Food and Agriculture Organization of the United Nations

International Plant Protection Convention

REPORT

Technical Panel on Phytosanitary Treatments

Virtual meeting
02 December 2021

IPPC Secretariat

FAO. 2021. *Report of the December Virtual Meeting of the Technical panel on Phytosanitary Treatments, 02 December 2021.* Published by FAO on behalf of the Secretariat of the International Plant Protection Convention (IPPC). 9 pages. Licence: CC BY-NC-SA 3.0 IGO.

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.
The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

© FAO, 2020

Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; https://creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons licence. If a translation of this work is created, it must include the following disclaimer along with the required citation: "This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original English edition shall be the authoritative edition." Disputes arising under the licence that cannot be settled amicably will be resolved by mediation and arbitration as described in Article 8 of the licence except as otherwise provided herein. The applicable mediation rules will be the mediation rules of the World Intellectual Property Organization http://www.wipo.int/amc/en/mediation/rules and any arbitration will be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL).

Third-party materials. Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

Sales, rights and licensing. FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org. Requests for commercial use should be submitted via: www.fao.org/contact-us/licence-request. Queries regarding rights and licensing should be submitted to: copyright@fao.org.

CONTENTS

1. Opening of the Meeting

1.1. Welcome by the IPPC Secretariat

[1] The International Plant Protection Convention (IPPC) Secretariat (hereafter referred to as "Secretariat") lead for the Technical Panel on Phytosanitary Treatments (TPPT) chaired the meeting and welcomed the following participants:

1. Mr David OPATOWSKI (TPPT Steward)
2. Mr Toshiyuki DOHINO (Japan)
3. Mr Walther ENKERLIN HOEFLICH (IAEA)
4. Mr Peter LEACH (Australia)
5. Mr Scott MYERS (USA)
6. Mr Michael ORMSBY (New Zealand)
7. Mr Eduardo WILLINK (Argentina)
8. Mr Daojian YU (China)
9. Mr Guy HALLMAN (Invited Expert)
10. Ms Janka KISS (IPPC Secretariat, lead)

[2] The full list of TPPT members and their contact details can be found on the International Phytosanitary Portal (IPP)[1].

1.2. Adoption of the agenda and election of the rapporteur

[3] The Secretariat introduced the agenda and it was adopted as presented in Appendix 1 to this report.

[4] Mr Scott MYERS was elected as the Rapporteur.

2. TPPT work programme – new submissions

[5] The TPPT reviewed the evaluation of the submissions for the following 4 PTs. The Secretariat noted that all submissions, references and additional information provided are available at the TPPT restricted work area[2].

2.1 Cold treatment of 'Red Globe' grape (Rhamnales:Vitaceae) for *Drosophila suzukii* (Diptera:Drosophilidae) (2021-027)

[6] Mr Eduardo WILLINK, the Treatment Lead introduced evaluation of the submission[3].

[7] The proposed schedule is as follows based on the study by Wang *et al.* 2020[4]:

[8] Schedule 1: 0°C or below for 11 continuous days. There is 95% confidence that the treatment according to this schedule kills not less than 99.9941% of eggs, larvae and pupae of *Drosophila suzukii*.

[9] Schedule 2: 2°C or below for 12 continuous days. There is 95% confidence that the treatment according to this schedule kills not less than 99.9948% of eggs, larvae and pupae of *Drosophila suzukii*.

[10] The TPPT discussed the submission and agreed that it has merit to recommend the treatment for the TPPT workprogramme with priority 1, however they requested clarification from the submitter on a number of issues listed below.

[1] TPPT membership list: https://www.ippc.int/en/publications/81655/

[2] All submissions: https://www.ippc.int/en/work-area-pages/draft-phytosanitary-treatments-and-relevant-documents/

[3] 02_TPPT_2021_Dec

[4] Wang, X., G. Zhan, L. Ren, S. Sun, H. Dang, Y. Zhai, H. Yin, Z. Li, and B. Liu. 2020. Cold treatment of 'Red Globe' grape (Rhamnales:Vitaceae) for *Drosophila suzukii* (Diptera:Drosophilidae). Journal of Insect Science 20(3): 11; 1–6.

[11] **Methodology.** The TPPT noted that some clarification was required regarding the temperature probe placement (in likely coolest position), on how the fruit was infested, and on how the number of test organisms were estimated.

[12] **Most tolerant life stage**. To determine the most tolerant stage against cold, grapes infested with different immature stages of *Drosophila suzukii* were treated at 0°C (0.027 ± 0.168) for 12 h and 2°C (2.034 ± 0.181) for 24 h via three replicates for each stage. The TPPT discussed that to determine the most tolerant life stage (egg, L1, L2, L3, early pupae and late pupae), for each temperature (0ºC and 2ºC) only one exposure time was used (12 h and 24 h respectively). Consequently, the TPPT felt it was necessary to request further information from the submitter regarding the cold tolerance of different life stages in more varied time ranges (for example 2-4-6 days) considering that the treatment was recommended for 11 and 12 days respectively. The TPPT also noted that in Kim *et al*. 2018, pupae were determined to be the most tolerant stage (done on artificial diet) as opposed to the 1 day old eggs (in harvested grapes) according to the study supporting this treatment. More information may be needed to reconcile this contradiction.

[13] **Temperature range**. The TPPT queried why only 0°C, and 2°C were used for the trials.

[14] The TPPT

(1) *Recommended* the addition of the following topic to the TPPT work programme to be presented to the Standards Committee (SC): Cold treatment of *Drosophila suzukii* on *Vitis vinifera* (2021-027) with priority 1.

(2) *Requested* the submitter provide additional information on:

- the exposure times used in life stage testing and why longer exposure times weren't considered
- why 0 and 2°C temperatures were selected
- most tolerant life stage testing

2.2 Vapor heat treatment of dragon fruit (*Selenicereus undatus* (Haworth) D.R. Hunt) for *Planococcus lilacinus* (Cockerell) (2021-028)

[15] Mr Michael ORMSBY, the Treatment Lead introduced evaluation of the submission[5].

[16] The proposed schedule is based on the study by Ren *et al.* 2021[6]:

[17] Exposure in a vapour heat chamber:

- at a minimum of 95% relative humidity
- with air temperature at 50°C or above
- for 70 minutes once the fruit surface temperature has reached 49°C.

[18] Once the treatment is complete, fruits may be air-cooled to reach ambient temperature.

[19] There is 95% confidence that the treatment according to this schedule kills not less than 99.9910% of larvae and adults of *Planococcus lilacinus*. (Efficacy to be reviwed once the calclation method for the treated insects is confirmed).

[20] The TPPT discussed the submission and agreed that it has merit to recommend the treatment for the TPPT work programme with priority 1, however they requested clarification from the submitter on the issues listed below.

[5] 03_TPPT_2021_Dec

[6] Ren, L., L. Qian, M. Xue, C. Peng, N. Chen, G. Zhan and B. Liu. 2022.Vapor heat treatment against *Planococcus lilacinus* Cockerell (Hemiptera: Pseudococcidae) on dragon fruit. Pest Management Science, 78:150-158. Doi: 10.1002/ps.6616.

[21] The TPPT discussed that the treatment is for surface pests that could be additional to a fruit fly treatment and that the submitter demonstrated that the fruit quality is not damaged by the treatment.

[22] **Probe placement**. The TPPT queried to know where the temperature probes were placed. They discussed that dragon fruit has a calyx area at the top, that forms a protected chamber and the coldest spot is likely to be in there. Pest survival has been observed there. The requested information from the submitter regarding the probe placement and whether the target pest was present in those cold sports.

[23] **Infestation**. The TPPT noted that there was more information needed on the method of the artificial infestation.

[24] **Estimation of the number of treated insects**. The TPPT agreed that more information is needed on the calculation method, on how the number of treated insects were estimated.

[25] **Most tolerant life stage**. The reference provided by the submitter indicated that 20-26 day old adult female (rearing under 25±1°C) were the most tolerant stages, and used for testing, however another paper (Follett 2006b)[7] for a similar treatment tested the eggs to be the most tolerant. The TPPT requested the submitter to explain why eggs and late-aged adult females were excluded from testing for tolerance to heat.

[26] One TPPT member also noted that the treatment was done on potatoes but the TPPT considered that as since it is a surface pest, the host commodity matters less.

[27] The TPPT considered that since in the trial, the treatment started with and air temperature of 50°C, this information or some indication of the heating rate would need to be included in the future treatment schedule.

[28] The TPPT

(3) *Recommended* the addition of the following topic to the TPPT workprogramme to be presented to the Standards Committee (SC): Vapor heat treatment of *Planococcus lilacinus* on *Selenicereus undatus* (2021-028) with priority 1

(4) *Requested* the submitted to provide additional information on the following:

- probe placement
- Infestation
- Estimation of the number of treated insects

2.3 Irradiation treatment for all stages *Aspidiotis destructor* (2021-029)

[29] Mr Daojian YU, the Treatment Lead introduced evaluation of the submission[8].

[30] The proposed schedule is 150 Gy (minimum absorbed dose) based on the study by Follett 2006a[9]. There is 95% confidence that the treatment according to this schedule kills not less than 99.9897% of the target pest acording to Follet 2006.

[31] The TPPT noted that it is for surface pests mostly on bananas and other tropical fruits, and that although the efficacy is moderately high, for surface pests it is still acceptable, and the TPPT agreed to recommend it for addition to the TPPT work programme with priority 1.

[32] The TPPT

[7] Follett, Peter. 2006b Irradiation as a Phytosanitary Treatment for White Peach Scale (Homoptera: Diaspididae) J. Econ. Entomol. 99(6): 1974-1978.

[8] 07_TPPT_2021_Dec

[9] Follett, P. A. 2006a. Irradiation as a phytosanitary treatment for *Aspidiotis destructor* (Homoptera: Diaspididae). Journal of Economic Entomology 99 (1): 1138-1142.

(5) *Recommended* the addition of the following topic to the TPPT work programme to be presented to the Standards Committee (SC): Irradiation treatment for *Aspidiotis destructor* (2021-029) with priority 1

2.4 Irradiation treatment for all stages *Pseudaulacaspis pentagona* (2021-030)

[33] Mr Toshiyuki DOHINO, the Treatment Lead introduced the responses to the comments, and the revised draft treatment[10].

[34] The proposed schedule is 150 Gy (minimum absorbed dose) based on the study by Follett 2006b[11].

[35] The TPPT discussed the submission and agreed that it has merit to recommend the treatment for the TPPT work programme with priority 1, however they requested clarification from the submitter on a number of issues listed. Adult females with eggs were considered most tolerant life stage.

[36] **Identity of the target pest**. The submitter is asked to clarify the identification method of the target pest and if any voucher specimens were retained.

[37] **Raw data**. The submitter is asked to provide the raw data that was used to calculate the number of treated insects including the number in each replicate and control groups for each life stage of the dose-response and the large-scale confirmatory tests.

[38] The TPPT

(6) *Recommended* the addition of the following topic to the TPPT work programme to be presented to the Standards Committee (SC): Irradiation treatment for *Pseudaulacaspis pentagona* (2021-030) with priority 1

(7) *Requested* the submitted to provide additional information on the following:

- Species identification
- Raw data of the number of treated insects

3. Updates

3.1 Annotated template for PTs

[39] The Secretariat invited the TPPT to review the annotated template for draft PTs and provide their comments for the IPPC editor to finalize the revision of the template.

3.2 Updates to the PT Search Tool

[40] The TPPT reviewed and approved the updated list of PTs to be included in the PT search tool.

4. Close of the Meeting

[41] The Secretariat thanked the TPPT members for their participation and closed the meeting.

[10] 03_TPPT_2021_Oct, 2017-036

[11] Follett, P. A. 2006. Irradiation as a phytosanitary treatment for white peach scale (Homoptera: Diaspididae). Journal of Economic Entomology 99 (1): 1974-1978.

Appendix 1: Agenda

2021 DECEMBER VIRTUAL MEETING OF THE TECHNICAL PANEL ON PHYTOSANITARY TREATMENTS (TPPT)

AGENDA

	AGENDA ITEM	DOCUMENT NO.	PRESENTER
1.	Opening of the meeting		
1.1	Welcome by the IPPC Secretariat		KISS / ALL
1.2	Adoption of the agenda and election of the rapporteur	01_TPPT_2021_Oct	KISS / ALL
2.	TPPT work programme – new submissions	All submissions: https://www.ippc.int/en/work-area-pages/draft-phytosanitary-treatments-and-relevant-documents/	
2.1	Cold treatment of 'Red Globe' grape (Rhamnales:Vitaceae) for *Drosophila suzukii* (Diptera:Drosophilidae) (2021-027)		WILLINK
	- Submission	https://www.ippc.int/en/work-area-publications/90432/	
	- Evaluation	02_TPPT_2021_Dec	
2.2	Vapor heat treatment of dragon fruit (*Selenicereus undatus* (Haworth) D.R. Hunt) for *Planococcus lilacinus* (Cockerell) (2021-028)		ORMSBY
	- Submission and references	https://www.ippc.int/en/work-area-publications/90433/	
	- Evaluation	03_TPPT_2021_Dec	
2.3	Irradiation treatment for all stages *Aspidiotis destructor* (2021-029)		YU
	- Submission	https://www.ippc.int/en/work-area-publications/90434/	
	- Evaluation	07_TPPT_2021_Dec	
2.4	Irradiation treatment for all stages *Pseudaulacaspis pentagona* (2021-030)		DOHINO
	- Submission	https://www.ippc.int/en/work-area-publications/90435/	
	- Evaluation	04_TPPT_2021_Dec	
3.	Updates		
3.1	Annotated template for PTs	05_TPPT_2021_Dec	KISS

	AGENDA ITEM	DOCUMENT NO.	PRESENTER
3.2	Updates to the PT Search Tool	06_TPPT_2021_Dec https://www.ippc.int/en/core-activities/standards-setting/technical-panels/technical-panel-phytosanitary-treatments/phytosanitary-treatments-tool/	KISS
4.	Close of the meeting	-	KISS