

2025 Second consultation: 01 – 30 September 2025

Compiled comments for - Draft annex to ISPM 28: Irradiation treatment for *Pseudococcus baliteus* (2023-033)

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

FAO sequential number	Para	Text	T	Comment
1	G	(General Comment)	C	Costa Rica Costa Rica supports the document in its current form and has no additional comments. <i>Category : SUBSTANTIVE</i>
2	G	(General Comment)	C	Argentina Argentina endorses the COSAVE comments to this draft <i>Category : SUBSTANTIVE</i>
3	G	(General Comment)	C	Antigua and Barbuda Antigua and Barbuda has no comment or objection to this draft document. <i>Category : SUBSTANTIVE</i>
4	G	(General Comment)	C	Barbados Barbados has no objections to the draft annex. <i>Category : SUBSTANTIVE</i>
5	G	(General Comment)	C	Guyana Guyana supports this draft annex to ISPM 28 <i>Category : SUBSTANTIVE</i>
6	G	(General Comment)	C	Peru Peru does not have any comment on this draft annex <i>Category : SUBSTANTIVE</i>
7	G	(General Comment)	C	Cameroon Le Cameroun supporte les commentaires issus des consultations régionales soumis par AU-IAPC. Le Cameroun supporte donc l'adoption de ce protocole de traitement, annexe à la NIMP 28 <i>Category : SUBSTANTIVE</i>
8	G	(General Comment)	C	China China support the draft annex. <i>Category : SUBSTANTIVE</i>
9	G	(General Comment)	C	Italy Italy endorses the EPPO comments to this draft <i>Category : SUBSTANTIVE</i>
10	G	(General Comment)	C	Paraguay Paraguay supports COSAVE comments. <i>Category : SUBSTANTIVE</i>
11	G	(General Comment)	C	Belarus Belarus has no comments and supports the review of the standard. <i>Category : TECHNICAL</i>
12	G	(General Comment)	C	United Kingdom

				The United Kingdom endorses the EPPO comments to this draft <i>Category : SUBSTANTIVE</i>
13	G	(General Comment)	C	European Union The EU and its 27 Member states endorse the EPPO comment to this draft <i>Category : SUBSTANTIVE</i>
14	G	(General Comment)	C	Malaysia Malaysia has reviewed and support the content of this draft <i>Category : SUBSTANTIVE</i>
15	G	(General Comment)	C	Mali Le Mali approuve le projet d'annexe et appuie son adoption. <i>Category : SUBSTANTIVE</i>
16	G	(General Comment)	C	India India supports the content of this draft annex. <i>Category : SUBSTANTIVE</i>
17	G	(General Comment)	C	Singapore Singapore supports the draft annex to ISPM 28 for this said pest. <i>Category : SUBSTANTIVE</i>
18	G	(General Comment)	C	Uruguay Uruguay supports COSAVE comments <i>Category : SUBSTANTIVE</i>
19	G	(General Comment)	C	OIRSA OIRSA has reviewed the document and agree with it. <i>Category : TECHNICAL</i>
20	G	(General Comment)	C	New Zealand New Zealand supports the adoption of this annex. <i>Category : SUBSTANTIVE</i>
21	G	(General Comment)	C	Thailand Thailand agrees with the draft annex and supports its adoption. <i>Category : SUBSTANTIVE</i>
22	G	(General Comment)	C	COSAVE COSAVE agrees with the document as it is. <i>Category : TECHNICAL</i>
23	G	(General Comment)	C	South Africa The draft annex on the treatment of mealybug is supported as an option for a phytosanitary measure Well, outlined and covers important aspects of treatment in the case of mealy bug. <i>Category : SUBSTANTIVE</i>
24	G	(General Comment)	C	Gabon Nous validons le draft de la NIMP 28 <i>Category : TECHNICAL</i>
Draft ANNEX to ISPM 28: Irradiation treatment for <i>Pseudococcus baliteus</i> (2023-033)				
25	1	DRAFT ANNEX TO ISPM 28: Irradiation treatment for <i>Pseudococcus baliteus</i> (2023-033)	C	Russian Federation General Comment: The Russian Federation would like to formally endorse the EPPO comments submitted via the IPPC Online

				Comment System Category : <i>SUBSTANTIVE</i>
26	1	DRAFT ANNEX TO ISPM 28: Irradiation treatment for <i>Pseudococcus baliteus</i> (2023-033)	C	Canada Canada does not have any comment on this draft annex, would like thank the TPPT for the development of this treatment. Category : <i>SUBSTANTIVE</i>
27	1	DRAFT ANNEX TO ISPM 28: Irradiation treatment for <i>Pseudococcus baliteus</i> (2023-033)	C	Senegal préciser la période de traitement Category : <i>TECHNICAL</i>
28	1	DRAFT ANNEX TO ISPM 28: Irradiation treatment for <i>Pseudococcus baliteus</i> (2023-033)	C	Zambia Zambia supports this Draft Annex Category : <i>SUBSTANTIVE</i>
29	1	DRAFT ANNEX TO ISPM 28: Irradiation treatment for <i>Pseudococcus baliteus</i> (2023-033)	C	Malawi We support Draft Annex to ISPM 28 Category : <i>TECHNICAL</i>
Scope of the treatment				
30	21	Scope of the treatment	C	IPPC Regional Workshop Africa Suggestion that the scope be changed to make provision to live insect which are already sterile; because there are cases where the import permit specifies that there should be no live insect. Category : <i>SUBSTANTIVE</i>
31	21	Scope of the treatment	C	South Africa Suggestion that the scope be changed to make provision to live insect which are already sterile; because there are cases where the import permit specifies that there should be no live insect. Category : <i>SUBSTANTIVE</i>
32	22	This treatment describes irradiation of fruits, vegetables and ornamental plants at 183 Gy minimum absorbed dose to prevent the hatching of eggs from <i>Pseudococcus baliteus</i> at the stated efficacy. ¹	C	United States of America It is not clear where this dose number comes from. This dose appears to be too random, as it is simply the highest dose recorded in the third large-scale trial with a target dose of 145 Gy in Zhao et al 2023. Category : <i>TECHNICAL</i>
33	22	This treatment describes irradiation of fruits, vegetables and ornamental plants at 183 Gy minimum absorbed dose to prevent the hatching of eggs from <i>Pseudococcus baliteus</i> at the stated efficacy. ¹	C	New Zealand Are cut flowers also included? Category : <i>TECHNICAL</i>
Treatment description				
34	26	Active ingredient n/a	C	Senegal est ce qu'il ne s'agit pas d'active ingrédient mais plutôt de rayon ou faisceau utilisé pour inhiber le développement de l'ennemi Category : <i>TECHNICAL</i>
35	29	Target regulated articles All fruits, vegetables and ornamental plants that are hosts of <i>Pseudococcus baliteus</i>	C	United States of America Is this accurate to say ornamental plants as in live plants for planting, because ISPM 18 indicates that irradiation might not be appropriate for plants for planting as it might devitalize them. We do see the note at the bottom of page 1 and assume is there due to live plants exhibiting different levels of tolerance to irradiation,

				which would require a max absorbed dose limit to prevent devitalization of live plants. We just want to confirm this is accurate. <i>Category : TECHNICAL</i>
36	29	Target regulated articles All fruits, vegetables and ornamental plants that are hosts of <i>Pseudococcus baliteus</i>	C	New Zealand Are cut flowers also included? <i>Category : TECHNICAL</i>
Treatment schedule				
37	31	Minimum absorbed dose of 183 Gy to prevent the hatching development of eggs F1 generation neonates from late females of <i>Pseudococcus baliteus</i> .	P	Japan Modify the text to match the wording of the reference (Zhao et al.2023). <i>Category : TECHNICAL</i>
38	32	There is 95% confidence that the treatment according to this schedule prevents the hatching of eggs from not less than 99.9937% of all life stages of <i>Pseudococcus baliteus</i> .	C	United States of America Only the 'late females' irradiated and associated with 99.9937% in Zhao et al 2023 <i>Category : TECHNICAL</i>
39	32	There is 95% confidence that the treatment according to this schedule prevents the hatching of eggs <u>and/or development</u> from not less than 99.9937% of all life stages of <i>Pseudococcus baliteus</i> .	P	Oman Term "hatching" is only for eggs not other life stages <i>Category : EDITORIAL</i>
40	34	This treatment should not be applied to hosts stored in a modified atmosphere because the modified atmosphere may affect the treatment efficacy.	C	United States of America Should be more specific since some MAPs allow high O2% inside. <i>Category : TECHNICAL</i>
41	34	This treatment should not be applied to hosts-host fruits, vegetables and ornamental plants stored in a modified atmosphere because the modified atmosphere may affect the treatment efficacy.	P	EPPO To emphasise that this consideration applies to all target regulated articles and see also PT45 and PT43 for similar wording. <i>Category : TECHNICAL</i>
Other relevant information				
42	36	Because irradiation may not result in outright complete mortality, inspectors may encounter live but non-viable <i>Pseudococcus baliteus</i> life stages during the inspection process. This does not imply a failure of the treatment.	P	New Zealand Plain English Malaysia Malaysia agreed with New Zealand comment as it is more accurate wording and meet with ISPM terms. <i>Category : EDITORIAL</i>
43	36	Because irradiation may not result in outright mortality, inspectors may encounter live but non-viable <i>Pseudococcus baliteus</i> life stages during the inspection process. This does not imply a failure of the treatment.	C	Philippines The Philippines emphasizes that the presence of live <i>Pseudococcus baliteus</i> after irradiation should not be considered treatment failure or non-compliance, but importing countries must retain the prerogative to apply appropriate phytosanitary measures. <i>Category : SUBSTANTIVE</i>
44	37	The Technical Panel on Phytosanitary Treatments based its evaluation of this treatment on the research reported by Zhao <i>et al.</i> (2023), which determined the efficacy of irradiation as a treatment for <i>Pseudococcus baliteus</i> on <i>Cucurbita maxima</i> . They also considered the information on the effect of irradiation on <i>Paracoccus marginatus</i> in Seth <i>et al.</i> (2016).	P	China 1) Seth et al. (2016) investigated irradiation treatment of <i>Paracoccus marginatus</i> , which has no direct relevance to the study on <i>Pseudococcus baliteus</i> conducted by Zhao et al. (2023); 2) Comparative studies on irradiation tolerance across life stages of <i>P. marginatus</i> are unrelated to the results and efficacy of phytosanitary irradiation treatment for <i>P. baliteus</i> , and thus citing

				this reference has no practical significance. <i>Category : SUBSTANTIVE</i>
45	37	The Technical Panel on Phytosanitary Treatments based its evaluation of this treatment on the research reported by Zhao <i>et al.</i> (2023), which determined the efficacy of irradiation as a treatment for <i>Pseudococcus baliteus</i> on <i>Cucurbita maxima</i> . They also considered the information on the effect of irradiation on <i>Paracoccus marginatus</i> in Seth <i>et al.</i> (2016).	C	United States of America One US reviewer noted: I have two main concerns with this research. First, the mealybugs intercepted on mangosteens were used to start the studied colony reared on pumpkins. The initial individuals might not be in a sufficient number to bring genetic diversity into the lab colony, which may not be appropriate for studying radiotolerance and does not meet the 'natural setting' requirement for applied research of phytosanitary irradiation (PI) (Hallman <i>et al.</i> 2016. Florida Entomologist 99). Second, no evidence shows which stage in <i>Pseudococcus baliteus</i> is the most radio-tolerant since the nymph was not included in Zhao <i>et al.</i> 2023. As the authors state, 'For PI treatment research and standard establishment, it is required to determine the most radio-tolerant stage ... according to ISPM 18 and 28 (IPPC 2003, 2007, 2023).' Seth <i>et al.</i> (2016) irradiated eggs, nymphs and adults of <i>Paracoccus marginatus</i> . <i>Category : TECHNICAL</i>
46	39	Extrapolation of treatment efficacy to all hosts was based on knowledge and experience that ionizing 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: <i>Anastrepha fraterculus</i> (<i>Eugenia pyriformis</i> , <i>Malus pumila</i> and <i>Mangifera indica</i>), <i>Anastrepha ludens</i> (<i>Citrus paradisi</i> , <i>Citrus sinensis</i> , <i>Mangifera indica</i> and artificial diet), <i>Anastrepha obliqua</i> (<i>Averrhoa carambola</i> , <i>Citrus sinensis</i> and <i>Psidium guajava</i>), <i>Anastrepha suspensa</i> (<i>Averrhoa carambola</i> , <i>Citrus paradisi</i> and <i>Mangifera indica</i>), <i>Bactrocera tryoni</i> (<i>Citrus sinensis</i> , <i>Solanum lycopersicum</i> , <i>Malus pumila</i> , <i>Mangifera indica</i> , <i>Persea americana</i> and <i>Prunus avium</i>), <i>Cydia pomonella</i> (<i>Malus pumila</i> and artificial diet), <i>Grapholita molesta</i> (<i>Malus pumila</i> and artificial diet), <i>Pseudococcus jackbeardsleyi</i> (<i>Cucurbita</i> sp. and <i>Solanum tuberosum</i>) and <i>Tribolium confusum</i> (<i>Triticum aestivum</i> , <i>Hordeum vulgare</i> and <i>Zea mays</i>) (Bustos <i>et al.</i> , 2004; Gould and von Windeguth, 1991; Hallman, 2004a, 2004b, 2013; Hallman and Martinez, 2001; Hallman <i>et al.</i> , 2010; Jessup <i>et al.</i> , 1992; Mansour, 2003; Tunçbilek and Kansu, 1996; von Windeguth, 1986; von Windeguth and Ismail, 1987; Zhan <i>et al.</i> , 2016). It is recognized, however, that treatment efficacy has not been tested for all potential 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. There is no consistent information stating that the exposure time effects treatment outcomes for ionizing radiation phytosanitary	P	China The statement that "exposure duration does not affect the efficacy of irradiation treatments" is an inherent feature of such treatments and does not require special emphasis here. 2) To avoid possible misunderstanding by non-specialists, this statement would be more appropriately placed in the recommendations section. <i>Category : SUBSTANTIVE</i>

		treatments.		
47	39	<p>Extrapolation of treatment efficacy to all hosts was based on knowledge and experience that ionizing 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: <i>Anastrepha fraterculus</i> (<i>Eugenia pyriformis</i>, <i>Malus pumila</i> and <i>Mangifera indica</i>), <i>Anastrepha ludens</i> (<i>Citrus paradisi</i>, <i>Citrus sinensis</i>, <i>Mangifera indica</i> and artificial diet), <i>Anastrepha obliqua</i> (<i>Averrhoa carambola</i>, <i>Citrus sinensis</i> and <i>Psidium guajava</i>), <i>Anastrepha suspensa</i> (<i>Averrhoa carambola</i>, <i>Citrus paradisi</i> and <i>Mangifera indica</i>), <i>Bactrocera tryoni</i> (<i>Citrus sinensis</i>, <i>Solanum lycopersicum</i>, <i>Malus pumila</i>, <i>Mangifera indica</i>, <i>Persea americana</i> and <i>Prunus avium</i>), <i>Cydia pomonella</i> (<i>Malus pumila</i> and artificial diet), <i>Grapholita molesta</i> (<i>Malus pumila</i> and artificial diet), <i>Pseudococcus jackbeardsleyi</i> (<i>Cucurbita</i> sp. and <i>Solanum tuberosum</i>) and <i>Tribolium confusum</i> (<i>Triticum aestivum</i>, <i>Hordeum vulgare</i> and <i>Zea mays</i>) (Bustos <i>et al.</i>, 2004; Gould and von Windeguth, 1991; Hallman, 2004a, 2004b, 2013; Hallman and Martinez, 2001; Hallman <i>et al.</i>, 2010; Jessup <i>et al.</i>, 1992; Mansour, 2003; Tunçbilek and Kansu, 1996; von Windeguth, 1986; von Windeguth and Ismail, 1987; Zhan <i>et al.</i>, 2016). It is recognized, however, that treatment efficacy has not been tested for all potential 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. There is no consistent information stating that the exposure time effects treatment outcomes for ionizing radiation phytosanitary treatments.</p>	C	<p>United States of America</p> <p>One US reviewer noted: Is this paragraph necessary? The US NPPO requires a dose mapping on each process configuration with actual product (including similar fruit size and weight) and package to ensure a minimum absorbed dose (MAD) within the treatment load.</p> <p>Another US reviewer noted on the last two sentences: Given known detrimental effects of this treatment type to cellular structures of live plants, it is concerning to extrapolate applications to all hosts is effective and not damaging to the host without testing being performed. Last sentence: I believe this statement to be incorrect. Given a constant energy emission from the source, dose delivery is controlled by length of exposure of the commodity to the source.</p> <p>Category : <i>TECHNICAL</i></p>