2021 SECOND CONSULTATION

1 July – 30 September 2021

Compiled comments for Draft PT: Irradiation treatment for *Zeugodacus tau* (2017-025)

Summary

Name	Summary
EPPO Σ	Comments from the EPPO countries
European Union	The comments on this draft standard have been entered into the OCS by the European Commission on behalf of the EU and its member States.
Singapore	Singapore is supportive of this draft.
South Africa	The NPPOZA is in agreement with this draft and has no further comments
Venezuela	sin observacion

T (Type) - B = Bullet, C = Comment, P = Proposed Change, R = Rating

FAO sequential number	Para	Text	T	Comment
1	G	(General Comment)	C	**Guyana** Guyana has no objection at this time. *Category : SUBSTANTIVE*
2	G	(General Comment)	C	**Costa Rica** No comment *Category : SUBSTANTIVE*
3	G	(General Comment)	C	**Nepal** Nepal has no comments on Draft ANNEX TO ISPM◦28: Irradiation treatment for Zeugodacus tau *Category : TECHNICAL*
4	G	(General Comment)	C	**Mexico** I support the document as it is and I have no comments *Category : SUBSTANTIVE*
5	G	(General Comment)	C	**Canada** Canada supports the draft Annex to ISPM 28 *Category : SUBSTANTIVE*
6	G	(General Comment)	C	**European Union** The comments by the EU and its Member States are provided without prejudice to the European Union food safety legislation imposing limitations on the acceptance of irradiated goods. *Category : SUBSTANTIVE*
7	G	(General Comment)	C	**Malawi** We support the draft Annex to ISPM 28:Irradiation trt for Zeugodacus tau(2017-025) *Category : SUBSTANTIVE*
8	G	(General Comment)	C	**Barbados** Barbados agrees with the proposal.

				Category : SUBSTANTIVE
9	G	(General Comment)	C	**United States of America** 1. The paper by Zhan et al. 2015 often lacked details in methodology that were important to understanding the study and verifying the results. • There is no mention of whether the life stages of the test insects were verified prior to irradiation for the dose-response studies. The authors indicated that the life history studies performed by Singh et al. 2010 were used to estimate the time period in which the insects were in each particular life stage. They used the same host and rearing conditions. It is unknown whether they performed tests to see whether the development rates were true for their unique colony as well. • It is unclear whether there is any time differentiation for the replicates in the dose response studies. It was mentioned that there were three cups tested for each dose/life stage but it appears that they were all irradiated at the same time. • There is no mention of dose mapping exercises used to determine the Dmax and Dmin for the configurations used in the irradiations for the dose response and the confirmatory tests. Were the dosimeters placed in the min/max areas for these tests? If dosimeters were not placed at the area of maximum dose during the confirmatory trials, it is possible that the recommended dose should be increased above 85 Gy to account for the fact that the maximum dose was not determined? The raw dosimetry data, including the spatial arrangement of each data point, would allow for a more thorough review of the treatment application. • In the methods section, the researchers report that they calculated the uncertainty of the dosimetry system, so it would have been good to include this information in the results. 2. We are concerned with the diversity of the colony of Z. tau used in the experiments. It was based on 2 collections from one pumpkin field at one geographic location. We feel that experimental colonies are more robust when they include insects from a wide range of geographical regions. This will result in a colony that is more diverse genetically and more representative of a wider range of tolerances and adaptations. 3. The doses of 72 Gy and 85 Gy are rather low compared to other Bactrocera spp. Follett et al. 2011 states that Bactrocera (>100 Gy) seem to be more radiotolerant than other genera (Anastrepha, Ceratitis, and Rhagoletis- 50-100 Gy) • Bactrocera dorsalis 116 Gy (Zhao et al. 2017) • Bactrocera dorsalis 125 Gy (Follett & Armstrong 2004) • Bactrocera dorsalis 150 Gy (USDA APHIS Treatment Manual) • Bactrocera tryoni 100 Gy (USDA APHIS Treatment Manual) • Bactrocera tryoni 100 Gy (ISPM 28 Annex 5)

				• Bactrocera cucurbitae 150 Gy (USDA APHIS Treatment Manual) • Bactrocera cucurbitae 150 Gy (Follett & Armstrong 2004) • Bactrocera jarvisi 100 Gy (USDA APHIS Treatment Manual) • Bactrocera jarvisi 100 Gy (ISPM 28 Annex 4) • Bactrocera latifrons 150 Gy (Follet et al. 2011) *Category : SUBSTANTIVE*
10	G	(General Comment)	C	**Thailand** Thailand has no objection on the Draft PT: Irradiation treatment for Zeugodacus tau. *Category : SUBSTANTIVE*
11	G	(General Comment)	C	**New Zealand** General comment about a species treatments. Zeugodacus tau and Zeugodacus cucurbitae can share the same hosts and similar geographical locations. If live larvae was found and the it turned out to be the latter species would the treatment be acceptable? Larvae would need to be sequenced to determine whether it is Z. tau or something else. There is a case for batching species from a similar host and geographical area with a generic treatment rate. **New Zealand** implementation issue *Category : SUBSTANTIVE*
Draft ANNEX TO ISPM 28: Irradiation treatment for Zeugodacus tau (2017-025)				
12	1	**DRAFT ANNEX TO ISPM 28: Irradiation treatment for *Zeugodacus tau* (2017-025)**	C	**Viet Nam** VN agrees with this draft annex to ISPM 28 *Category : SUBSTANTIVE*
13	1	**DRAFT ANNEX TO ISPM 28: IRRADIATION TREATMENT FOR *ZEUGODACUS TAU* (2017-025)**	C	**Uruguay** We agree with the document as it is, no comments *Category : TECHNICAL*
14	11	2017-06 Treatment submitted in response to 2017-02 call for treatments (*Irradiation treatment for* Bactrocera tau).	C	**Kenya** keep the name as Zeugodacus tau *Category : TECHNICAL*
15	14	2018-05 SC added the topic *Irradiation treatment for* Bactrocera tau (2017-025) to the TPPT work programme with priority 3.	C	**Kenya** keep the name as Zeugodacus tau *Category : TECHNICAL*
16	24	2017-07 ~~SC~~ Andrew PARKER (IAEA)	P	**European Union** Typo. *Category : EDITORIAL*
17	24	2017-07 ~~SC~~ Andrew PARKER (IAEA)	P	**EPPO** Typo. *Category : EDITORIAL*
18	30	This treatment describes the irradiation of fruits and vegetables at 72Gy or 85Gy minimum absorbed dose to prevent the emergence of adults of *Zeugodacus tau*[1] at the stated efficacy.[2]	P	**Japan** In all adopted irradiation treatment schedules as annexes to ISPM28, "minimum absorbed dose" is described in the "Scope of the treatment" section. Need to be consistent with other annexes. *Category : EDITORIAL*

19	31	Species names is in accordance with Doorenweerd *et al.* (2018), following the elevation of the subgenus *Bactrocera (Zeugodacus)* to genus level (Virgilio ~~et al.~~ *et al.*, 2015).	P	**European Union** Typos (missing italics and comma). *Category : EDITORIAL*
20	31	Species names is in accordance with Doorenweerd *et al.* (2018), following the elevation of the subgenus *Bactrocera (Zeugodacus)* to genus level (Virgilio ~~et al.~~ *et al.*, 2015).	P	**EPPO** Typos (missing italics and comma). *Category : EDITORIAL*
Treatment schedules				
21	44	This treatment should be applied in accordance with the requirements of ISPM 18 (*Guidelines for the use of irradiation as a phytosanitary measure*).This treatment should not be applied to fruit stored in a modified atmosphere because the modified atmosphere may affect the treatment efficacy.	P	**Australia** Additional text to be included to ensure modified atmosphere is not included within treatment schedule and make the text consistent with the other irradiation treatment for consultation - Irradiation treatment for Tortricidae on fruits (2017-011) *Category : SUBSTANTIVE*
22	44	This treatment should be applied in accordance with the requirements of ISPM 18 (*Guidelines for the use of irradiation as a phytosanitary measure*).This treatment should not be applied to fruits and vegetables stored in a modified atmosphere because the modified atmosphere may affect the treatment efficacy	P	**China** Hypoxia is known to abate the effects of radiation on organisms because less oxidative radicals are produced. *Category : SUBSTANTIVE*
Other relevant information				
23	46	Because irradiation may not result in outright mortality, inspectors may encounter live but non-viable *Zeugodacus tau* (larvae or puparia) during the inspection process. This does not imply a failure of the treatment.	C	**Colombia** In the text: "Because irradiation may not result in outright mortality, inspectors may encounter live but non-viable Zeugodacus tau (larvae or puparia) during the inspection process. This does not imply a failure of the treatment", the alternatives to follow should be included to clearly define when the treatment was or was not effective. Live insects of Zeugodacus tau are assumed to be non-viable, but this condition would have to be assessed to confirm or disprove it. If live pests are found, the NPPO should consider taking emergency treatment and initiate viability assessment of the pests that are found alive. Situation that should be defined within ISPM 18 It is not clear what would be the reference to evaluate the effectiveness or not of the treatment by the inspectors. What could be lent for misinterpretations in the result of the treatment. *Category : TECHNICAL*
24	46	Because irradiation may not result in outright mortality, inspectors may encounter live but non-viable *Zeugodacus tau* (larvae or puparia) during the inspection process. This does not neccessarily imply a failure of the treatment.	P	**New Zealand** Live larvae may survive from a treatment failure or other unknown circumstances. *Category : SUBSTANTIVE*
25	49	Extrapolation of treatment efficacy to all fruits and vegetables was based on knowledge and experience that radiation dosimetry systems measure the actual	P	**European Union** Full scientific name already given above in the same paragraph. *Category : EDITORIAL*

		radiation dose absorbed by the target pest independent of host commodity, and evidence from research studies on a variety of pests and commodities. These include studies on the following pests and hosts: *Anastrepha fraterculus* (*Eugenia pyriformis*, *Malus pumila* and *Mangifera indica*), *Anastrepha ludens* (*Citrus paradisi*, *Citrus sinensis*, ~~*Mangifera*~~ *M. indica* and artificial diet), *Anastrepha obliqua* (*Averrhoa carambola*, *C. sinensis* and *Psidium guajava*), *Anastrepha suspensa* (~~*Averrhoa*~~ *A. carambola*, *C. paradisi* and ~~*Mangifera*~~ *M. indica*), *Bactrocera tryoni* (*C. sinensis*, *Solanum lycopersicum*, ~~*Malus*~~ *M. pumila*, ~~*Mangifera*~~ *M. indica*, *Persea americana* and *Prunus avium*), *Cydia pomonella* (~~*Malus*~~ *M. pumila* and artificial diet), *Grapholita molesta* (~~*Malus*~~ *M. pumila* and artificial diet), *Pseudococcus jackbeardsleyi* (*Cucurbita* sp. and *Solanum tuberosum*) and *Tribolium confusum* (*Triticum aestivum*, *Hordeum vulgare* and *Zea mays*) (Bustos *et al.*, 2004; Gould and von Windeguth, 1991; Hallman, 2004a, 2004b, 2013; Hallman and Martinez, 2001; Hallman *et al.*, 2010; Jessup *et al.*, 1992; Mansour, 2003; Tunçbilek and Kansu, 1966; von Windeguth, 1986; von Windeguth and Ismail, 1987; Zhan *et al.*, 2016). It is recognized, however, that treatment efficacy has not been tested for all potential fruit and vegetable hosts of the target pest. If evidence becomes available to show that the extrapolation of the treatment to cover all hosts of this pest is incorrect, the treatment will be reviewed.		
26	49	Extrapolation of treatment efficacy to all fruits and vegetables 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. These include studies on the following pests and hosts: *Anastrepha fraterculus* (*Eugenia pyriformis*, *Malus pumila* and *Mangifera indica*), *Anastrepha ludens* (*Citrus paradisi*, *Citrus sinensis*, ~~*Mangifera*~~ *M. indica* and artificial diet), *Anastrepha obliqua* (*Averrhoa carambola*, *C. sinensis* and *Psidium guajava*), *Anastrepha suspensa* (~~*Averrhoa*~~ *A. carambola*, *C. paradisi* and ~~*Mangifera*~~ *M. indica*), *Bactrocera tryoni* (*C. sinensis*, *Solanum lycopersicum*, ~~*Malus*~~ *M. pumila*, ~~*Mangifera*~~ *M. indica*, *Persea americana* and *Prunus avium*), *Cydia pomonella* (~~*Malus*~~ *M. pumila* and artificial diet), *Grapholita molesta* (~~*Malus*~~ *M. pumila* and artificial diet), *Pseudococcus jackbeardsleyi* (*Cucurbita* sp. and *Solanum tuberosum*) and *Tribolium confusum* (*Triticum aestivum*, *Hordeum vulgare* and *Zea mays*) (Bustos *et al.*, 2004; Gould and von Windeguth, 1991; Hallman, 2004a, 2004b, 2013; Hallman and Martinez, 2001; Hallman *et al.*, 2010; Jessup *et al.*, 1992; Mansour, 2003; Tunçbilek and Kansu, 1966; von Windeguth, 1986; von Windeguth and Ismail, 1987; Zhan *et al.*, 2016). It is recognized, however, that treatment efficacy has not been tested for all potential fruit and vegetable hosts of	P	**EPPO** Full scientific name already given above in the same paragraph. *Category : EDITORIAL*

		the target pest. If evidence becomes available to show that the extrapolation of the treatment to cover all hosts of this pest is incorrect, the treatment will be reviewed.		
References				
27	51	The present annex ~~may refer~~ refers to ISPMs. ISPMs are available on the International Phytosanitary Portal (IPP) at .	P	**European Union** The present annex refers to ISPMs 28 and 18. There is no reason to write "may refer". We understand that this is a general statement for all PTs and this comment may apply to other already adopted PTs. *Category : EDITORIAL*
28	51	The present annex ~~may refer~~ refers to ISPMs. ISPMs are available on the International Phytosanitary Portal (IPP) at .	P	**EPPO** The present annex refers to ISPMs 28 and 18. There is no reason to write "may refer". We understand that this is a general statement for all PTs and this comment may apply to other already adopted PTs. *Category : EDITORIAL*