

**REGIONAL STANDARDS  
FOR PHYTOSANITARY MEASURES**

***REQUIREMENTS FOR THE ESTABLISHMENT  
AND MAINTENANCE OF PEST FREE AREAS  
FOR TEPHRITID FRUIT FLIES***

**APPPC RSPM No. 3**



RAP PUBLICATION 2005/26

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The Asia and Pacific Plant Protection Commission (APPPC)  
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS  
REGIONAL OFFICE FOR ASIA AND THE PACIFIC  
Bangkok 2005

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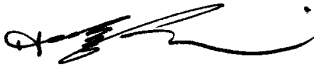
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## ***Endorsement***

Regional standards for phytosanitary measures are developed and adopted by the Asia and Pacific Plant Protection Commission as part of the plant protection programme of the Commission's contracting parties. This programme makes available to contracting and other interested parties regional standards for phytosanitary measures to support regional harmonization, with the aim to facilitate trade and avoid the use of unjustifiable measures as barriers to trade.

This standard was endorsed by the twenty-fourth session of the Asia and Pacific Plant Protection Commission in September 2005.



He Changchui  
Assistant Director-General and  
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Asia and the Pacific

# CONTENTS

	<i>Page</i>
<b>Endorsement</b> .....	1
<b>Review</b> .....	1
<b>Distribution</b> .....	1
<b>INTRODUCTION</b> .....	2
<b>Scope</b> .....	2
<b>References</b> .....	2
<b>Definitions and abbreviations</b> .....	3
<b>Outline of requirements</b> .....	7
<b>GENERAL REQUIREMENTS</b> .....	7
<b>1. Background</b> .....	7
<b>2. General Requirements</b> .....	8
2.1 Buffer zone .....	8
2.2 Identification .....	9
2.3 Public awareness .....	9
2.4 Documentation and review .....	10
2.5 Record keeping .....	10
2.6 Quality assurance .....	10
<b>3. Specific Requirements</b> .....	11
3.1 Determination of the FF-PFA .....	11
3.2 Establishment of the FF-PFA .....	11
3.2.1 Surveillance activities for establishment of the FF-PFA .....	11
3.2.1.1 Trapping procedures .....	12
3.2.1.2 Fruit sampling procedures .....	15
3.2.2 Regulatory controls on the movement of host material or regulated articles .....	16
3.2.3 Additional technical information for establishment .....	16
3.3 Verification and declaration of pest freedom .....	17

## CONTENTS *(continued)*

	<i>Page</i>
3.4 Maintenance of the FF-PFA .....	17
3.4.1 Surveillance for maintenance of the FF-PFA ..	17
3.4.2 Regulatory controls on the movement of host material and regulated articles .....	18
3.4.3 Planning for corrective action .....	18
3.5 Suspension, termination and reinstatement of FF-PFA status .....	19
3.5.1 Suspension and termination .....	19
3.5.2 Reinstatement of the pest free area status .....	19
3.6 Specific trading arrangements .....	20
<b>Annex 1</b> .....	21

### ***Endorsement***

This Asia and Pacific Plant Protection Commission (APPPC) Regional Standard for Phytosanitary Measures was endorsed by the twenty-fourth session of the APPPC held from 5 to 9 September 2005 in Bangkok, Thailand.

### ***Review***

APPPC Regional Standards for Phytosanitary Measures are subject to periodic review. The next review date for this standard is 2011. The standard may be reviewed earlier if the APPPC decides this is necessary.

### ***Distribution***

APPPC Regional Standards for Phytosanitary Measures are distributed by the Executive Secretariat of the APPPC to all APPPC members, the Administrative Heads of Regional Plant Protection Organizations and the FAO International Plant Protection Convention (IPPC) Secretariat. This standard is available on the APPPC webpage found within the International Phytosanitary Portal: <http://www.ippc.int/En/rppo/jsp>

## INTRODUCTION

### SCOPE

This standard provides guidelines for the establishment, maintenance and verification of pest free areas for tephritid fruit flies. It does not provide a description of the components required for the establishment and maintenance of pest free places of production or pest free production sites for fruit flies.

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## **DEFINITIONS AND ABBREVIATIONS**

buffer zone	An area in which a specific pest does not occur or occurs at a low level and is officially controlled, that either encloses or is adjacent to an infested area, an infested place of production, an area of low pest prevalence, a pest free area, a pest free place of production or a pest free production site, and in which phytosanitary measures are taken to prevent spread of the pest [ISPM No. 10, 1999; revised ISPM No. 22, 2005]
delimiting survey	Survey conducted to establish the boundaries of an area considered to be infested by or free from a pest. (FAO, 2004)
Detection*	The discovery of a specimen of the target pest
emergency action	A prompt phytosanitary action undertaken in a new or unexpected phytosanitary situation. [ICPM, 2001]

FAO	Food and Agriculture Organization
FF-PFA*	Acronym for fruit fly pest free area
incursion	An isolated population of a pest recently detected in an area, not known to be established, but expected to survive for the immediate future [ICPM, 2003]
IPPC	International Plant Protection Convention, as deposited in 1951 with FAO in Rome and as subsequently amended. [FAO, 1990; revised ICPM, 2001]
NAPPO	North American Plant Protection Organization. (NAPPO, 2004)
National Plant Protection Organization	Official service established by a government to discharge the functions specified by the IPPC. [FAO, 1990; formerly Plant Protection Organization (National)]
NPPO	Acronym for National Plant Protection Organization
official	Established, authorized or performed by a National Plant Protection Organization. [FAO, 1990]
outbreak	A recently detected pest population, including an incursion, or a sudden significant increase of an established population in an area. [FAO, 1995; revised ICPM, 2003]
Pest Free Area	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. [FAO, 1995]
pest free place of production	Place of production in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained for a defined period. [ISPM No. 10, 1999]

pest free production site	A defined portion of a place of production in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained for a defined period and that is managed as a separate unit in the same way as a pest free place of production. [ISPM No. 10, 1999]
phytosanitary action	An official operation, such as inspection, testing, surveillance or treatment, undertaken to implement phytosanitary measures [ICPM, 2001; revised ICPM, 2005]
phytosanitary measure (agreed interpretation)	Any legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests [FAO, 1995; revised IPPC, 1997; ISPM, 2002]

*The agreed interpretation of the term phytosanitary measure counts for the relationship of phytosanitary measures to regulated non-quarantine pests. This relationship is adequately reflected in the definition found in Article II of the IPPC (1997)*

phytosanitary procedure	Any official method for implementing phytosanitary measures including the performance of inspections, tests, surveillance or treatments in connection with regulated pests [FAO, 1990; revised FAO, 1995; CEPMP, 1999; ICPM, 2001; ICPM, 2005]
phytosanitary regulation	Official rule to prevent the introduction and/or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests, including establishment of procedures for phytosanitary certification. [FAO, 1990; revised FAO, 1995; CEPMP, 1999; ICPM, 2001]

quality assurance*	the activities focused on providing confidence in fulfilling quality requirements within the coordinated activities of an organization that directs and controls quality (quality management)
quarantine pest	A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled. [FAO, 1990; revised FAO, 1995; IPPC, 1997]
regulated article	Any plant, plant product, storage place, packaging, conveyance, container, soil and any other organism, object or material capable of harbouring or spreading pests, deemed to require phytosanitary measures, particularly where international transportation is involved. [FAO, 1990; revised FAO, 1995; IPPC, 1997]
standard	Document established by consensus and approved by a recognized body that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context. [FAO, 1995; ISO/IEC GUIDE 2:1991 definition]
surveillance	An official process that collects and records data on pest occurrence or absence by survey, monitoring or other procedures. [CEPM, 1996]
survey	An official procedure conducted over a defined period of time to determine the characteristics of a pest population or to determine which species occur in an area [FAO, 1990; revised CEPM, 1996]
treatment	Official procedure for the killing, inactivation or removal of pests, or for rendering pests infertile or for devitalization [This reference

does not exist. It should give the source as indicated in the glossary 2005, i.e. [FAO, 1990, revised FAO, 1995; ISPM No. 15, 2002; ISPM No. 18, 2003; ICPM, 2005] ISPM Pub. No. 5, 2005]

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\* Indicates terms which are not included in ISPM No. 5 Glossary of phytosanitary terms.

## **OUTLINE OF REQUIREMENTS**

The general requirements to be considered in the establishment of a fruit fly pest free area (FF-PFA) include: consideration of the need for a buffer zone; preparation of a public awareness programme; identification of resources; and administrative elements of the system (development of documentation and review systems, record keeping and quality assurance programme).

The major elements of the FF-PFA are: establishment of the FF-PFA; verification and declaration of the FF-PFA; and maintenance of the FF-PFA. These elements include the surveillance operational activities of trapping and fruit sampling, confirmatory identification of any fruit fly species detected, and regulatory controls on the movement of host material or regulated articles.

Additional points that need to be considered include: planning for corrective action should target fruit flies be detected within the FF-PFA; change in the status of all or part of the FF-PFA; and reinstatement (where possible) of all or part of the FF-PFA and establishment of specific trading arrangements if required.

## **GENERAL REQUIREMENTS**

### **1. Background**

Although ISPM No. 4 (*Requirements for the establishment of pest free areas*) provides the general guidance on the establishment of PFAs, the need for additional guidance on establishment and maintenance of PFAs for fruit flies was recognized. This standard describes the requirements for establishing and maintaining a FF-PFA. The target pests for this standard include insects of the order Diptera, family Tephritidae.

The establishment of a FF-PFA and its recognition by trading partners implies that no other phytosanitary measures are required for the target species of fruit fly for host commodities sourced from within the FF-PFA, if the phytosanitary integrity of the host commodity is maintained throughout harvest, sorting, storage, packaging and transport.

## **2. General Requirements**

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” (see ISPM No. 4).

Fruit fly pest free areas may occur naturally or following the successful implementation of pest eradication programmes (see ISPM No. 9: *Pest Eradication programmes*). The decision to establish a FF-PFA is made by NPPOs based on technical and socio-economic feasibility.

Technical factors to consider in determining the feasibility of establishing a FF-PFA in a country may include components such as: pest population levels, geographic isolation, climate, geography and availability and feasibility of methods for pest eradication. All the procedures used for establishment and maintenance of the FF-PFA should be documented, audited and endorsed by the NPPO.

### **2.1 Buffer zone**

In areas where geographic isolation is not considered adequate to prevent reinfestation of a FF-PFA or where there are no other means of preventing fruit fly movement to the FF-PFA, a buffer zone will need to be established. Some of the factors which should be considered in the establishment of a buffer zone include:

- ◆ pest suppression techniques which may be used to reduce the fruit fly population including: selective insecticide bait spraying, sterile insect techniques, male annihilation technique, biological control, mechanical control;
- ◆ the target fruit fly species and its biology, host availability, cropping systems, natural vegetation including adjacent forest or natural ecosystems, climatic conditions;

- ◆ the geographic features of the area under consideration; and
- ◆ the proximity of large urban areas that may make the control of fruit fly species of economic concern difficult and/or costly.

## **2.2 Identification**

NPPOs should have in place adequate infrastructure and trained personnel available to identify captured specimens of the species in an expeditious manner. Where expertise is not available within the country the NPPO may identify a competent authority in another country to undertake identifications.

## **2.3 Public awareness**

An important factor in the establishment and maintenance of FF-PFAs is the support and participation of the people living within the FF-PFA, individuals that may travel to or through the area, and other parties with interests in the area. The FF-PFA status can be maintained only if there is no introduction of target species through the movement of infested fruit. The public and stakeholders should be informed of the importance of establishing and maintaining the pest free status of the area. This awareness may include information on exotic species of quarantine concern. The programme helps to achieve compliance with the phytosanitary measures for the FF-PFA. It may include the following elements:

- ◆ permanent or temporary roadblocks in selected areas;
- ◆ posting signs at FF-PFA entry points and transit corridors;
- ◆ fruit fly host commodity disposal bins at the borders of FF-PFAs or buffer zones, awareness brochures;
- ◆ public information campaigns;
- ◆ systems to allow certified fruit fly free fruit movement within the FF-PFA; and
- ◆ penalties for non-compliance with FF-PFA requirements.

## **2.4 Documentation and review**

All procedures used in the establishment and maintenance of a FF-PFA should be adequately documented. The procedures should be reviewed and updated regularly. Any corrective measures implemented to refine or re-establish a FF-PFA should also be documented.

## **2.5 Record keeping**

Records of all procedures (such as surveillance, detection and response activities) undertaken in the establishment and maintenance of a FF-PFA should be retained for as long as possible. Such records may be used to build confidence in the systems implemented and should be made available to trading partners on request.

## **2.6 Quality assurance**

The FF-PFA programme, including the surveillance procedures (both trapping and fruit sampling when used), regulatory control, and corrective actions should comply with the documented and approved procedures. The effectiveness of the programme should be monitored by the NPPO and/or trading partner, as appropriate, using quality assurance procedures.

The procedures should also record formal delegations of responsibilities to key personnel, for example:

- ◆ management representative – officer with defined authority and responsibility to ensure the systems/procedures are implemented and maintained appropriately;
- ◆ nominated reference entomologist – officer with responsibility for the authoritative identification of fruit flies to species level; and
- ◆ other formal delegations where appropriate.

All operational activities should strictly follow documented and approved procedures, and will be subjected to both internal and trading partner audit as appropriate.



### **3. Specific Requirements**

#### **3.1 Determination of the FF-PFA**

The following characteristics of a FF-PFA should be considered in the determination of a specific area:

- ◆ target fruit fly species and their distribution within the country;
- ◆ commercial and non-commercial host species;
- ◆ geographical area (detailed maps showing the boundaries, natural barriers, entry points and host locations in the area);
- ◆ any existing regulations which may affect fruit movement;
- ◆ climatic data (rainfall, relative humidity and temperature); and
- ◆ buffer zones (where necessary).

#### **3.2 Establishment of the FF-PFA**

The following should be developed and implemented:

- ◆ surveillance activities for establishment of the FF-PFA;
- ◆ regulatory controls on movement of regulated articles within and in transit through the FF-PFA and buffer zone (if required); and
- ◆ the establishment of buffer zones where necessary.

##### **3.2.1 Surveillance activities for establishment of the FF-PFA**

A regular survey programme for fruit flies of economic concern should be established and implemented. Generally it is considered that trapping, using an established trapping network throughout the FF-PFA, is sufficient to determine fruit fly absence or presence in an area. Should a population of fruit flies be detected during the establishment phase using lure-responsive trapping methods, fruit sampling may be used to provide additional information regarding the level of infestation and location of the infestation.

For species that are non-responsive to specific pheromone lures, fruit sampling may be used during the establishment phase of

a FF-PFA. However, non-pheromone lure based traps (i.e. food-based traps) are generally used for large scale monitoring of FF-PFAs where non-pheromone lure responsive fruit flies are to be monitored. Should a population of non-pheromone lure responsive fruit flies be detected during the establishment phase, fruit sampling may be used to provide additional information regarding the level of infestation and location of the infestation.

Surveillance should be undertaken for at least 12 months in the FF-PFA, or a period agreed to by consultation with prospective trading partners, using specific trapping and fruit sampling procedures throughout the potential FF-PFA. Trapping and sampling procedures should be applied to both commercial and non-commercial host material. These procedures are used to demonstrate that the pest is not present in the potential FF-PFA. There should be no detections (adult or immature stages) of the target species during the survey period. Trapping and/or fruit sampling techniques adopted should follow established protocols for the target species of concern.

### **3.2.1.1 Trapping procedures**

This section contains general information on trapping procedures. There are long-established trapping systems that have been used to survey fruit fly populations.

#### **Trap type and lures**

Traps used for fruit flies depend on the target species, the season and the nature of the attractant. The most widely used traps contain para-pheromone or pheromone lures that are male specific. Lures for capturing non-pheromone responsive species or females of both lure and non-lure responsive species are based on food or host odours. Historically, liquid protein baits have been used to catch a wide range of fruit fly species. Liquid protein baits capture both females and males, with a slightly higher percent of females captured (though identification of the fruit flies can be difficult owing to premature decomposition of trap catches caused by the liquid nature of the trap). Dry synthetic protein baits which are commonly used for some fruit fly species are female biased. These

baits tend to capture fewer non-target organisms and when used in dry traps prevent decomposition of captured specimens.

### **Trap density**

Trap density is critical for fruit fly surveys and will be dependant on the target fruit fly species, trap efficiency and biotic and abiotic factors. Density may change depending on the programme phase, with possibly different densities being required during the establishment and maintenance phases of the FF-PFA. Trap density will also be dependant on host occurrence from production to marginal areas and the risk associated with potential points of entry.

### **Trap deployment**

In FF-PFA programmes an extensive trapping network should be deployed over areas where host plants are found. The trapping network layout will depend on the characteristics of the area, host distribution and biology of the fruit fly of concern. One of the most important features of trap placement is selecting a proper trap location and trap site within the selected host tree. If low growing host plants (strawberries, cucurbits etc.) are to be monitored or the availability of suitable host trees is limited, traps should be placed as close as possible to the canopies of non-host shade trees or an artificial equivalent, 1–2 metres above the ground.

Traps should not be hung below the foliage canopy of host trees, and should be a minimum of 1 metre above the ground. If more than one type of trap is deployed at a trapping site (e.g. two different lure traps), the traps should be separated by a minimum of 3 metres and should not be deployed in the same host tree.

Geographic positioning systems (GPS) and global information systems (GIS) are useful tools for management of a trapping network.

### **Preferred host(s) and fruit maturity**

Trap location should take into consideration the presence of the preferred hosts of the target species. As the pest is associated with mature fruit, the location 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 fungicides) to selected host trees may have a false-negative effect on the trapping programme.

### **Trap servicing**

The frequency of trap servicing during the period of trapping will be dependent on:

- ◆ attractant persistency (i.e. longevity of the bait)
- ◆ the retention system if it affects the quality of specimens
- ◆ rate of catch
- ◆ season of fly activity
- ◆ environmental conditions.

It is important that lure material does not contaminate the external surface of the trap, nearby soil or plant material. It is equally important to ensure that there is no cross-contamination between lure types, or between lures and other chemicals.

### **Trap replacement**

Traps have a definite working life, and the replacement of traps should be undertaken periodically based on the expected longevity of the trap in the particular environment. The condition of each trap should also be examined during trap servicing and inspection activities, and where applicable (e.g. signs of deterioration), traps should be replaced.

### **Trap inspection**

The frequency of inspection during the period of trapping will depend on the level of fly activity, response periods required at different times of the year, relative number of target and non-target fruit flies expected to be caught in a trap, and the need to prevent specimens from deteriorating and thus preventing identification.

### **Record keeping**

All trapping and servicing data should be recorded. Records should be kept up-to-date and be readily available.

### **3.2.1.2 Fruit sampling procedures**

With fruit flies that are not responsive to traps, the following factors should be considered if fruit sampling is to be used as a surveillance method. 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 due to the destruction of fruit.

#### **Host preference**

Fruit sampling should take into consideration the presence of hosts of the target species. Sample fruit should be targeted based on maturity and apparent signs of infestation.

#### **Targeting high risk areas**

Fruit sampling should be targeted to areas likely to have presence of infested fruits such as urban areas, abandoned orchards, rejected fruit at packing houses, fruit markets and sites with a high concentration of primary hosts.

#### **Sample size**

Factors to be considered include:

- ◆ the sample size should be based on a statistical study to ensure samples provide an adequate level of confidence of fruit fly detection within the host commodity;
- ◆ the sample size, the number and weight of fruits per sample should be planned based on the availability of primary host material in the field; and
- ◆ samples may include fruit with infestation symptoms on a tree, fallen fruit or rejected fruit (at packing facilities) if this is scientifically accepted.

#### **Procedures for holding fruit**

Fruit samples should be brought to a facility for holding, fruit dissection, pest recovery and identification. Fruit should be labelled, transported and held in a secure manner to avoid contamination and mixing of fruit. Where it may be necessary for

eggs/larvae to be grown out for identification purposes it is important that the fruit be held in suitable conditions to maintain the viability of immature insects.

### **Record keeping**

All fruit sampling data should be recorded to permit trace-back of detections. Records should be kept up to date and be readily available.

### **3.2.2 Regulatory controls on the movement of host material or regulated articles**

Regulatory movement controls for regulated articles are required to prevent the entry of target pests into the FF-PFA. These controls will depend on the assessed risks (after identification of likely pathways and regulated articles) and may include:

- ◆ listing of the target fruit fly species on a quarantine pest list;
- ◆ listing of regulated articles for which movement is controlled;
- ◆ publishing of regulations if necessary, including restriction of the movement of certain products within areas of a country or countries;
- ◆ specification of import requirements into a country or area; and
- ◆ inspection of regulated articles and examination of relevant documentation and, where necessary, application of appropriate non-compliance actions (e.g. treatment, reshipment or destruction).

### **3.2.3 Additional technical information for establishment**

Additional information may be useful during the establishment phase of FF-PFAs. This may include:

- ◆ historical records of detection, biology and population dynamics of the target fruit fly species, and previous survey activities for the designated target fruit fly species in the FF-PFA;

- ◆ the results of previous actions taken following detections of fruit flies in the proposed FF-PFA;
- ◆ 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
- ◆ lists of the other fruit fly species that may be present in the FF-PFA.

### **3.3 Verification and declaration of pest freedom**

The NPPO verifies the fruit fly free status of the area (see ISPM No. 8: *Determination of pest status in an area*) by checking the compliance with the procedures set up in accordance with this standard (surveillance and regulatory controls). The NPPO declares the establishment of the FF-PFA and notifies trading partners as appropriate.

### **3.4 Maintenance of the FF-PFA**

Following the establishment and declaration of a FF-PFA, this status should be maintained. The NPPO should continue to administer all management and operational aspects associated with the FF-PFA (for example, surveillance activities and regulatory controls).

#### **3.4.1 Surveillance for maintenance of the FF-PFA**

After verifying and declaring the FF-PFA, the official surveillance programme should be continued at a level assessed to be required for maintenance of the FF-PFA, for as long as the FF-PFA is operational. Regular (for example monthly) technical reports of survey activities should be generated. This may be the same as for surveillance procedures during the establishment phase with differences in density and trap locations dependent upon the assessed level of risk of introduction and establishment of the target fruit fly species. It is likely that there will be lower densities required in commercial production sites and higher densities at points of entry and urban areas.

Additional surveillance within the declared FF-PFA may be required for non-target exotic fruit fly species of economic concern.

### **3.4.2 Regulatory controls on the movement of host material and regulated articles**

These are the same as for establishment. See section 3.2.2.

### **3.4.3 Planning for corrective action**

The NPPO should have plans for corrective action that may be implemented if the target pest is detected in the FF-PFA (see Annex 1). This should include:

- ◆ criteria for the declaration of an outbreak/incursion, and the determination of the outbreak area and suspension area/s within the FF-PFA;
- ◆ criteria for reinstatement of a FF-PFA suspension area following an outbreak;
- ◆ procedures for responding to post-harvest interceptions, including interceptions by trading partners in imported host material;
- ◆ criteria for initiating further surveillance;
- ◆ rapid identification of target fruit fly species;
- ◆ the rapid implementation of delimiting survey/s (trapping and fruit sampling);
- ◆ eradication measures; and
- ◆ notification of corrective actions to trading partners as appropriate.

A corrective action plan should be initiated within 72 hours of the detection, if previously determined criteria for the initiation of corrective action are met.

Similar corrective action plans may be prepared for non-target exotic fruit fly species.



### **3.5 Suspension, termination and reinstatement of FF-PFA status**

#### **3.5.1 Suspension and termination**

The status of the FF-PFA will change when an outbreak of the target pest occurs or procedures are found to be faulty.

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 of trading partners (see ISPM No. 17: *Pest reporting*). The whole or part of the FF-PFA may be suspended or terminated. Where a suspension is put in place, the criteria for lifting the suspension should be made clear. If the control measures are not effective and the pest becomes established within an area of the FF-PFA, the pest free status of the area, or of the infested area of the FF-PFA, should terminate. Trading partners should be informed of any change in FF-PFA status as soon as possible.

Other circumstances, such as inadequate movement controls or the detection of the target pest upon imported products, may also result in suspension of the FF-PFA.

If bilateral arrangements have been made to cover non-target exotic fruit fly species, the status of the country of FF-PFA will change if the species are detected, until surveillance defines the distribution of the pest.

#### **3.5.2 Reinstatement of the pest free area status**

Reinstatement may take place when:

- ◆ following an outbreak, reinstatement criteria agreed to between trading partners have been met; and
- ◆ following identification of non-compliance in implementing agreed procedures and appropriate corrective actions have been implemented to address the non-compliance to the satisfaction of the trading partners.

### **3.6 Specific trading arrangements**

When a FF-PFA requires complex measures for its establishment and maintenance to provide a high degree of phytosanitary security, an operational plan based on bilateral arrangements may be negotiated and developed between trading partners.

## **Corrective action planning following the detection of a target species of fruit fly in the FF-PFA**

Corrective action plans (emergency action plans) should be developed in case target species of fruit fly are detected within the FF-PFA after establishment of the FF-PFA. Corrective action plans should take into account the biology of the fruit fly concerned, the geography of the FF-PFA area, climatic conditions and host distribution within the area. The elements to consider in designing a corrective action plan include:

### **1. Criteria for the declaration of an outbreak/incursion, determination of the outbreak area and period of FF-PFA suspension**

Occasionally a single piece of fruit infested with larvae of target fruit fly species may enter the FF-PFA. This may result in the detection of a single male or female fruit fly. In most cases this level of incursion may not result in the establishment of a population within the FF-PFA. To be able to deal with varying levels of detection of target fruit fly species within the FF-PFA, criteria for managing small and larger detections should be determined.

#### **1.1 Declaration of an outbreak and suspension of FF-PFA**

The number of flies, time period and area over which target species are detected will serve as triggers or criteria for suspension of FF-PFA status. These triggers or criteria are generally negotiated and agreed upon with prospective trading partners.

Following the declaration of an outbreak and suspension of FF-PFA status, it will be necessary to determine different zones around an outbreak area and the period of time during which the FF-PFA status is removed. These may include:

- ◆ **the suspension zone**, which would comprise the area where FF-PFA status has been suspended (the entire FF-PFA area need not be suspended if it can be demonstrated through surveillance activities that the outbreak remains localized

within a small area of the total FF-PFA). Host commodities may not leave this area without an alternate phytosanitary measure.

- ◆ **outbreak zone(s) or areas**, which would comprise the area/s within the suspension zone where control measures will be implemented to eradicate the suspected population of target fruit fly species.
- ◆ **the FF-PFA suspension period** (or length of time that the suspended area of the FF-PFA should remain without FF-PFA status after control measures for the target species of fruit fly have ceased) will also need to be determined . The period of suspension is generally based on the generation time of the target species of fruit fly. The purpose of this period is to prove that the target species of fruit flies has been eradicated from the previously infested area.

The size and number of zones will depend on the circumstances in the FF-PFA and on the biology of the particular fruit fly species concerned. The zones should be defined according to size, location in relation to the finding of the fruit fly(ies) and, where appropriate, the number and distribution of supplementary traps.

## **2. Control measures in the identified zones**

These may include:

- ◆ setting the time period for the implementation and continued application of control measures;
- ◆ determining and mapping the relevant zones;
- ◆ informing relevant personnel and agencies (and providing contact details);
- ◆ initiating and defining delimiting surveys (including supplementary trapping, the frequency of trap checking and the amount of fruit sampling);
- ◆ rapid identification of target fruit fly species;
- ◆ eradication actions (chemical treatments, use of sterile insect techniques, destruction of affected fruit etc.);

- ◆ post-control monitoring (procedures and time scale); and
- ◆ implementing regulatory controls to prevent movement of host material through or from suspension zone.

### **3. Criteria for reinstatement of a FF-PFA after an outbreak and actions to be taken**

The criteria for determining that eradication has been successful should be determined and the actions to be taken may include:

- ◆ no further detections of target fruit fly species after the completion of control measures for a previously determined time period;
- ◆ notification of appropriate agencies;
- ◆ re-instatement of normal surveillance levels; and
- ◆ lifting suspensions of host commodity movement.

### **4. Notification of trading partners as appropriate**

Trading partners should be notified in a timely manner when suspensions have been implemented or lifted. Timing of notifications may be detailed in bilateral arrangements between trading partners.