruit fly pest free area

***[106]***Additional information that may be useful while establishing the FF-PFA includes:

* ***[107]***information on the biology and ecology of the target fruit fly;
* ***[108]***historical records of detections of, and surveys for, the target fruit fly in the area proposed as an FF-PFA;
* ***[109]***the results of phytosanitary actions taken following detections of the target fruit fly in the area;
* ***[110]***records of the commercial production of host crops in the area, an estimate of non-commercial production and the presence of wild host material; and
* ***[111]***a list of the other fruit fly species of economic importance that may be present in the area.

***[112]***5.5 Criteria for the area to qualify as a fruit fly pest free area

***[113]***For the area to qualify as an FF-PFA, there should be no sign of a breeding population of the target fruit fly. A breeding population may be an established or transient population. Detection of an immature life stage, or an inseminated female, of the target fruit fly during the survey period should be considered a sign of a breeding population. Although the detection of wild adults may also be a sign of a breeding population, this will depend on the number of adults captured. The number of captured wild adults required to indicate the presence of a breeding population may be determined in advance by the NPPO of the exporting country and will depend on the biology and ecology of the target fruit fly, the trapping density and sensitivity, the response of the target fruit fly to attractants, the distance and time between detections, the climate, the season and the geographical location. Other information, such as from modelling, may also be used to help determine whether a breeding population is present.

***[114]***To provide confidence that the target fruit fly is absent in the area, a determination that the area is free from the target fruit fly should be made only after a sufficient period without signs of a breeding population. The required period (which, for some species, may correspond to up to three consecutive life cycles) should be predetermined, based on scientific information, and provide a sufficient level of confidence that the area is free from the target fruit fly.

***[115]***5.6 Official declaration of the fruit fly pest free area

***[116]***When the pest status is determined as absent in accordance with ISPM 8 (including when the pest has been eradicated in accordance with ISPM 9), the NPPO of the exporting country should make an official declaration that the area is free from the target fruit fly. All internal management procedures and measures to maintain the FF-PFA (see ISPM 4 and section 6) should be in place before any declaration is made.

***[117]***6. Maintenance of the fruit fly pest free area

***[118]***The NPPO of the exporting country should set up a programme to ensure maintenance of the FF-PFA. This programme should be risk-based and should incorporate at least the following elements:

* ***[119]***a regulatory framework to control the movement of regulated articles;
* ***[120]***surveillance and collection of relevant data to inform the management of the FF-PFA, including a framework for reporting pest detections; and
* ***[121]***a corrective action plan, with associated provisions for suspension and reinstatement of the FF-PFA status in accordance with ISPM 4.

***[122]***6.1 Controls on the movement of regulated articles

***[123]***Controls on the movement of regulated articles are the same as for the establishment of the FF-PFA (see section 5.3).

***[124]***6.2 Surveillance for maintaining the fruit fly pest free area

***[125]***After declaring the FF-PFA, the surveillance programme should be continued at a level assessed as providing sufficient confidence that the FF-PFA is being maintained. Regular technical reports on the surveillance activities should be generated (e.g. monthly in countries where fruit flies are endemic). The requirements for this surveillance are essentially the same as for the establishment of the FF-PFA (see Annex 1).

***[126]***6.3 Corrective actions (including a response to an incursion)

***[127]***The NPPO of the exporting country should prepare a corrective action plan to be implemented if the target fruit fly is detected in the FF-PFA or intercepted in host material from that area (see detailed guidance in Annex 2) or if procedures are found to be inadequate for maintenance of the FF-PFA. This plan should include components, systems or criteria to cover:

* ***[128]***determination of the appropriate, technically justified response to an incursion, depending on the biology and ecology of the target fruit fly and the characteristics of the FF-PFA or part of the FF-PFA;
* ***[129]***determination of when the FF-PFA, or a part of it, should be suspended;
* ***[130]***notification of the suspension of the FF-PFA, or a part of it, both domestically to stakeholders and to the NPPOs of importing countries, the latter in accordance with ISPM 17 (*Pest reporting*);
* ***[131]***a delimiting survey or surveys (trapping and host sampling) to determine the infested area under corrective actions or whether a population has established in the area;
* ***[132]***eradication measures (see Annex 3);
* ***[133]***increased surveillance, when there is an incursion, to determine the effectiveness of eradication measures in the area affected by the incursion and hence whether FF-PFA status may be reinstated; and
* ***[134]***determination of the appropriate responses to interceptions of the target fruit fly in consignments originating from the FF-PFA.

***[135]***The corrective action plan may include interim measures agreed between relevant NPPOs to enable the continuation of trade.

***[136]***The corrective action plan should be initiated as soon as possible and at the latest within 72 hours of a detection of the target fruit fly.

***[137]***In circumstances where the target fruit fly is transient within the FF-PFA, no action may be necessary unless the presence of the target fruit fly poses an unacceptable risk to plant trade (see Article VII.3 of the IPPC).

***[138]***7. Suspension, reinstatement or withdrawal of fruit fly pest free area status

***[139]***7.1 Suspension

***[140]***The status of the FF-PFA or the affected part within the FF-PFA should be suspended when a breeding population is detected based on one of the following triggers:

* ***[141]***detection of an immature life stage of the target fruit fly;
* ***[142]***detection of an inseminated female; or
* ***[143]***detection of wild adults.

***[144]***The number of captured wild adults required to indicate the presence of a breeding population will depend on the biology and ecology of the target fruit fly, scientific evidence (including molecular analysis of the origin of the fruit fly), the trapping density and sensitivity, the response of the target fruit fly to attractants, the distance and time between detections, the climate, the season and the geographical location. The number may be determined in advance by the NPPO of the exporting country.

***[145]***In circumstances where the target fruit fly is transient within the FF-PFA, suspension of the FF-PFA or a part of it may not be necessary unless the presence of the target fruit fly poses an unacceptable risk to plant trade (see Article VII.3 of the IPPC).

***[146]***The FF-PFA, or a part of it, may be suspended if procedures have been implemented incorrectly (e.g. inadequate trapping, host-movement controls or treatments) or the target fruit fly has been intercepted in a consignment originating from the FF-PFA or part of the FF-PFA.

***[147]***If there is a detection, the corrective action plan should be applied as specified in this standard (see Annex 2) and, if the criteria for an incursion are met, the NPPOs of relevant importing countries (see ISPM 17) should be notified. Where a suspension is applied, the criteria for lifting the suspension (including the level of confidence required to demonstrate pest freedom for the area) should be made clear to the relevant importing countries.

***[148]***7.2 Reinstatement

***[149]***Reinstatement should be based on the same requirements as for establishment, with the following conditions:

* ***[150]***no further detection of the target fruit fly for a period determined by the biology and ecology of the species, the prevailing environmental conditions, and the effectiveness of the surveillance system used; and
* ***[151]***in the case of a fault in the procedures, only when the fault has been corrected.

***[152]***To provide confidence that the target fruit fly is absent in the area, the reinstatement of the FF-PFA should occur only after a sufficient period without signs of a breeding population. The required period (which, for some species, may correspond to up to three consecutive life cycles) should be predetermined, based on scientific information, and provide a sufficient level of confidence that the area is free from the target fruit fly.

***[153]***7.3 Withdrawal

***[154]***If the target fruit fly becomes established in the FF-PFA and if eradication is no longer pursued, the NPPO of the exporting country should withdraw the FF-PFA status from the area and notify both stakeholders domestically and the NPPOs of importing countries, the latter in accordance with ISPM 17.

***[155]*Potential implementation issues**

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

***[157]***This annex is a prescriptive part of the standard.

***[158]***ANNEX 1: Fruit fly surveillance (trapping and host sampling)

***[159]***This annex contains general information on fruit fly surveillance.

***[160]***1. Trapping procedures

***[161]***Trapping procedures for fruit fly surveys should take into consideration:

* ***[162]***the biology and ecology of the target fruit fly;
* ***[163]***the conditions in the survey area (e.g. climate, environment, geography);
* ***[164]***the trap types and attractants;
* ***[165]***the trap density (number of traps per unit area);
* ***[166]***the presence of hosts;
* ***[167]***trap servicing (maintaining and refreshing the traps);
* ***[168]***trap examination and specimen collection;
* ***[169]***record-keeping (including trap identification); and
* ***[170]***identification capacity and capability.

***[171]***1.2 Trap type and attractants

***[172]***Several types of traps and attractants have been developed over decades to survey fruit fly populations. The fruit fly species captured will differ depending on the type of attractant used. The type of trap that should be chosen for a survey depends on the target fruit fly and the nature of the attractant.

***[173]***1.3 Trap density

***[174]***The trap density (number of traps per unit area) is a critical factor for effective fruit fly surveys and it should be based on the target fruit fly, the trap efficiency, cultivation practices, and other biotic and abiotic factors that may affect the effectiveness of the survey. The trap density may change depending on the phase of the FF-PFA programme, with the density required during the establishment phase being different to that required during the maintenance phase. The trap density also depends on the probability of the target fruit fly entering the FF-PFA via potential pathways.

***[175]***1.4 Trap deployment

***[176]***In establishing an FF-PFA programme, the specific location of the traps in a trapping network should be determined considering the characteristics of the area, such as the climate, environment, geography, host presence and distribution, commercial-management practices and the biology and ecology of the target fruit fly. The location, including rotation, of traps should follow the sequence of fruit maturity in host plants. When placing traps in commercial-production areas, consideration should be given to pest-management practices such as the regular application of insecticides (or other chemicals) that may have a false-negative effect on the trapping programme.

***[177]***Geographical coordinates can be useful for the management of a trapping network.

***[178]***1.5 Trap servicing and examination

***[179]***The frequency of trap servicing (maintaining and refreshing the traps) during the period of trapping should depend on the longevity of attractants (attractant persistency) and killing agents, the retention capacity (e.g. sticky traps’ retention capacity declines over time), the rate of catch of target and non-target species, the placement of the traps, the biology and ecology of the species, and environmental conditions.

***[180]***The frequency of examination should be adjusted according to the prevailing environmental conditions, the likely catch rate and the biology and ecology of the target fruit fly. The interval can range from one day up to 30 days, varying depending on the survey type and the phase of the programme (establishment or maintenance). The interval should also consider the number of target and non-target organisms expected to be captured and the condition of the fruit flies in the trap, as specimens may degrade rapidly. Specimen degradation may complicate or impair identification.

***[181]***Measures should be taken to avoid accidental cross-contamination between different attractant types (e.g. cue-lure and methyl eugenol). Cross-contamination may reduce trap effectiveness and may delay corrective actions. Attractants are highly volatile and care should be taken when storing, packaging, handling and disposing of attractants to avoid compromising the attractant effectiveness and operator safety. Similarly, care should be taken when handling the trap itself, as mishandling may reduce trap functionality.

***[182]***2. Fruit fly host-sampling procedures

***[183]***If trapping is not effective (or sensitive) enough to provide sufficient levels of confidence in pest freedom over a suitable period, it may be combined with fruit fly host sampling to improve the overall detection sensitivity. Fruit fly host sampling is particularly effective in small-scale delimiting surveys in an outbreak (including an incursion) area. Samples should be held in suitable conditions to maintain the viability of all immature stages of fruit flies in infested host material for identification.

***[184]***Procedures for sampling the host as part of fruit fly surveys should take into consideration:

* ***[185]***factors related to the preferred host of the target fruit fly:
* ***[186]***the effect of host maturity on infestation,
* ***[187]***the signs or symptoms of infestation of host material;
* ***[188]***the targeting of areas that are likely to be at high risk of having infested host material:
* ***[189]***urban areas,
* ***[190]***abandoned places of production,
* ***[191]***fruit markets,
* ***[192]***packing facilities,
* ***[193]***sites with a high concentration of hosts,
* ***[194]***entrance points into the FF-PFA, where appropriate; and
* ***[195]***the sample size and selection, including consideration of:
* ***[196]***the required level of statistical confidence,
* ***[197]***the availability of host material in the survey area,
* ***[198]***the targeting of hosts with symptoms of fruit fly damage (e.g. fallen fruit, fruit rejected at packing facilities), where appropriate.

***[199]***3. Handling of samples and identification of species

***[200]***Host material and the contents of traps should be labelled, transported and held in a secure manner to avoid mixing up host material or specimens.

***[201]***Samples collected in the field from hosts or from traps may be brought to a facility for fruit flies to be recovered and the species identified. Host samples may be dissected immediately or maintained until identifiable life stages develop.

***[202]***Diagnostic protocols adopted as annexes to ISPM 27 (*Diagnostic protocols for regulated pests*) may be used for pest diagnosis.

***[203]***The NPPO of the exporting country should have in place, or have ready access to, adequate infrastructure and trained personnel to identify immature stages or emerged adults of the target fruit fly in a timely manner, preferably within 48 hours.

***[204]***4. Quality assurance of trapping and sampling

***[205]***The NPPO of the exporting country may establish a quality-assurance programme for the survey to confirm and document that all protocols have been met. The key elements of the quality-assurance programme may include verification of attractant effectiveness, placement and recovery of marked target flies, regular reviews of survey documentation, audits of trap placement and servicing, host sampling, and confirmation of diagnostic competency.

***[206]***This annex is a prescriptive part of the standard.

***[207]***ANNEX 2: Corrective action plans

***[208]***1. General considerations

***[209]***The detection of the target fruit fly in an FF-PFA should result in the implementation of a corrective action plan with the objective of eradication.

***[210]***Once it is determined that the detection represents an incursion of a breeding population, the objective of the corrective action plan should be to ensure eradication of the target fruit fly to enable the FF-PFA status of the affected area to be reinstated.

***[211]***The corrective action plan should consider the biology and ecology of the target fruit fly, the prevailing environmental conditions in the FF-PFA (e.g. climate, geography), and the distribution of the target fruit fly and the hosts within the FF-PFA.

***[212]***The elements required for implementation of the corrective action plan include:

* ***[213]***a regulatory framework under which the corrective action plan can be implemented;
* ***[214]***technical criteria for the determination of a breeding population;
* ***[215]***timescales for the initial response;
* ***[216]***technical criteria for the selection of survey (trapping or host sampling) parameters, application of corrective actions for eradication and establishment of regulatory measures;
* ***[217]***the availability of sufficient operational resources and expertise;
* ***[218]***pest diagnostic capability; and
* ***[219]***effective communication within the NPPO of the exporting country and with the NPPOs of importing countries, including sharing the contact details of all parties involved.

***[220]***2. Actions to implement the corrective action plan

***[221]***2.1 Determination of the pest status upon detection

***[222]***If the detection is of a transient population (pest status “present: transient” according to ISPM 8) within the FF-PFA, no action may be necessary. If the presence of the pest poses an unacceptable risk to plant trade, a delimiting survey should be implemented immediately after the detection.

***[223]***If the detection of the target fruit fly could constitute a breeding population that is not transient (i.e. one of the other “present” categories described in ISPM 8), a delimiting survey should be implemented immediately after the detection. The delimiting survey may include placement of additional traps, an increased trap-examination rate and host sampling.

***[224]***The outcome of the delimiting survey will determine necessary corrective actions. If an established population is present, the delimiting survey is also used to determine the size of the affected area for eradication of the target fruit fly.

***[225]***2.2 Suspension of fruit fly pest free area status

***[226]***If a breeding population has established (i.e. if any of the triggers specified in section 7.1 of the core text of this standard have been reached), the FF-PFA status of the affected area should be suspended or withdrawn. The whole or part of the FF-PFA may be suspended or withdrawn. In most cases, the affected part of the FF-PFA may be delimited by applying a suspension radius that depends on the biology and ecology of the target fruit fly. The same radius may apply for all FF-PFAs for a given target fruit fly unless scientific evidence supports a deviation.

***[227]***2.3 Application of control measures in the affected area

***[228]***As per ISPM 9, specific corrective actions to eradicate the target fruit fly from the affected area should be implemented immediately in the area and adequately communicated to the community. These actions may include:

* ***[229]***total harvest and destruction, treatment or removal of host material;
* ***[230]***destruction of infested host material;
* ***[231]***soil treatment (chemical or physical);
* ***[232]***insecticide application, including selective insecticide bait treatments;
* ***[233]***male annihilation technique;
* ***[234]***sterile fly release; or
* ***[235]***mass trapping.

***[236]***Measures should be immediately enforced to control the movement of regulated articles that can host the target fruit fly. These measures may include the cancellation of consignments of host commodities from the affected area and, as appropriate, host disinfestation and the operation of roadblocks to prevent the movement of infested host commodities from the affected area to the rest of the FF-PFA. Other measures may be adopted if agreed by the importing country, such as increased surveys or supplementary trapping to provide assurance of fruit fly freedom or phytosanitary treatment of host consignments for export. Interim measures (e.g. phytosanitary treatments, systems approaches) may be agreed with importing countries before an incursion occurs to minimize disruption to trade.

***[237]***2.4 Criteria for reinstatement of fruit fly pest free area status and actions to be taken

***[238]***The criteria for determining that eradication from the area has been successful are specified in section 7.2 of the core text of this standard and should be included in the corrective action plan for the target fruit fly. The length of time before eradication may officially be declared successful will depend on the biology and ecology of the species, the prevailing environmental conditions, and the effectiveness of the surveillance used to confirm area freedom. Once the criteria have been fulfilled, the NPPO of the exporting country should reinstate the FF-PFA and surveillance levels for the maintenance of the FF-PFA.

***[239]***2.5 Reporting of changes in fruit fly pest free area status

***[240]***Relevant NPPOs or competent authorities delegated by the NPPO of the exporting country should be kept informed of changes in FF-PFA status, as appropriate, and IPPC pest reporting obligations should be observed (see ISPM 17).

***[241]***This annex is a prescriptive part of the standard.

***[242]***ANNEX 3: Control measures for an incursion within a fruit fly pest free area

***[243]***An eradication area (see Figure 1) and related control measures may be established with the intent to eradicate the target fruit fly and restore the FF-PFA status, protect the surrounding FF-PFA, and, where applicable, meet the phytosanitary import requirements of the importing country. In particular, 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.

***[244]***1. Establishment of an eradication area

***[245]***The NPPO of the exporting country should declare an establishment event in accordance with this and other relevant ISPMs (e.g. ISPM 8, ISPM 9, ISPM 17). When a target fruit fly incursion is detected within an FF-PFA, an eradication area based on technical evaluation may be established. The FF-PFA status of the eradication area should be suspended. If control measures cannot be applied to establish an eradication area, then the FF-PFA status of the whole FF-PFA should be withdrawn in accordance with this standard.

***[246]***The eradication area should cover the infested area. In addition, where necessary a buffer zone should be established in accordance with this standard and as determined by delimiting surveys, taking into account the factors listed in section 5.1 of the core text of this standard.

***[247]***A circle delimiting the minimum size of the eradication area may be drawn, centred on the actual target fruit fly 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 may be drawn accordingly, as illustrated in Figure 1.

***[248]***If necessary for the practical implementation of the eradication area, the NPPO of the exporting country may adjust the eradication area to correspond to administrative boundaries or topography, or to approximate the circle with a polygon.

***[249]***A map with geographical coordinates should 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.

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***[306]*Figure 1.** Example of delimiting circles and approximating polygons to determine the eradication area around three pest detections.

***[307]****Notes:* Solid triangles (▲), pest detection; solid circles (●), geo-referenced coordinates; red dotted line, delimiting circles; black line, approximating polygons.

***[308]***2. Control measures

***[309]***Each stage of the production chain (e.g. growing, sorting, packing, transporting, dispatching) may lead to spread of the target fruit fly from the eradication area into the FF-PFA. This does not apply, however, to any facilities located within the FF-PFA at which only host material from the FF-PFA is handled. Appropriate control measures should be applied to manage the pest risk to which the surrounding FF-PFA and any importing countries are exposed.

***[310]***Control measures applied at each stage of the production chain are described in the following sections.

***[311]***2.1 Production

***[312]***During the production period within the eradication area, the NPPO of the exporting country may require the application of control measures to avoid infestation, such as mechanical and cultural controls, insecticide bait application technique, bait stations, male annihilation technique, mass trapping, sterile insect technique and biological control.

***[313]***2.2 Movement of regulated articles

***[314]***To prevent the spread of the target fruit fly, regulated articles (e.g. soil, host plants, host fruit) being moved from, through or within the eradication area should be transported in a way that prevents infestation and contamination. This also pertains to moving regulated articles for phytosanitary certification.

***[315]***2.3 Packing and packing facilities

***[316]***Packing facilities may be located within the eradication area or in the FF-PFA and may pack host material grown in the eradication area or in the FF-PFA. Control measures to prevent spread of the target fruit fly should be considered in each case.

***[317]***The NPPO of the exporting country should as necessary:

* ***[318]***register facilities located within the FF-PFA and eradication area;
* ***[319]***require the application of appropriate control measures to prevent the target fruit fly from entering or escaping facilities;
* ***[320]***require and approve methods of physical separation of different lots of host material (e.g. by using insect-proof packaging or separate pest-proof packaging locations within facilities) to avoid the transfer of the target fruit fly between different lots;
* ***[321]***at each stage of the packing process (e.g. at the reception, processing, storage and dispatch stages), require the application of appropriate control measures to maintain the segregation of host material originating from areas of different pest status;
* ***[322]***require the application of appropriate measures for the handling and movement of host material through facilities to prevent the mixing of host material originating from areas of different pest status (e.g. flowcharts, signs, staff training);
* ***[323]***require and approve methods of disposal of host material from the eradication area that has been rejected (e.g. material rejected as a result of inspection or quality-assurance activities);
* ***[324]***require ongoing checks for the presence or absence of the target fruit fly in and outside facilities and, if relevant, in the surrounding FF-PFA;
* ***[325]***require that packing material, containers and conveyances are insect-proof and clean;
* ***[326]***require the application of appropriate control measures to eradicate the target fruit fly from facilities when it is detected; and
* ***[327]***audit the facilities.

***[328]***2.4 Storage and storage facilities

***[329]***Storage facilities may be located within the eradication area or in the FF-PFA. The NPPO of the exporting country should register and audit such facilities and require the storage providers running the facilities to apply control measures to prevent the spread of the target fruit fly. As a minimum, these storage providers should:

* ***[330]***maintain traceability and separation between host material originating from the eradication area and from the FF-PFA;
* ***[331]***use an approved method of disposal of host material from the eradication area that has been rejected (e.g. material rejected as a result of inspection or quality-assurance activities);
* ***[332]***conduct ongoing checks for the presence or absence of the target fruit fly in and outside facilities and, if relevant, in the surrounding FF-PFA;
* ***[333]***apply appropriate control measures to eliminate the target fruit fly from their facility when detected; and
* ***[334]***comply with NPPO requirements for audit of their facility.

***[335]***2.5 Processing and processing facilities

***[336]***If the processing facility is in the eradication area, host material destined for processing (such as juicing, canning and puréeing) may not pose an additional pest risk to the area.

***[337]***If the facility is in the FF-PFA but processes host material from the eradication area, the NPPO of the exporting country should require measures to be applied within the facility to ensure that reception, storage and processing areas are insect-proof and hence prevent the escape of the target fruit fly.

***[338]***Ongoing checks for the presence or absence of the target fruit fly may be conducted at the facility and, if relevant, in the surrounding FF-PFA. Appropriate control measures should be applied to eliminate the target fruit fly from the facility when it is detected.

***[339]***The NPPO of the exporting country should specify and require the approved method or methods for disposal of host material from the eradication area that has been rejected as a result, for example, of inspection or quality-assurance activities. Rejected host material should be disposed of in such a way that the target fruit fly is demonstrated to be absent or rendered non-viable.

***[340]***2.6 Treatment and treatment facilities

***[341]***Treatment facilities should be registered and audited by the NPPO of the exporting country.

***[342]***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 material moving from the eradication area into the FF-PFA or being exported to countries where the target fruit fly is a quarantine pest.

***[343]***Control measures preventing the escape of the target fruit fly 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 such articles to be physically isolated within the facility.

***[344]***The NPPO of the exporting country should specify and require the approved method or methods of disposal of rejected host material from the eradication area to reduce the risk of spread of the target fruit fly. Disposal methods may include double bagging followed by deep burial or incineration.

***[345]***2.7 Sale inside the eradication area

***[346]***Host material 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) and may therefore need to be physically protected, when feasible, to avoid spread of the target fruit fly while on display and being stored.

***[347]***3. Documentation and record-keeping

***[348]***The control measures, including corrective actions, used in the eradication area should be adequately documented, reviewed and updated (see also ISPM 4) and should be retained for at least 24 months. Such documents should be made available to the NPPO of the importing country on request.

***[349]***4. Termination of control measures in the eradication area

***[350]***To be considered successful, eradication of the target fruit fly in the eradication area should meet the requirements for reinstatement of FF-PFA status after an incursion, in accordance with this standard (see section 7.2 of the core text of this standard).

***[351]***The control measures should remain in force until eradication is declared. If eradication is successful, the control measures in the eradication area may be terminated and the FF-PFA status may 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.