



SPECIFICATION 71

Criteria for determining host status of fruits to fruit flies based on available information

(Approved 2020, published 2020)

Title

Annex *Criteria for determining host status of fruit to fruit flies based on available information* (2018-011) to ISPM 37 (*Determination of host status of fruit to fruit flies (Tephritidae)*).

Reason for the annex to the standard

A variety of published information on fruit fly host status is used by national plant protection organizations (NPPOs) to implement adopted International Standards for Phytosanitary Measures (ISPMs) related to pest risk analysis, pest free areas, the design of import and export programmes, eradication, surveillance, pest records, and more. There is considerable inconsistency in the interpretation of published information, which can lead to disputes between NPPOs. Nearly 30 terms describing host status can be found in the literature. Examples include: preferred host, rare host, field host, primary host, secondary host, experimental host and reproductive host. To promote harmonization, the use of multiple ambiguous and inconsistent terms needs to be avoided, and standardized terms that are aligned with the terms defined in ISPM 37 used instead. Consistent and transparent criteria for listing fruit fly hosts and for determining host status of fruit based on available information need to be developed. This will be crucial for preventing future trade challenges over whether a particular fruit fly should be regulated by NPPOs on different hosts.

Scope

This annex should outline the criteria that should be used when evaluating evidence in order to determine the host status of fruit to fruit flies (Tephritidae) based on information that already exists. It should also provide guidelines for the consistent application of these criteria, aligned with terms used in ISPM 37. The annex should apply to all commodities in global trade that can potentially be hosts to fruit flies.

Purpose

The annex will provide defined criteria for assessing information (e.g. scientific literature, NPPO reports, pest records) to determine the status of hosts to fruit flies without conducting experiments. These criteria will help NPPOs develop host lists for use in activities such as pest risk analysis, surveillance, inspection, and development of standards and regulations. The annex will discuss how information can

be evaluated to provide more consistency in decision-making. Suggested terminology used to describe the status of hosts with respect to fruit flies will be aligned with terms defined in ISPM 37.

Tasks

The expert working group (EWG) should undertake the following tasks:

- (1) Review relevant literature and other documentation related to determination of host status for fruit flies, including any available standardized guidance.
- (2) Identify different types of fruit fly–host interactions and related terminology used in scientific and regulatory literature (e.g. host, non-host, conditional host, natural host, non-natural host, reproductive host, alternate host) and align those with the categories defined in ISPM 37: natural hosts, conditional hosts, non-hosts.
- (3) Consider developing general guidance for determining host status for fruit flies in relation to specific conditions (e.g. where the pest is present only on specific hosts in a specific area, or present on the host only during a particular plant stage of development such as fruit maturity, or present on the host seasonally when other known hosts in the area are not available) and include an explanation of how conditional host status should be considered in practical terms for activities such as survey or pest risk analysis. Provide guidance on how to interpret pest interceptions in a plant species that previously was not reported as a host.
- (4) Taking the above tasks into consideration, identify consistent criteria for categorizing fruit as natural host, conditional host and non-host, based on various aspects of fruit fly biology. Parameters for consideration could include fecundity, emergence of viable adults, reproduction rate, type of the reported infestation (e.g. natural infestation in the field, forced infestation, or laboratory studies only), and others if relevant. Provide guidance on using such criteria, with examples from published information.
- (5) Identify the most relevant types of fruit fly–host interactions and specific conditions that determine host status (e.g. conditions related to natural host, conditional host, non-host) and align those with categories in ISPM 37; propose new host categories if appropriate.
- (6) Describe how the quality and validity of information should be evaluated and defined, including how to evaluate primary sources and secondary citations. Provide guidance on the reliability of information in a similar way to section 2.2 of ISPM 8 (*Determination of pest status in an area*).
- (7) Discuss how uncertainty relates to host status records, and include guidance on assessing conflicting opinions, contradictory reports and weight of evidence (e.g. multiple reports versus single reports).
- (8) Consider whether the annex could affect in a specific way (positively or negatively) the protection of biodiversity and the environment. If this is the case, the impact should be identified, addressed and clarified in the draft annex.
- (9) Consider implementation of the annex by contracting parties and identify potential impediments to operational and technical implementation. Provide information on these impediments, and possible recommendations on how to overcome them, to the Standards Committee.

Provision of resources

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

Collaborator

To be determined.

Steward

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

Expertise

The participants should have collective expertise in:

- pest risk analysis, with experience in developing lists of hosts of fruit flies for various reasons (e.g. surveillance, inspection, trade negotiations, development and implementation of national, regional or international standards on host status);
- entomology (e.g. operational experience in detecting infestation by fruit flies in host commodities) with an emphasis on Diptera: Tephritidae.

Participants

Six to eight experts.

References

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

Aluja, M. & Mangan, R.L. 2008. Fruit fly (Diptera: Tephritidae) host status determination: Critical conceptual, methodological, and regulatory considerations. *Annual Review of Entomology*, 53: 473–502.

APPPC (Asia and Pacific Plant Protection Commission). 2005. *Guidelines for the confirmation of non-host status of fruit and vegetables to Tephritid fruit flies*. Regional Standard for Phytosanitary Measures (RSPM) 4. Bangkok, APPPC.

Cowley, J.M., Baker, R.T. & Harte, D.S. 1992. Definition and determination of host status for multivoltine fruit fly (Diptera: Tephritidae) species. *Journal of Economic Entomology*, 85(2): 312–317.

Gastaminza, G., Augier, L., Villagrán, M.E., Villagrán, M.F. & Willink, E. 2008. Determination of the condition of lemons as host of *Ceratitis capitata* and *Anastrepha fraterculus*. In E. Willink, G. Gastaminza, L. Augier & B. Stein, eds. *Moscas de los frutos y su relevancia cuarentenaria en la citricultura del Noroeste Argentino: once años de investigaciones 1996–2007* [Fruit flies and their quarantine relevance in the citriculture of Northwestern Argentina: eleven years of research 1996–2007]. Las Talitas, Argentina, Estación Experimental Agroindustrial Obispo Colombes. EBook.

ISPM 2. 2019. *Framework for pest risk analysis*. Rome, IPPC Secretariat, FAO.

ISPM 8. 2017. *Determination of pest status in an area*. Rome, IPPC Secretariat, FAO.

ISPM 11. 2019. *Pest risk analysis for quarantine pests*. Rome, IPPC Secretariat, FAO.

ISPM 17. 2017. *Pest reporting*. Rome, IPPC Secretariat, FAO.

ISPM 37. 2018. *Determination of host status of fruit to fruit flies (Tephritidae)*. Rome, IPPC Secretariat, FAO.

NAPPO (North American Plant Protection Organization). 2008. *Guidelines for the determination and designation of host status of a fruit or vegetable for fruit flies (Diptera: Tephritidae)*. Regional Standard for Phytosanitary Measures (RSPM) 30. Ottawa, NAPPO. 19 pp.

NAPPO (North American Plant Protection Organization). 2014. *Principles of pest risk management for the import of commodities*. Regional Standard for Phytosanitary Measures (RSPM) 40. Ottawa, NAPPO. 28 pp.

Discussion papers

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

Publication history

This is not an official part of the specification

2019-04 CPM-14 (2019) added topic *Criteria for the determination of host status for fruit flies based on available information (Annex to ISPM 37)* (2018-011), priority 3.

2019-08 Steward revised the draft specification.

2020-01 Standards Committee (SC) reviewed via e-forum and Steward revised the draft.

2020-07 First consultation.

2020-10 Steward revised the draft based on consultation comments.

2020-11 SC reviewed and approved the specification.

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