

[PleaseReview document review. Review title: 2020 Second consultation Draft annex to ISPM 28: Irradiation treatment for the genus *Anastrepha* (2017-031). Document title: 2017-031_DraftPT_Anastrepha_2020-06-05.docx]

[1] DRAFT ANNEX TO ISPM 28: Irradiation treatment for the genus *Anastrepha* (2017-031)

[2] Status box	
[3] This is not an official part of the standard and it will be modified by the IPPC Secretariat after adoption.	
[4] Date of this document	[5] 2019-06-05
[6] Document category	[7] Draft annex to ISPM 28
[8] Current document stage	[9] To second consultation
[10] Major stages	<p>[11] 2017-06 Treatment submitted in response to 2017-02 Call for treatments.</p> <p>[12] 2017-11 Technical Panel on Phytosanitary Treatments (TPPT) reviewed submission.</p> <p>[13] 2018-05 SC added topic <i>Irradiation treatment for the genus Anastrepha</i> (2017-031) to the TPPT work programme with priority 1.</p> <p>[14] 2018-06 TPPT revised the draft and recommended it to SC for consultation.</p> <p>[15] 2018-11 TPPT final review via e-forum (2018_eTPPT_Oct_01).</p> <p>[16] 2019-01 SC approved the draft for consultation via e-decision (2019_eSC_May_03).</p> <p>[17] 2019-07 First consultation.</p> <p>[18] 2020-03 TPPT approved the responses to consultation comments and recommended the draft for approval for second consultation.</p> <p>[19] 2020-06 SC approved for second consultation via e-decision (2020_eSC_May_23)</p>
[20] Treatment Lead	<p>[21] 2018-06 Mr Matthew SMYTH (AU)</p> <p>[22] 2017-11 Mr Guy HALLMAN (US)</p>
[23] Notes	<p>[24] 2018-06 TPPT: efficacy was calculated based on data for <i>A. ludens</i> (most tolerant species within the genus)</p> <p>[25] 2018-07 Edited</p> <p>[26] 2020-06 Edited</p>

[27] Scope of the treatment

[28] This treatment describes the irradiation of fruits and vegetables at 70 Gy minimum absorbed dose to prevent the emergence of adults of *Anastrepha* spp. at the stated efficacy¹.

[29]¹

The scope of phytosanitary treatments does not include issues related to pesticide registration or other domestic requirements for contracting parties' approval of treatments. Treatments adopted by the Commission on Phytosanitary Measures may not provide information on specific effects on human health or food safety, which should be addressed using domestic procedures before contracting parties approve a treatment. In addition, potential effects of treatments on product quality are considered for some host commodities before their international adoption. However, evaluation of any effects of a treatment on the quality of commodities may require additional consideration. There is no obligation for a contracting party to approve, register or adopt the treatments for use in its territory.

[30] Treatment description

[31] Name of treatment Irradiation treatment for the genus *Anastrepha*

[32] Active ingredient n/a

[33] Treatment type Irradiation

[34] Target pest Fruit flies of the genus *Anastrepha* Schiner, 1868 (Diptera: Tephritidae)

[35] Target regulated articles All fruits and vegetables that are hosts of the genus *Anastrepha*

[36] Treatment schedule

[37] Minimum absorbed dose of 70 Gy to prevent the emergence of adults of *Anastrepha* spp.

[38] There is 95% confidence that the treatment according to this schedule prevents the development to the adult stage of not less than 99.9968% of eggs and larvae of *Anastrepha* spp.

[39] This treatment should be applied in accordance with the requirements of ISPM 18 (*Guidelines for the use of irradiation as a phytosanitary measure*).

[40] This irradiation treatment should not be applied to fruit and vegetables stored in modified atmospheres because modified atmospheres may affect the treatment efficacy.

[41] Other relevant information

[42] Because irradiation may not result in outright mortality, inspectors may encounter live, but non-viable *Anastrepha* spp. (larvae or puparia) during the inspection process. This does not imply a failure of the treatment.

[43] The Technical Panel on Phytosanitary Treatments based its evaluation of this treatment on the research reviewed in Hallman (2013), which determined the efficacy of irradiation as a treatment for this pest on *Citrus paradisi*. In addition, the research reported in FAO/IAEA (2017) supports this schedule.

[44] The efficacy of this schedule was calculated based on a total of 94 400 third-instar larvae of *Anastrepha ludens* treated with no adult emergence. The data for *A. ludens* were used as it is considered the most radio-tolerant of the economically important species studied in the genus.

[45] 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 uvalha*, *Malus pumila* and *Mangifera indica*), *Anastrepha ludens* (*Citrus paradisi*, *Citrus sinensis*, *Mangifera indica* and artificial diet), *Anastrepha obliqua* (*Averrhoa carambola*, *C. sinensis* and *Psidium guajava*), *Anastrepha suspensa* (*Averrhoa carambola*, *C. paradisi* and *Mangifera indica*), *Bactrocera tryoni* (*C. sinensis*, *Solanum lycopersicum*, *Malus pumila*, *Mangifera indica*, *Persea americana* and *Prunus avium*), *Pseudococcus jackbeardsleyi* (*Cucurbita* sp. and *Solanum tuberosum*), *Tribolium confusum* (*Triticum aestivum*, *Hordeum vulgare* and *Zea mays*), *Cydia pomonella* (*Malus pumila* and artificial diet) and *Grapholita molesta* (*Malus pumila* and artificial diet) (Bustos *et al.*, 2004; Gould and von Windeguth, 1991; Hallman, 2004a, b, 2013; Hallman and Martinez, 2001; Hallman *et al.*, 2010; Jessup *et al.*, 1992; Mansour, 2003; Tuncbilek and Kansu, 1996; 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.

[46]References

[47]The present annex may refer to ISPMs. ISPMs are available on the International Phytosanitary Portal (IPP) at <https://www.ippc.int/core-activities/standards-setting/ispms>.

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- [61]**Zhan, G.P., Shao, Y., Yu, Q., Xu, L., Liu, B., Wang, Y.J. & Wang, Q.L.** 2016. Phytosanitary irradiation of Jack Beardsley mealybug (Hemiptera: Pseudococcidae) females on rambutan (Sapindales: Sapindaceae) fruits. *Florida Entomologist*, 99 (Special issue 2): 114–120.