ORGANISATON NORD AMERICAINE POUR LA PROTECTION DES PLANTES
NORTH AMERICAN PLANT PROTECTION ORGANIZATION
ORGANIZACION NORTEAMERICANA DE PROTECCION A LAS PLANTAS
CANADA UNITED STATES MEXICO

NAPPO Regional Standards for Phytosanitary Measures (RSPM)

RSPM # 10
SURVEILLANCE FOR QUARANTINE FRUIT FLIES (IN A PORTION OF A GENERALLY INFESTED AREA)

The Secretariat of the North American Plant Protection Organization
59 Camelot Dr., Nepean, Ontario, Canada K1A 0Y9
August 16, 1998

Contents

Review

NAPPO Standards for Phytosanitary Measures are subject to periodic review and amendment. The next review date for this NAPPO standard is 2003. A review of any NAPPO Standard may be initiated at any time upon the request of a NAPPO member country.

Endorsement

This Standard was approved by the North American Plant Protection Organization (NAPPO) Executive Committee on August 16, 1998.

Approved by:

Executive Committee Member
CANADA

Executive Committee Member
UNITED STATES

Executive Committee Member
MEXICO

Amendment Record

Amendments to this Standard will be given a consecutive number, dated and filed with the NAPPO Secretariat.

Distribution

This standard is distributed by the NAPPO Secretariat within NAPPO, including Sustaining Associate Members and Industry Advisory Groups, to the FAO IPPC Secretariat, to the ICGPP, and to the Administrative Heads of the Regional Plant Protection Organizations (RPPOs). Copies are available upon request to the NAPPO Secretariat and are available on the NAPPO web page: www.nappo.org.

Introduction

Scope

This standard deals with the surveillance requirements involved in verifying and permanently maintaining fruit fly free areas (Appendix 1) within a generally infested area. This condition may occur either by natural means or as a result of specific eradication actions. It details the general administrative procedures as well as specific daily activities. The actions necessary to establish this type of fruit fly free area are well described in the FAO International Standard for Phytosanitary Measures entitled "Requirements for the Establishment of Pest Free Areas".

The criteria and procedures considered in this standard are valid, in accordance with the NAPPO Standard for Pest Free Areas. NAPPO member countries are willing to consider equivalent science-based procedures scientifically proven for quarantine fruit fly surveillance.

References

Anonymous. "Areas in Mexico Free from Fruit Flies" (ALMF), 8/96). Bilingual Document, English-Spanish, support document to the Quarantine Bilateral Agreement between MAF New Zealand and SAGAR Mexico, August 1996.
SAGAR-USDA, "Work Plan for the Fruit Fly-Free Zone Program in Sonora for the 1990 Export Season". Bilingual Document, English-Spanish, SARH/DGSV-USDA/APHIS, May, 1990, 21 pp.
FAO. 1996. Glossary of Phytosanitary Terms. International Standards for Phytosanitary Measures, Reference Standard, Publication Nº 5. Secretariat of the IPPC, FAO. Rome, April 1996.
FAO. 1996. Requirements for the Establishment of Pest Free Areas. International Standards for Phytosanitary Measures, Part 4 - Pest surveillance, Publication Nº4. Secretariat of the IPPC, FAO. Rome, February 1996.
NAPPO 1996. Compendium of Phytosanitary Terms. Document 96-027, Nepean, Ontario, Canada, February, 1996.
NAPPO 1994. NAPPO Standard for Pest Free Areas. Document 934-006. Ottawa, Ontario, April 21,1994, 6 pp.
USDA-APHIS-PPQ-DEO (October 1991); National Exotic Fruit Fly Trapping Protocol.

Definitions and Abbreviations

A1 Pest (for an area)	A quarantine pest which is not present in that Area (NAPPO Compendium of Phytosanitary Terms, 1996)
A2 Pest (for an area)	A quarantine present in that area but not widely distributed there and being officially controlled (NAPPO Compendium of Phytosanitary Terms, 1996)

Area	An officially defined country, part of a country, or all or parts of several countries. (FAO Glossary of Phytosanitary Terms, 1996)
Infested Area:	An area which has been determined to have an established pest population. (NAPPO Compendium of Phytosanitary Terms, 1996)
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 Glossary of Phytosanitary Terms, 1996)
Official:	Established, authorized or performed by a National Plant Protection Organization. (FAO Glossary of Phytosanitary Terms, 1996)
National Plant Protection Organization (NPPO):	Official service established by a government to discharge the functions specified by the IPPC. (FAO Glossary of Phytosanitary Terms, 1996)

Outline of Requirements

Countries wishing to export fruit fly host material, without post-harvest treatment, must send through its National Plant Protection Organization (NPPO), information that supports a fruit fly free area, including a detailed description of the activities to maintain the condition in the area to guarantee the soundness of the system used. Once the NPPO of the importing country approves the condition of the area as pest free, the NPPO of the exporting country shall report the name of an official responsible for periodically providing the information on trapping measures at the national level, as well as the name(s) of the person(s) authorized to perform the official identification of fruit fly specimens which may appear in the area of interest. Records of the activities which are carried out to safeguard the condition in that area should be available.

Jackson traps with specific sexual attractants are suggested for permanent surveillance of species which respond to trimedlure/capilure, to cuelure and to methyl-eugenol. McPhail and AM Pherocon traps are suggested for surveillance of species of flies which do not respond to sexual attractants. Suitable locations for placing the traps are specified in this standard as are the corresponding minimum trap densities for the surveillance of these species of flies.

Compliance with these criteria and requirements by the exporting country, will allow the NPPO to issue phytosanitary certificates for host fruits produced in the area of interest, with the condition that permanent quarantine measures are in place to regulate the introduction of fruit fly hosts into such areas.

General Requirements

Insects from the order Diptera, family Tephritidae, which belong to any genus of pest, such as *Anastrepha, Bactrocera, Ceratitis, Dacus, Rhagoletis* and *Toxotrypana* may be quarantine pests in NAPPO member countries. Countries wishing to export fruit that are a host to these fruit flies to NAPPO member countries, without post-harvest treatment must first forward the following information to the appropriate NPPO through their own NPPO.

- A list of all the species of fruit flies which are present in its country.
- A list of the species of fruit flies included in 1), which the NPPO considers to attack the fruit product intended for export.
- A list of the species of fruit flies included in 1), which the NPPO deems are not present in the area from which the export is proposed.
- Information supporting the use of the types of trap and attractants -- other than the ones established in this standard -- which the NPPO uses to demonstrate the absence of fruit flies in the proposed pest free area.
- For the area proposed as free from fruit flies, the results of regular inspection performed uninterrupted for at least 12 months, or in the period where the climatic conditions are favorable for pest establishment. For surveillance through trapping it will be useful to indicate among others the number and density of traps by type and attractant, frequency of review and baiting for each type of trap, number of visits to the trap per month and the minimum number of traps serviced and where applicable, the number of detections of fruit flies specifying the sex and type(s) of trap(s) in which they were captured. For surveillance by fruit sampling it will be useful to indicate, among other things, the number of units and kilograms of fruit sampled and analyzed as well as the level of infestation for fruits affected by the pest.

Once the NPPO of the importing country approves the fruit fly free status, the NPPO of the exporting country agrees to keep the NPPO of the importing country informed of the results of the ongoing inspection and surveillance activities described, of any detection of the pest which may occur and the results of emergency actions.

The NPPO of the importing country shall be authorized to carry out supervisory visits when it so deems appropriate.

Specific Requirements

1. Surveillance Program

The NPPO of the exporting country must assign and report the name of an official responsible for providing information on the fruit fly surveillance program. All the activities described in this standard must be supervised by this office.

1.2 Identification of Suspected Specimens

Within a period of not more than 30 calendar days from the date of approval of fruit fly free status of an area, the NPPO of the exporting country must provide the names and contact information of the persons authorized to officially identify the fruit fly specimens which may be detected within the area.

1.3 Recording Information

All activities considered in this standard, including the identification of specimens detected, as well as any other data provided to support the fruit fly free status in the area of interest (quality control of the trap, among others), must be properly and clearly recorded. The NPPO of the exporting country shall provide access to these records at the request of the NPPO of the importing country.

2 Trapping

2.1.1 Types of Traps

To monitor fruit fly species which respond to parapheromones, the Jackson trap or equivalent, baited with the specific attractant, shall be used. Attractants to be used in these traps are trimedlure or capilure for the Mediterranean fruit fly *(Ceratitis capitata)*, cuelure for responsive species of *Bactrocera and Dacus*, and methyl-eugenol for other species of *Bactrocera and Dacus*.

To monitor flies for which parapheromones are not available (genus *Anastrepha* and *Toxotrypana*), the McPhail invaginated trap or equivalent is used. It is baited with a liquid mixture based on hydrolyzed protein or an equivalent as an attractant.

For fruit flies of the genus *Rhagoletis*, Pherocon AM traps or equivalent must be used, coated with adhesive mixed with ammonium compounds and hydrolyzed protein.

2.1.2. Density of Trapping

The density of trapping in the proposed area shall depend on the risk of introduction of each fly species. Thus, the density of trapping shall be higher for those areas with a higher probability of introduction. This can be related to their proximity to, or to the amount of trade or influx of persons from an area in which the species is established.

Considering the above, *zones of high risk* are considered to be those human settlements where there are national or international seaports, airports, train stations, as well as national or international tourist locations. *Moderate-risk zones* are human settlements located near areas producing hosts plants, as well as those areas producing hosts plants near to human settlements . Finally, *low-risk*

zones are those in rural areas and areas of commercial production of fruit fly hosts plants which are further removed from human settlements.

Additional factors for assessing risk zones include previous history of detections, climate, wild host availability, general ecological conditions, etc.

- For species that respond to trimedlure/capilure:
In high-risk zones, traps must be placed in host plants at a density of 4 traps per Km^2. In medium-risk zones, 2 traps must be placed per Km^2, and in low-risk zones, 1 trap per Km^2.
- For species that respond to cuelure:
In high-risk zones, traps must be placed in host plants at a density of 4 traps per Km^2. In medium-risk zones, 2 traps must be placed per Km^2, and in low-risk zones, 1 trap per Km^2.
- For species that respond to methyl-eugenol:
In high-risk zones, traps must be placed in host plants at a density of 2 traps per Km^2. In medium-risk zones, 1 trap must be placed per Km^2, and in low-risk zones, 1 trap per each 2.5 Km^2.
- For species that do not respond to available parapheromones:
In high-risk zones, McPhail or Pherocon AM traps must be placed in host plants at a density of 5 traps per Km^2. In medium-risk zones, 4 traps must be placed per Km^2, and in low-risk zones, 2 traps per Km^2.

2.1.3 Trap Placement Sites

The traps should be placed in host plants with abundant foliage, preferably while bearing fruit. Host plants which are likely to receive applications of pesticides should be avoided. The following trap-placement options are listed in order of descending preference:

- In host fruit trees with foliage, not sprayed with pesticides and preferably while bearing fruit, in yards of private homes.
- In host fruit trees with foliage, not sprayed with pesticides and preferably while bearing fruit, in or contiguous to commercial orchards.
- In non-host trees with broad leaves, more than 2.5 meters tall, in or contiguous to commercial orchards.
- In bushes and trees 2 to 2.5 meters high, in or contiguous to commercial orchards.
- In host fruit trees with foliage, preferably while bearing fruit, in commercial orchards.

The traps should not hang below the foliage of the tree, nor should the entrance to the trap be obstructed by the tree's foliage.

2.1.4. Duration of Surveillance and Frequency of Trap Inspection

Surveillance must be performed permanently all year, or during the time when climatic conditions are suitable for pest establishment, both in urban areas and in areas of commercial production.

Jackson traps must be inspected at least once every two weeks. If the area has a higher risk due to previous history of detections, the traps must be inspected every 7 days. McPhail and Pherocom AM traps must be inspected every 7 days.

2.1.5. Service and Relocation of Traps

2.1.5.1. Parapheromone-Based Traps

The specific attractant must be replaced on 2-3 ml cotton wicks every 2-4 weeks, depending on the climate to which it is exposed. Care must be taken not to oversaturate the wicks nor contaminate the soil or parts of the plant when servicing the traps. In the specific case of trimedlure incorporated in a solid formulation, it is recommended that they be replaced every 4-6 weeks. The body (triangular prism) of the trap must be changed every 2-6 months, depending on the intensity of rain in the place where it is located. According to the criteria in 2.1.3., if possible, traps will be relocated every 12 weeks.

2.1.5.2. Food-Based Traps

The Pherocon AM traps, as well as the contents of the McPhail traps, must be changed every time they are inspected. Avoid emptying the contents of the McPhail traps on the ground. Try to collect it in a container and then discard it in a manner to prevent contamination of the trapping area.

Traps will be relocated, if possible, every 12 weeks, in accordance with the criteria in point 2.1.3.

2.2 Response to the Detection of Fruit Fly Specimens

2.2.1 Specimen Identification and Reporting

All specimens captured must be identified within 3 days of their capture to determine if they are quarantine fruit flies. The authorized person for fruit fly specimen identification must determine the gender and species within 24 hours after identifying them as fruit flies.

Within 24 hours after positive identification of the fruit fly capture, the NPPO of the exporting country must notify the NPPO of the importing country in writing, the location where the fruit flies were trapped, as well as the sex and physiological state of captured specimens.

2.2.2. Cancellation and Reinstatement of Areas Free of Fruit Flies

If fertilized females or fruit fly larvae are detected, the free area must be cancelled in an 8 km radius around the area where they were captured. If detections are limited to males, the location details and emergency measures taken will be also communicated. Re-instatement of cancelled areas can occur when the time equivalent to three pest generations has passed without additional detections. The exporting country will provide this information for the approval of the NPPO of the importing country to re-instate the fruit fly free status.