Food and Agriculture Organization of the United Nations

International Plant Protection Convention

REPORT

Technical Panel on Phytosanitary Treatments

November, 2017

Virtual meeting

02 November 2017

IPPC Secretariat

CONTENTS

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 "Secretariat") lead for Technical Panel on Phytosanitary Treatments (TPPT) chaired the meeting and welcomed the following participants:

1. Mr Glenn BOWMAN (Australia)
2. Mr Toshiyuki DOHINO (Japan)
3. Mr Guy HALLMAN (FAO/IAEA)
4. Mr Scott MYERS (USA)
5. Mr Michael ORMSBY (New Zealand)
6. Mr Andrew PARKER (FAO/IAEA)
7. Mr Yuejin WANG (China)
8. Mr Daojian YU (China)
9. Ms Adriana G. MOREIRA (IPPC Secretariat, Lead)
10. Ms Janka KISS (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 Scott MYERS was elected as the rapporteur.

2. TPPT work programme: Evaluation of phytosanitary treatment submissions

[5] The Secretariat informed the TPPT that a new submission has arrived from the Philippines on the Irradiation treatment for *Sternochetus frigidus* (2017-036). The submission's list is publically available on the IPP[2].

[6] The List of submitted treatments[3] was presented to the TPPT, and the Secretariat explained that it has been updated with the most recent submission and the priorities were added based on the discussion of the TPPT on their last virtual meeting in October 2017.

2.1 Cold treatment for the peach fruit fly *Bactrocera zonata* on oranges *Citrus x sinensis* (2017-013)

[7] The Lead for the submission, Mr Toshiyuki DOHINO, introduced the checklist for evaluating treatment submissions and prioritization score sheet[4] for the Cold treatment for the peach fruit fly, *Bactrocera zonata* on oranges *Citrus x sinensis* (2017-013).

[8] The submission suggests to apply 1.7 ºC for 18 days. The Lead highlighted that the schedule is identical to the treatment T107 L in the USDA APHIS Treatment manual[5] and it is supported by four public references, submitted along with the treatment proposal.

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

[2] Link to the "Calls for treatments" page: https://www.ippc.int/en/core-activities/standards-setting/calls-treatments/

[3] 03_TPPT_2017_Nov

[4] 04_TPPT_2017_Nov

[5] USDA TM: https://www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/treatment.pdf

[9] The Lead explained, that the 3rd instar larvae was used in the experiments as this is the most cold tolerant life stage of the *B. zonata*. Large scale testing was conducted, and larval movement was used to determine efficacy.

[10] The TPPT agreed to recommend the submission to the Standards Committee (SC) for inclusion on the List of Topics for IPPC standards, i.e. to be included in the TPPT work programme. . The TPPT also agreed to ask for more information from the submitter on the number of survivors from the control group and the temperature data of each replication.

[11] The TPPT

(1) *recommended* the Cold treatment for *Bactrocera zonata* on *Citrus sinensis* (2017-013) to the Standards Committee (SC) for inclusion on the List of Topics for IPPC standards with priority 2, and Mr Toshiyuki DOHINO as Treatment Lead, so the TPPT can assess better the information of the submitter.

(2) *asked* the submitter to provide more information on the number of survivors from the control group and the temperature data of each replication.

2.2 Irradiation Treatment against fruit flies of the family *Anastrepha* spp. (Dose Modification) (2017-031)

[12] The Lead for the submission, Mr Guy HALLMAN, introduced the checklist for evaluating treatment submissions and prioritization score sheet[6] for the Irradiation Treatment against fruit flies of the family *Anastrepha* spp. (Dose Modification) (2017-031).

[13] The submission suggested 70 Gy based on two references that were not submitted along with the treatment proposal, but are published, thus publically accessible.

[14] The lead explained that most Anastrepha species are established at the tropics of the Americas and only a handful is considered to have economic importance. All of these were tested except *Ananstrepha grandis* as there was no available data for this species, but later a minor study was done, and proved that even lower than the proposed 70 Gy dose prevented emergence, noting that pupation was observed a couple of days after treatment. He informed that this study was described in one of the references[7] provided along with the treatment submission.

[15] The treatment is proposed for all hosts of *Anastrepha*, i. e. wide range of fruits. The Lead explained that this treatment would be an important addition for exporting countries as many commodities that are currently treated for *Anastrepha* spp. at 150 Gy could then be treated at less than half that dose. Thus, it would allow for significant savings and reduction in risk of damage to irradiated commodities without appreciably increasing the risk of transport of viable quarantine pests. However, the efficacy level needs to be revised.

[16] One member pointed out that other literature references suggest higher irradiation doses than 70 Gy for some of the *Anastrepha* species (*A. ludens* and *A. obliqua*). The Lead highlighted that the reason was that the researchers had not tried doses lower than 100 Gy.

[17] The efficacy level would needed to be established based on the most resistant species of the genus. The Lead explained that the genus *Anastrepha* is quite homogenous in tolerance to radiation, but *A. ludens* might have a bit higher tolerance, and efficacy can be established based on that. The TPPT agreed to discuss this further once the treatment is included on the List of Topics for IPPC standards.

[6] 05_TPPT_2017_Nov

[7] **Insect & Pest Control Newsletter No. 88 (p. 23) 2017.** FAO/IAEA. http://www-pub.iaea.org/books/IAEABooks/11189/Insect-Pest-Control-Newsletter-No-88-January-2017

[18] A member informed the TPPT that for some countries, the lowest dose is 150 Gy due to administrative policies and queried whether other countries would consider using a lower dose of 70 Gy, as proposed by the submitter, and weather these countries have irradiation capacity. The Lead explained that in the Americas where *Anastrepha* species are widespread, Mexico (the submitter) is a big exporter of the region, and has irradiation facilities that could apply the lower dose of 70 Gy. Therefore, there is a high probability for a fast implementation.

[19] The TPPT discussed weather to assign priority 1 or 2 and decided that given the importance of generic treatments and the possibility that it would be implemented soon, i.e. high economic importance, it should be assigned priority 1.

[20] The TPPT agreed to recommend this treatment for inclusion on the List of Topics for IPPC standards (i.e. to be included in the TPPT work programme) . The TPPT adjusted the title from "family *Anastrepha*" it to "genus *Anastrepha*" as *Anastrepha* is a genus in the Tephritidae family.

[21] The TPPT

(3) *recommended* the "Irradiation treatment fort the genus *Anastrepha* (2017-031)" to the Standards Committee (SC) for inclusion on the List of Topics for IPPC standards with priority 1, and Mr Guy HALLMAN as the Treatment Lead, so the TPPT can assess better the information of the submitter.

2.3 Irradiation treatment for European grapevine moth *Lobesia botrana* eggs and larvae on all fresh commodities (2017-021)

[22] The Lead for the submission, Mr Glenn BOWMAN, introduced the checklist for evaluating treatment submissions and prioritization score sheet[8] for the Irradiation treatment for European grapevine moth *Lobesia botrana* eggs and larvae on all fresh commodities (2017-021).

[23] The Lead explained that 250 Gy is proposed to eliminate *L. botrana* eggs and larvae. He stated that, although grape vine moth is a significant economic problem, the research submitted has some shortcomings as for example, some explanation is needed to explain the high mortality in the control population used in the study.

[24] One member highlighted that the TPPT already discussed a submission for a treatment with a lower dose for all Tortricidae species (including *L. botrana*)[9].

[25] Another member was concerned that this treatment was only tested for eggs and larvae and not for pupae, as in rare cases grape bunches might contain pupae as well. One member noted that one of the publications supporting the treatment mentions that altough *L. botrana* does not pupate inside the flesh of the grape, but rarely pupae is found in the protected space inside grape bunches.

[26] Another member clarified that pupation usually occurs under the bark of the grape vines, and exceptionally in wine grapes where bunches are very tight. He highlighted that in table grapes (that are more often exported), it is unlikely to find *L. botrana* pupae.

[27] The TPPT also found that one of the papers submitted as supporting documentation, that is not yet published, contains some irregularities concerning the irradiation dosimetry. Therefore, the TPPT agreed to request additional information from the submitter to help clarify the proposed dose of 250 Gy.

[8] 06_TPPT_2017_Nov

[9] Link to the treatment submissions for the "Irradiation treatment for eggs and larvae of the family Tortricidae (generic)": https://www.ippc.int/en/publications/84496/

[28] The TPPT agreed to recommend the treatment to the Standards Committee (SC) for inclusion on the List of Topics for IPPC standards with priority 4, and agreed to only invest more work into the evaluation if the generic treatment for all Tortricidae species is not approved.

[29] The TPPT

(4) *recommended* the "Irradiation treatment for *Lobesia botrana* eggs and larvae on all fresh commodities (2017-021)" to the Standards Committee (SC) for inclusion on the List of Topics for IPPC standards with priority 4, and Mr Glenn BOWMAN as the Treatment Lead, so the TPPT can assess better the information of the submitter.

(5) *asked* the submitter to provide more information on the dosimetry and the reason for the high control mortality.

2.4 Irradiation treatment for *Carposina sasakii* (2017-026)

[30] The Lead for the submission, Mr Andrew PARKER, introduced the checklist for evaluating treatment submissions and prioritization score sheet[10] for the Irradiation treatment for *Carposina sasakii* (2017-026).

[31] The proposal is 228 Gy supported by five references (all published journal articles). The Lead highlighted the reference Zhan 2014[11] as it provides the basis for the efficacy calculations. The efficacy was calculated based on the number of 5th instar larvae that emerged from apples. The Lead mentioned that the method of infestation was very close to the natural, i.e. the eggs were laid onto paper and artificially placed on the fruit (apple), but the larvae burrowed inside by itself as in case of natural infestation.

[32] One member queried weather the fruit used in the experiments were free from non-target pests and pesticide residues and weather this was considered. Another member queried about the information on how many 1st instar larvae developed. He also wondered if there was a high mortality in the control it could be an indication of possible interference of pesticide residue. The TPPT agreed to request from the submitter clarification on the status of the apples (whether they were free from pesticide and non-target organisms) and to confirm if a voucher specimen was collected. One member highlighted that for research studies, species identification and retention of voucher specimens should be well documented.

[33] One member queried if the diapausing larvae are more resistant to irradiation, and whether this was considered in case of *C. sasakii*. The TPPT briefly discussed the influence of diapause in phytosanitary treatments however due to time constraints the TPPT agreed to discuss this further at another meeting.

[34] In conclusion, the TPPT agreed to recommend the treatment to the Standards Committee (SC) for inclusion on the List of Topics for IPPC standards (i.e. for inclusion in to the TPPT work programme) with priority 2 to assess better the information from the submitter.

[35] The TPPT

(6) *recommended* the "Irradiation treatment for *Carposina sasakii* (2017-026)" to the Standards Committee (SC) for inclusion on the List of Topics for IPPC standards with priority 2, and Mr Andrew PARKER as the Treatment Lead, so the TPPT can assess better the information of the submitter.

(7) *asked* the submitter to provide more information on the species identification and voucher specimen retention and weather the possible pesticide residue on the test fruits was considered or not.

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[10] 07_TPPT_2017_Oct

[11] **Zhan Guoping, Li Baishu, Gao Meixu, Liu Bo, Wang Yuejin*, Liu Tao and Ren Lili. 2014**. Phytosanitary irradiation of peach fruit moth (Lepidoptera: Carposinidae) in apple fruits. *Radiation Physics and Chemistry*, 103:153-157.

3. TPPT work programme: Update on the recent developments on the objection to the Heat treatment of wood using dielectric heating (2007-114)

[36] The TPPT discussed further the objection received to the adoption of the draft PT on Heat treatment of wood using dielectric heating (2007-114) made prior to the CPM-12 (2017) [12]. The TPPT discussed the issue in its 2017-07 meeting in Vienna[13] and as the TPPT could not conclude based on the available information. Subsequently, the IPPC Secretariat requested additional information from the objecting contracting party on the temperature records for all of the probes, from all the exposure periods, and requested colour pictures of the thermal images.

[37] After the colour pictures of thermal images were provided, the Treatment Lead, Mr Mike ORMSBY reviewed[14] the additional information and the experimental methods from the objecting country research. He suggested that there may have been "undetected cold spots" in the treated logs that may have led to a greater level of nematode survival than expected.

[38] He explained that in case of temperature treatments, it is important to first identify where the coldest parts of the commodity are likely to be. Temperature probes and/or thermal imaging should then be used to ensure the coldest part of the commodity reaches the target temperature for a sufficient period. While the researchers have used 12 probes to measure the wood temperatures, and include thermal imaging at conclusion of the treatments, there was no evidence provided that indicated the researchers had identified where the coldest parts were likely to be found. Therefore, the coldest parts may not have been measured by the probes or the thermal imaging.

[39] A further concern in the experimental design was the extreme differences in the level of *Bursaphelenchus xylophilus* (pine wood nematode, PWN) infestation recorded in the control wood (e.g. from 64 to 274,328). It was mentioned that there is a need to ascertain that the variation in PWN density in the logs was between the logs used to generate the samples and not within each log. If the variation was within each log, the control data may not be directly relevant to the number of PWN exposed in the treatments. Further, data on the number of PWN detected in each sub-sample, and the association of each sample with the parent log, may aid in determining the nature of the variation detected in the controls.

[40] One member was concerned whether the size of the log might be a factor that puts the logs used outside the scope of the study that the treatment efficacy is based on. He highlighted the difficulties around the application of the treatment.

[41] The Lead mentioned that the International Forestry Quarantine Research Group (IFQRG) discussed in its recent meeting[15] the issue on appropriate application of dielectric heating (DH) in wood. In the discussions they mentioned that usually when the conditions are not appropriate when treating wood, there are some "halo" formations around the wood logs, which are indicatives of water evaporation, which in turn indicates rapid cooling. Therefore, IFQRG identified that the application of DH in wood has several issues that needs to be addressed and thus IFQRG has established a working group to develop some guidance on the use of dielectric heating to help (among other things) researchers avoid potential pitfalls in research design when testing dielectric heating efficacy. It is hoped this guidance will be available soon.

[42] Consequently, the treatment Lead noted that, the data presented to justify the objection to the adoption of the draft PT raises potential concerns on possible water evaporation and thus affecting the survivors

[12] Objections presented to the CPM-12 (2017): https://www.ippc.int/en/publications/84146/

[13] Link to the TPPT July 2017 meeting report: https://www.ippc.int/en/publications/85139/

[14] 05_TPPT_2017_Jul (https://www.ippc.int/en/work-area-publications/84457/)

[15] 2017-10 International Forestry Quarantine Research Group (IFQRG) meeting report: https://www.ippc.int/en/external-cooperation/organizations-page-in-ipp/internationalforestryquarantineresearchgroup/

of PWN – thus, these concerns need to be addressed, but cannot be addressed from the submitted information. This may mean running the tests again but with better control/measurement of log temperatures. The Lead suggested that the TPPT perform further evaluation on the draft PT and the objection received once the guidance is developed by IFQRG.

[43] The Treatment Lead agreed that the guidance on DH application that IFQRG produces might help and suggested that submitter of the objection might wish to reconsider their objection once they have repeated their research following IFQRG's guidance and/or addressed the concerns raised above.

[44] The TPP noted the evaluation of the supporting information of the objection and agreed to wait until the guidance material from IFQRG is available.

[45] The TPPT

(8) *noted* the decision from IFQRG to produce guidance material on the application of dielectric heating.

(9) *decided* to wait until IFQRG produced the guidance material before concluding on the validity of the data supporting the objection.

(10) *invited* the SC note the above decisions.

4. Other business

[46] The TPPT discussed again the priority to the Generic irradiation treatment against all insects except Lepidoptera larvae and pupae (2017-030).

[47] On their last virtual meeting the TPPT discussed lowering the priority of the treatment from 1 to 3 pending the approval of the treatment lead (Mr Guy HALLMAN). As the Treatment Lead was unable to attend the last meeting, the TPPT discussed again the issue of the priority of the generic treatment.

[48] The Treatment Lead understood that it was proposed to lower the priority to 3 due to the difficulty of developing such a generic treatment but suggested that the advantages of such a generic treatment would be felt immediately and that there are many studies available now to support the efficacy of the treatment. He suggested to assign the treatment priority at 2.

[49] One member highlighted that there are generic treatments available, but they are for higher doses. The Lead explained that higher doses were always suggested on the grounds of caution, but they are not necessarily justified. The biggest argument is that there is no data that indicated that 300 Gy is not sufficient against all insects except Lepidoptera larvae and pupae.

[50] Therefore, the TPPT agreed to recommend a priority 2 to this treatment and work on it once the other priority 2 treatments are processed as this may require additional work.

[51] The TPPT:

(11) *recommended* the "Generic irradiation treatment against all insects except Lepidoptera larvae and pupae (2017-030)" to the Standards Committee (SC) for inclusion on the List of Topics for IPPC standards with priority 2.

5. Close of the meeting

[52] The Secretariat informed the TPPT that the next TPPT virtual meeting, previously scheduled for December 2017, was cancelled due to unavailability of the Secretariat. As per 2018 virtual meetings planning, the Secretariat informed the TPPT the following tentative dates were:

- 25 January 2018
- 20 February 2018 (to discuss the draft ISPM for the Requirements for the use of modified atmosphere treatments as a phytosanitary measure (2014-006)).

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

Attachment 1: Agenda

2017 NOVEMBER 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 and introductions	02_TPPT_2017_Nov	MOREIRA / ALL
1.2	Adoption of the agenda and election of the rapporteur	01_TPPT_2017_Nov	MOREIRA / ALL
2.	**TPPT work programme: Evaluation of treatment submissions** ❖ List of submitted treatments ❖ Submissions and supporting documents	03_TPPT_2017_Nov Link to the treatments submission forms and supporting data	
2.1	Cold treatment for the peach fruit fly, *Bactrocera zonata* on oranges *Citrus x sinensis* (2017-013) ❖ Checklist for evaluating treatment submissions and Prioritization score sheet	04_TPPT_2017_Nov	DOHINO
2.2	Irradiation Treatment against fruit flies of the family Anastrepha spp. (Dose Modification) (2017-031) ❖ Checklist for evaluating treatment submissions and Prioritization score sheet	05_TPPT_2017_Nov	HALLMAN
2.3	Irradiation treatment for European grapevine moth *Lobesia botrana* eggs and larvae on all fresh commodities (2017-021) ❖ Checklist for evaluating treatment submissions and Prioritization score sheet	06_TPPT_2017_Nov	BOWMAN
2.4	Irradiation treatment for *Carposina sasakii* (2017-026) ❖ Checklist for evaluating treatment submissions and Prioritization score sheet	07_TPPT_2017_Nov	PARKER
3.	**TPPT work programme:** Update on the recent developments on the objection to the Heat treatment of wood using dielectric heating (2007-114)	08_TPPT_2017_Nov	ORMSBY
4.	**Other business**	-	MOREIRA
5.	**Close of the meeting**	-	MOREIRA