DRAFT ANNEX TO ISPM 28: Irradiation treatment for *Frankliniella occidentalis*   
(2017- 019)

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| **Status box** | |
| This is not an official part of the standard and it will be modified by the IPPC Secretariat after adoption. | |
| **Date of this document** | 2019-02-20 |
| **Document category** | Draft annex to ISPM 28 |
| **Current document stage** | *To* 2024-06 TPPTmeeting |
| **Major stages** | 2017-06 Treatment submitted in response to 2017-02 Call for treatments.  2018-03 TPPT reviewed submission (virtual meeting) and requested additional information (2018-07).  2018-05 SC added topic *Irradiation treatment for Frankliniella occidentalis* on all fresh commodities(2017-019)to the TPPT work programme with priority 3.  2018-08 Submitter supplied additional information.  2019-02 TPPT reviewed additional information (virtual meeting).  2021-07 TPPT checked status (virtual meeting).  2024-05 Submitter provided update information  2024-06 TPPT reviewed treatment |
| **Treatment Lead** | 2017-07 Mr Toshiyuki DOHINO (JP) |
| **Notes** | 2019-02 TPPT Title changed to *Irradiation treatment for Frankliniella occidentalis* (2017-019) |

Scope of the treatment

This treatment describes the irradiation of all fresh commodities such as fruits, vegetables and cut flowers at 279 Gy minimum absorbed dose to prevent the reproduction of adults of *Frankliniella occidentalis* at the stated efficacy.[[1]](#footnote-2).

Treatment description

**Name of treatment** Irradiation treatment for *Frankliniella occidentalis*

**Active ingredient** n/a

**Treatment type** Irradiation

**Target pest** *Frankliniella occidentalis* (Pergande, 1895) (Thysanoptera: Thripidae)

**Target regulated articles** All fresh commodities that are hosts of *Frankliniella occidentalis*

Treatment schedule

Minimum absorbed dose of 279 Gy to prevent the reproduction of adult females of *Frankliniella occidentalis* when irradiated as all stages.

There is 95% confidence that the treatment according to this schedule prevents the reproduction of not less than 99.9407% (from total number of adults (= the most tolerant stage): 5050) (99.9662% from total number of immatures and adults: 8850) of adult of *Frankliniella occidentalis*.

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

This irradiation treatment should not be applied to fresh commodities stored in modified atmospheres because modified atmospheres may affect the treatment efficacy.

Other relevant information

Since irradiation may not result in outright mortality, inspectors may encounter live, but non-viable *Frankliniella occidentalis* (immatures or adults) during the inspection process. This does not imply a failure of the treatment.

The Technical Panel on Phytosanitary Treatments based its evaluation of this treatment on the research reported by Nicholas and Follett (2018).

The efficacy of this schedule was calculated based on a total of 5050 adults or … a total of 8850 individuals (immatures and adults) ...treated with no F1 egg hatch.

Very little data is available for other members of the Thripidae and all papers are listed in the References. These data supports this schedule.

References

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>.

**Araya, J.E., Curkovic, T. & Zarate, H.** 2007. Mortality of *Frankliniella occidentalis* (Pergande) (Thysanoptera: Thripidae) by gamma irradiation. *Agricultura Tecnica (Chile)*, 67(2): 196−200.

**Bhuiya, A.D., Majumder, M.Z.R., Harar, G., Shahjahan, R.M. & Khan, M.** 1999. Irradiation as a quarantine treatment of cut flowers and turmeric against mites, thrips and nematodes. *In* Final research co-ordination meeting on irradiation as a quarantine treatment of arthropod pests. Honolulu, HI (United States), 3-7 November 1997. Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture. Vienna (Austria). Irradiation as a quarantine treatment of arthropod pests. IAEA TECDEC Series 1082. 57–65.

**Dohino, T., Tanabe, K., Masaki, S. & Hayashi, T.** 1996. Effects of electron beam irradiation on *Thrips palmi* Karny and *Thrips tabaci* Lindeman (Thysanoptera: Thripidae). *Research Bulletin of the Plant Protection Service Japan*, 32: 23−29.

**Hayashi, T., Todoriki, S., Nakakita, H., Dohino, T. & Tanabe, K.** 1999. Effectiveness of electron beam irradiation as a quarantine treatment of cut flowers *In* Final research co-ordination meeting on irradiation as a quarantine treatment of arthropod pests. Honolulu, HI (United States), 3-7 November 1997. Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture. Vienna (Austria). Irradiation as a quarantine treatment of arthropod pests. IAEA TECDEC Series 1082. 49–55.

**Koo, H.N., Yun, S.H., Kim, H.J., Kim, H.K. & Kim, G.H.** 2017. X-ray irradiation control of *Frankliniella intonsa* (Thysanoptera: Thripidae) in the exportation of freshly cut lily flowers. *Journal of Economic Entomology*, 110: 416−420.

**Nicholas, A.H. & Follett, P.** 2018. Postharvest irradiation treatment for quarantine control of Western flower trips (Thysanoptera: Thripidae). *Journal of Economic Entomology*, 111: 1185−1189.

**Nicholas, A.H., Lidbetter, F., Eagleton, F., Spohr, L., Harris, A. & Barchia, I.** 2018. Effects of gamma radiation on the survival of four species of thrips (Thysanoptera: Thripidae). *Austral Entomology*, doi: 10.1111/aen.12348.

**Yalemar, J., Hara, A.H., Saul, S.H., Jang, E.B. & Moy, J.H.** 2001. Effects of gamma irradiation on the life stages of yellow flower thrips, *Frankliniella schultzei* (Trybom) (Thysanoptera: Thripidae). *Annals of Applied Biology*, 138: 263−268.

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. [↑](#footnote-ref-2)