



## **REPORT**

# **Technical Panel on Phytosanitary Treatments**

**Virtual meeting  
24 May 2022**

**IPPC Secretariat**

FAO. 2022. *Report of the 2022 May Virtual Meeting of the Technical panel on Phytosanitary Treatments, 24 May 2022*. Published by FAO on behalf of the Secretariat of the International Plant Protection Convention (IPPC). 8 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](http://www.fao.org/publications)) and can be purchased through [publications-sales@fao.org](mailto:publications-sales@fao.org). Requests for commercial use should be submitted via: [www.fao.org/contact-us/licence-request](http://www.fao.org/contact-us/licence-request). Queries regarding rights and licensing should be submitted to: [copyright@fao.org](mailto:copyright@fao.org).

## CONTENTS

1. Opening of the Meeting .....	4
1.1. Welcome by the IPPC Secretariat .....	4
1.2. Adoption of the agenda and election of the rapporteur .....	4
2. TPPT work programme – addressing comments from first consultation .....	4
2.1. Irradiation treatment for <i>Pseudococcus jackbeardsleyi</i> (2017-027) .....	4
3. Work planning and priorities for 2022 .....	6
3.1. Overview of the TPPT workprogramme .....	6
3.2. Possibility of a face to face meeting in 2022.....	6
4. Updates .....	6
4.1. International Plant Health Conference .....	6
5. Close of the Meeting.....	6
Appendix 1: Agenda.....	7
Appendix 2: Efficacy calculation for Irradiation treatment for <i>Pseudococcus jackbeardsleyi</i> (2017-027).....	8

## 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 Michael ORMSBY (New Zealand)
3. Mr Eduardo WILLINK (Argentina)
4. Mr Scott MYERS (USA)
5. Mr Daojian YU (China)
6. Mr Toshiyuki DOHINO (Japan)
7. Mr Walther ENKERLIN HOEFLICH (IAEA)
8. Mr Peter LEACH (Australia)
9. Ms Meghan NOSEWORTHY
10. Mr Guoping ZHAN
11. Mr Takashi KAWAI
12. Mr Guy HALLMAN (Invited Expert)
13. Ms Janka KISS (IPPC Secretariat, lead)
14. 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)<sup>1</sup>.

### 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 Peter LEACH was elected as the Rapporteur.

## 2. TPPT work programme – addressing comments from first consultation

### 2.1. Irradiation treatment for *Pseudococcus jackbeardsleyi* (2017-027)

[5] Mr Walther ENKERLIN HOEFLICH, the Treatment Lead introduced the revised draft PT, the comments received during the first consultation and the responses prepared to those comments<sup>2</sup>. He explained that additional questions were asked of the submitter in order to better answer the comments, these were also shared with the TPPT<sup>3</sup>. The TPPT considered the recommendations of the Technical Panel on the Glossary regarding terminology<sup>4</sup>.

[6] The TPPT reviewed the responses provided by the treatment lead and discussed the most contentious comments.

[7] **Colony fitness.** One of the major comments queried about the replenishment of the colony and whether pest populations collected from other geographical regions were used. The TPPT suggested that 98% development into second instar in the controls in the three experiments suggests a healthy colony (raw data was provided by the submitter). They stated that there are currently no prescriptive guidelines for the establishment of insect colonies. General agreement is that colonies are more robust when they include insects from a wide range of geographical regions. But the TPPT is unaware of any scientific publications that clearly identifies that the size of the founding population or the number of locations

---

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

<sup>2</sup> 2017-027, 02\_TPPT\_2022\_May\_Rev1,

<sup>3</sup> 04\_TPPT\_2022\_May, 05\_TPPT\_2022\_May

<sup>4</sup> 03\_TPPT\_2022\_May

insects are collected from prevents/reduces the impact of maintaining insects in laboratory cultures and if this does influence the radiotolerance of the insects.

- [8] **Survivorship of the colony.** The comment also requested information on the survivorship of the colony at each developmental stage and fecundity of the organisms in the colony, and whether the infestation rate used in the experiments was not excessive. They also queried the species of pumpkin used. The TPPT agreed that the additional data provided by the submitter shows for the controls a healthy insect colony with high fecundity and fertility rates. The number of 2nd instars from the F1 generation in the controls and the low rate of mortality (no more than 2%), suggests that there was no detrimental effect of the infestation rate. The submitter confirmed that the species of pumpkin used in the experiments is *Cucurbita pepo*.
- [9] **Replicates.** The comment notes that the large-scale experiment in potato was only conducted once, while two replicates at different times were conducted on pumpkin. The comment suggested that a minimum of four replicates in each of the host commodity performed over a period of time to maximize natural variation in response within the experimental units should be recommended. The TPPT considered adequate the 3 replicates used in the study (2 on pumpkins and 1 on potatoes) as in previous cases.
- [10] **Host commodity.** Another concern was that *P. jackbeardsleyi* is a host on a number of economically important commodity, including banana, rambutan, durian and pineapple, which is traded internationally. They suggested it is premature to recommend a minimum dose of 166 Gy for phytosanitary treatment of *P. jackbeardsleyi* infestation in any host commodity and that a generic dose should be supported by data on a range of species that adequately represents major quarantine pests within the taxa, with large-scale confirmatory trials being conducted. The TPPT clarified that all adopted irradiation treatments are applicable to all host commodities of the target pest. The number of insects tested (97,089 in potatoes and 34,423 in pumpkin) and the results showed no 2nd instar development using 150 Gy (absorbed dose of 133 to 164 Gy). This provides a 95% confidence that the treatment according to this schedule prevents offspring developing to the second-instar nymph stage from not less than 99.9977% (probit 9.08) of mature adult females of *P. jackbeardsleyi*.
- [11] Extrapolation of treatment efficacy to all fruits vegetables and ornamental plants was based on knowledge and experience that radiation dosimetry systems measure the actual radiation dose absorbed by the target pest independent of host commodity, and evidence from research studies on a variety of pests and commodities support this.
- [12] **Condition of host.** The comment suggested, that information on the condition of the commodity at the time of the study should also be provided. The TPPT noted that insecticide free potatoes and pumpkins were used in the dose-response and confirmatory tests. Fruits were mature as they are stored in warehouses before sale (photos are available showing the stage of the infested fruits upon request to the IPPC Secretariat).
- [13] **Most tolerant life stage.** The comment suggested that the report by Zhan et al. 2016 cites Shao *et al.* 2013, which determined the most radiation-tolerant state of *P. jackbeardsleyi* to be the late female stage, which was used in the experiments by Zhan et al. The comment queried of the methodology details of the dose-response testing that determined the most radio-tolerant developmental stage in the Shao *et al.* 2013 study. The TPPT stated that the submitter presented the number of insects used in the tests and the developmental data. For each developmental stage and each irradiation dose and the control, three replicates were conducted (based on additional information provided by the submitter). Results clearly show that the most tolerant stage is the late adult female.
- [14] **Scope.** Another comment suggested to reword the scope in order to clarify the pest development stage that is prevented from appearing by the treatment, however the TPPT only agreed to a small modification in order to stay consistent with the scope of other PTs and true to the content of the study.
- [15] The TPPT also reviewed the draft PT and agreed to the above mentioned minor change to the scope to specifically indicate that the development of the F1 second instar nymphs are prevented.

[16] The efficacy was originally calculated as reported in the 2020 October TPPT virtual meeting report. However the TPPT amended the efficacy calculation slightly based on the recent information provided by the submitter (Appendix 2) changing the efficacy from 99.9964% to 99.9977%.

[17] The TPPT

- (1) *Recommended* the following draft PT to the Standards Committee (SC) for approval for the second consultation: Irradiation treatment for *Pseudococcus jackbeardsleyi* (2017-027)
- (2) *Recommended* the responses for the comments for approval by the SC

### **3. Work planning and priorities for 2022**

#### **3.1. Overview of the TPPT workprogramme**

[18] The Secretariat introduced briefly the summary of accomplishments in the previous year and summarized the workplan for the upcoming year.

#### **3.2. Possibility of a face to face meeting in 2022**

[19] It was agreed to have a face to face meeting for the 12-16 September 2022.

### **4. Updates**

#### **4.1. International Plant Health Conference**

[20] This agenda item was deferred.

### **5. Close of the Meeting**

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

**Appendix 1: Agenda****2022 MAY 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 - Introduction of new members		KISS / ALL
1.2	Adoption of the agenda and election of the rapporteur	01_TPPT_2022_May	KISS / ALL
2.	TPPT work programme – addressing comments from first consultation	All submissions: <a href="https://www.ippc.int/en/work-area-pages/draft-phytosanitary-treatments-and-relevant-documents/">https://www.ippc.int/en/work-area-pages/draft-phytosanitary-treatments-and-relevant-documents/</a>	
2.1	Irradiation treatment for <i>Pseudococcus jackbeardsleyi</i> (2017-027)  - Consultation comments - Terminology suggestions from the Technical Panel on the Glossary - Response to TPPT query 1 - Response to TPPT query 2 - Draft PT	 02_TPPT_2022_May 03_TPPT_2022_May 04_TPPT_2022_May 05_TPPT_2022_May 2017-027	ENKERLIN
3.	Work planning and priorities for 2022		
3.1	Overview of the TPPT workprogramme	06_TPPT_2022_May	KISS/Leads
3.2	Possibility of a face to face meeting in 2022		ALL
4.	Updates		
4.1	International Plant Health Conference		SHAMILOV
5.	Close of the meeting		KISS

## Appendix 2: Efficacy calculation for Irradiation treatment for *Pseudococcus jackbeardsleyi* (2017-027)

- [22] The actual counts from the data provided was used and estimates for the remaining uncounted half of the tested potatoes/pumpkins. As per the IPPC procedure manual the formula is the one used for comparing actual numbers ( $\mu - (\text{STD} \times 1.645)$ ) rather than estimating from the means ( $\mu - (\text{STD} \times \sqrt{(1+1/r)})$ ).
- [23] The calculations were as follows:
1. Actual counts of half the exposed potatoes/pumpkins add up to **83,905** (potatoes = 59,260, 127 pumpkins = 24,645)
  2. Estimated counts from the exposed but uncounted potatoes would be **37,829**
  3. Estimated counts from the exposed but uncounted pumpkins would be  $5,575 + 4,203 = \mathbf{9,778}$
- [24] Giving a total count of  $83,905 + 37,829 + 9,788 = \mathbf{131,512}$  that gives an overall efficacy of **99.9977%** (probit 9.08) at the 95% LoC.