



Food and Agriculture
Organization of the
United Nations



International
Plant Protection
Convention

REPORT

Technical Panel on Phytosanitary Treatments

**Virtual meeting
19 February 2020**

IPPC Secretariat

FAO. 2020. *Report of the Second February Virtual Meeting of the Technical panel on Phytosanitary Treatments, 19 February 2020*. Published by FAO on behalf of the Secretariat of the International Plant Protection Convention (IPPC). 10 pages. Licence: CC BY-NC-SA 3.0 IGO.

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1. Opening of the Meeting

1.1. Welcome by the IPPC Secretariat and introductions

[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 Peter Llewellyn LEACH (Australia)
4. Mr Scott MYERS (USA)
5. Mr Michael ORMSBY (New Zealand)
6. Mr Walther ENKERLIN HOEFLICH (IAEA)
7. Mr Guy HALLMAN (Invited expert)
8. Ms Janka KISS (IPPC Secretariat, lead)
9. Mr Artur SHAMILOV (IPPC Secretariat, support)

[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 Toshiyuki DOHINO was elected as the Rapporteur.

2. TPPT work programme – approval of responses to consultation comments

[5] The Secretariat provided background information on the consultation stage of the standard setting process.

2.1 Irradiation treatment for *Carposina sasakii* (2017-026) – priority 2

[6] Mr Scott MYERS, the Treatment Lead introduced the Treatment Lead summary, the compiled comments and the revised draft² and the TPPT discussed the outstanding comments.

[7] **Dosimetry.** The TPPT considered the comment regarding the question on the dosimetry used by Zhang *et al.* 2014, and whether their methods were adequate to determine the effective treatment dose. Although dose mapping is not reported in the paper the dosimetry system was calibrated in accordance with standard ISO/ASTM 51261, ASTM E1026-13, and the uncertainty of the measured value was calculated according to ISO/ASTM 51707. During the dose response tests dosimeters were placed in the bottom, middle and top layer of the baskets, and halfway through the treatment the boxes were rotated to give more uniform exposure (fractionated dose). The recorded a dose uniformity ratio (DUR) over the five replicates ranged from 1.14-1.26. The TPPT agreed that the DUR readings were good and it is satisfactory for a gamma irradiation source and if all boxes are placed at the exact same distance, it should ensure dose uniformity. Dose mapping is crucial in treatments using a conveyor belt system (e.g. E-beam and X-ray sources) or when fruit are treated in pallets rather than single units as was undertaken in this case.

[8] **Most tolerant stage.** The comment questioned if the study addressed the most tolerant stage. TPPT agreed to answer that the most tolerant stage was based on survival of larvae of different ages in the fruit. Although how the developmental times for different instars were estimated was not described, numerically the L5 larvae exhibited the highest survival rates to adult. This is also supported by other studies.

¹ TPPT membership list: <https://www.ippc.int/en/publications/81655/>

² 2017-026, 02_TPPT_2020_Feb2, 03_TPPT_2020_Feb2

- [9] **Efficacy.** The TPPT recalled, that they recalculated the efficacy of the treatment at the June 2018 TPPT meeting based on the estimated number of individuals treated in the confirmatory test and took into consideration the control mortality.
- [10] 2018-06 TPPT meeting report³ in Appendix 9 describes the recalculation of efficacy, and correcting for control mortality– the responses to comments may include the explanation that the calculation of efficacy was based on number of 30 580 treated insect. Although Zhan *et al.* (2014)⁴ indicates 30 850 treated insects in the 3.3 Confirmatory tests section, the correct number used by the TPPT is 30 580, coming from Table 3. This is the total of 5 replications of the number of late 5th instars (7 421 + 4 951 + 4 865 + 5 767 + 7 576 = 30 580). The TPPT double checked it with the original paper, and decided that the efficacy should remain unchanged.
- [11] The TPPT discussed that the PT says “Additional information was also considered from Li *et al.* (2016).”, and one member thought this should be further elaborated, including that the additional information was concerning the most tolerant life stage testing, which was agreed by the TPPT.
- [12] The TPPT
- (1) *approved* the revised draft PT to be presented to the Standards Committee (SC) for approval for second consultation
 - (2) *approved* the responses to consultation comments as “TPPT responses” to be presented to the SC (final version to be circulated in email).

2.2 Irradiation treatment for *Bactrocera dorsalis* (2017-015) – priority 3

- [13] Mr Peter LEACH, the Treatment Lead introduced the compiled comments and the revised draft⁵ and the TPPT discussed the outstanding comments.
- [14] One CP (Comment 19) made several remarks on the supporting study. The TPPT members discussed that the original submission was based on another publication, however the TPPT decided to calculate the efficacy based on Zhao *et al.* (2017)⁶.
- [15] The TPPT felt that some of the comments were hard to verify and that larval density (60 larvae /fruit) would be too high in nature, but there were no references provided to justify this statement.
- [16] On dosimetry, the TPPT considered if more information was needed, however they felt that the dose uniformity ratio (DUR) was tight and accurate. One member considered, that the experiment was conducted according to general good practice. When cobalt 60 irradiation source is used, it is common to place the boxes the same distance from the source, stop halfway through the experiment and turn the boxes (fractionated dose) with the dosimeters placed in the commodity. This methodology was followed in this study as well. In this type of arrangement (cobalt 60 irradiation source) dose mapping is not as important as for example when trials are conducted using a conveyer belt (e.g. E-beam and X-ray sources) or when fruit are treated in pallets rather than single units as was undertaken in this case. There are adopted irradiation treatments, based on similar studies and publication (dosimetry data is usually not provided in publications), so the TPPT agreed that the data is satisfactory given the tight DUR rates.
- [17] Another comment mentions the quality of the manuscript and the TPPT agreed that the paper is a little rough, however there is no reason to doubt the study. The TPPT agreed to provide response to the

³ 2018-06 TPPT report: <https://www.ippc.int/en/publications/86619/>

⁴ Zhan, G., Li, B., Gao, M., Liu, B., Wang, Y., Liu, T. & Ren, L., 2014. Phytosanitary irradiation of peach fruit moth (Lepidoptera: Carposinidae) in apple fruits. *Radiation Physics and Chemistry* 103:153–157

⁵ 2017-015, , 05_TPPT_2020_Feb2

⁶ Zhao, J., Ma, J., Wu, M., Jiao, X., Wang, Z., Liang, F. & Zhan, G. 2017. Gamma radiation as a phytosanitary treatment against larvae and pupae of *Bactrocera dorsalis* (Diptera: Tephritidae) in guava fruits. *Food Control*, 72: 360–366

comments questioning the publication, that the TPPT was satisfied with the information provided, considering that the submission provided other supporting evidence. The paper of Zhao *et al.* (2017) was selected as they applied natural infestation in the experiments.

- [18] One contracting party commented on the calculation of the efficacy. The efficacy is based on the one the paper by Zhao *et al.* (2017). As direct counts were used to determine the number of insects killed, percentage mortality is not necessary to calculate, however the treated numbers were reduced by the control mortality and the efficacy calculated based on slightly reduced numbers, still computing a very high level of efficacy (99.9963%). The calculation is reported in the 2018 TPPT report – Appendix 11⁷.
- [19] In general the TPPT approved the responses to the consultation comments and agreed that the Treatment Lead will be revising the responses to comments based on the discussion and circulating it via email.
- [20] The TPPT reviewed the draft PT as revised by the Treatment Lead after the consultation.
- [21] The TPPT discussed that these irradiation treatments still include the standard statement that irradiation should not be applied to commodities stored in modified atmospheres. The Secretariat clarified that this will be reviewed by the upcoming CPM-15 (2020) and once the CPM agrees, this statement would be removed from all adopted irradiation treatments via ink amendments. The sentence will also be removed from the draft irradiation treatments for fruit flies.
- [22] One member suggested to change the wording of the PT to be precise explaining that the schedule prevents *emergence* of the adult life stage of the pest, and not the development to the adult stage. Strictly speaking the pharate adult⁸ could already be formed inside the puparium, it just will not be able to emerge after the treatment. The TPPT agreed to change the wording, and approved the PT with the proposed changes.
- [23] The TPPT
- (3) *approved* the responses to consultation comments as “TPPT responses” to be presented to the SC (final version to be circulated in email).
 - (4) *approved* the revised draft PT to be presented to the Standards Committee (SC) for approval for second consultation
 - (5) *agreed* to remove the standard statement on modify atmosphere treatment from the text of draft irradiation treatments for fruit flies once the CPM approves the related recommendation of the TPPT.

2.3 Irradiation treatment for *Bactrocera tau* (2017-025) – priority 3

- [24] Mr Peter LEACH, the Treatment Lead introduced the compiled comments and the revised draft⁹ and the TPPT discussed the outstanding comments.
- [25] The TPPT noted that latest changes in taxonomical classifications (also raised by comments) and agreed to change the title and the name of the pest from *Bactrocera tau* to *Zeugodacus tau*, and also applied a correction to the year of the authority (changed from 1848 to 1849). It was also mentioned that *Zeugodacus tau* is discussed to be a species complex and may be divided to further species in the next years.
- [26] One member suggested to include a note in the Status box of the PT to reflect this change. He also noted that the target pest of PT 15 (Vapour heat treatment for *Bactrocera cucurbitae* on *Cucumis melo* var.

⁷ 2018-06 TPPT report: <https://www.ippc.int/en/publications/86619/>

Efficacy: 99.9963%, Recalculated treated numbers: 81,602 = 100,684 x 81% (control mortality)

⁸ A pharate insect is one that has completed the metamorphosis from larvae to adult but is still within the pupa.

⁹ 2017-025, 07_TPPT_2020_Feb2

reticulatus) also belongs to the *Zeugodacus* subgenus and most likely this PT will have to be amended as well.

- [27] Most comments were similar to the ones presented on the draft in the previously (report section 2.2). Some comments were concerned about the dosimetry, but the TPPT felt in this case as well that the DUR is very good, and the TPPT considers the supporting information suitable.
- [28] One comment was also concerned with the identification of the most tolerant life stage but it was explained that in irradiation the most tolerant life stage is very consistent.
- [29] Some comments expressed confusion having 2 different schedules for the same pest and commodity. The TPPT discussed that even though the efficacy may look very similar, the difference in the level of efficacy allows a country to choose a less stringent treatment if their assessment and appropriate level of protection does not require a higher level of efficacy. The TPPT thought it would be beneficial to explain in the responses to the comments that the number of insects tested are resulting in a difference in the efficacy numbers, and how testing more insects raises the level of confidence.
- [30] The TPPT agreed to the same change to the wording of the PT regarding the outcome of the treatment (that it prevents the emergence of adults and not the development to the adult stage).
- [31] The TPPT
- (6) *approved* the responses to consultation comments as “TPPT responses” to be presented to the SC (final version to circulated in email).
 - (7) *approved* the revised draft PT to be presented to the Standards Committee (SC) for approval for second consultation
 - (8) *agreed* to remove the standard statement on modify atmosphere treatment from the text of irradiation treatments for fruit flies once the CPM approves the related recommendation of the TPPT.
 - (9) *revised* the title to reflect taxonomical changes from *Bactrocera tau* to *Zeugodacus tau*

2.4 Irradiation treatment for the genus *Anastrepha* (2017-031) – priority 1

- [32] In the absence of Mr Matthew SMYTH, the Treatment Lead, Mr Guy HALLMAN introduced the Treatment Lead summary, the compiled comments and the revised draft¹⁰ and the TPPT discussed the outstanding comments.
- [33] The TPPT discussed some of the major issues around generic treatments but postponed the review of the responses to the comments and the draft PT to the next meeting due to shortage of time.

3. Other Business

3.1 IYPH – International Plant Health Conference (Helsinki, Finland)

- [34] The TPPT discussed their participation in the 05-08 October 2020 International Plant Health Conference, Helsinki Finland. Several members sent proposals already to participate in the conference and present on the importance of phytosanitary treatments to plant health. They agreed to request the SC’s permission that the members of the TPPT attending the conference represent the TPPT’s points and participate the conference on their behalf.
- [35] The TPPT
- (10) *requested* the SC to approve their participation in the International Plant Health Conference

¹⁰ 2017-031, 08_TPPT_2020_Feb2, 09_TPPT_2020_Feb2

4. Close of the Meeting

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

Appendix 1: Agenda**2020 FEBRUARY 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_2020_Feb2	KISS / ALL
2.	TPPT work programme – approval of responses to consultation comments	All submissions: https://www.ippc.int/en/work-area-pages/draft-phytosanitary-treatments-and-relevant-documents/	
2.1	Irradiation treatment for <i>Carposina sasakii</i> (2017-026) – priority 2 <ul style="list-style-type: none"> - Draft PT: 2017-026 - Treatment lead summary - Compiled comments 	2017-026 02_TPPT_2020_Feb2 03_TPPT_2020_Feb2	MYERS
2.2	Irradiation treatment for oriental fruit fly <i>Bactrocera dorsalis</i> (2017-015) – priority 3 <ul style="list-style-type: none"> - Draft PT: 2017-015 - Compiled comments 	2017-015 05_TPPT_2020_Feb2	LEACH
2.3	Irradiation treatment for <i>Bactrocera tau</i> (2017-025) – priority 3 <ul style="list-style-type: none"> - Draft PT: 2017-025 - Compiled comments 	2017-025 07_TPPT_2020_Feb2	LEACH
2.4	Irradiation treatment for the genus <i>Anastrepha</i> (2017-031) – priority 1 <ul style="list-style-type: none"> - Draft PT: 2017-031 - Treatment lead summary 	2017-031 08_TPPT_2020_Feb2	SMYTH/ HALLMAN

AGENDA ITEM		DOCUMENT NO.	PRESENTER
	- Compiled comments	09_TPPT_2020_Feb2	
3.	Other business		
3.1	IYPH – International Plant Health Conference (Helsinki, Finland)		KISS/ ALL
4.	Close of the meeting	-	KISS