DRAFT ANNEX TO ISPM 28: Cold treatment for *Ceratitis capitata* on *Vitis vinifera* (2017-023A)

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	2020-11-30
Document category	Draft annex to ISPM 28
Current document stage	*To* CPM-15 (2021) for adoption
Major stages	2017-06 Treatment submitted in response to 2017-02 call for treatments (*Cold treatment of Australian Table grapes against Mediterranean fruit fly and Queensland fruit fly*). 2017-07 Technical Panel on Phytosanitary Treatments (TPPT) reviewed the submission. 2018-05 SC added the topic *Cold treatment of* Ceratitis capitata *on table grapes* (2017-023A) to the TPPT work programme with priority 1. 2018-06 TPPT revised the draft and recommended it to SC for consultation. 2018-11 TPPT final review via e-forum (2018_eTPPT_Oct_01). 2019-03 SC approved the draft for consultation via e-decision (2019_eSC_May_10). 2019-07 First consultation. 2020-02 TPPT reviewed the responses to consultation comments and the draft and recommended it to the SC for approval for second consultation. 2020-03 TPPT finalized the responses to consultation comments via e-forum (2020_eTPPT_Feb_01). 2020-04 SC approved the responses to comments and the draft for second consultation via e-decision (2020_eSC_May_15). 2020-07 Second consultation. 2020-11 TPPT meeting reviewed and recommended to the SC for approval for adoption by the CPM.
Treatment Lead	2017-07 Toshiyuki DOHINO (JP)
Notes	2018-07 Edited 2018-12 TPPT discussed whether to add schedule of 1 °C for 14 days 2019-02 TPPT decided not to add a schedule of 1 °C for 14 days as there were no data available that would sufficiently support it 2020-11 Edited

Scope of the treatment

This treatment describes the cold treatment of fruit of *Vitis vinifera* (table grapes) to result in the mortality of eggs and larvae of *Ceratitis capitata* at the stated efficacy.[1]

Treatment description

Name of treatment	Cold treatment for *Ceratitis capitata* on *Vitis vinifera*
Active ingredient	n/a
Treatment type	Physical (cold)
Target pest	*Ceratitis capitata* (Wiedemann, 1824) (Diptera: Tephritidae)
Target regulated articles	Fruit of *Vitis vinifera* (table grapes)

Treatment schedules

Schedule 1: 1 °C or below for 16 continuous days

There is 95% confidence that the treatment according to this schedule kills not less than 99.9987% of eggs and larvae of *Ceratitis capitata.*

Schedule 2: 2 °C or below for 18 continuous days

There is 95% confidence that the treatment according to this schedule kills not less than 99.9987% of eggs and larvae of *Ceratitis capitata.*

Schedule 3: 3 °C or below for 20 continuous days

There is 95% confidence that the treatment according to this schedule kills not less than 99.9986% of eggs and larvae of *Ceratitis capitata.*

For all three schedules, the fruit must reach the treatment temperature before treatment exposure time commences. The fruit core temperature should be monitored and recorded, and the temperature should not exceed the stated level throughout the duration of the treatment.

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[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.

This treatment should be applied in accordance with the requirements of ISPM 42 (*Requirements for the use of temperature treatments as phytosanitary measures*).

Other relevant information

In evaluating this treatment, the Technical Panel on Phytosanitary Treatments (TPPT) considered issues associated with temperature regimes and thermal conditioning, taking into account the work of Hallman and Mangan (1997).

The efficacy of the schedules was calculated based on the following estimated numbers of treated larvae with no survivors: 223 523 for schedule 1, 227 190 for schedule 2 and 217 881 for schedule 3.

Schedules 1, 2 and 3 were based on the work of De Lima (2007) and De Lima *et al.* (2011) and were developed using the cultivars 'Red Globe', 'Crimson Seedless' and 'Thompson Seedless', and using failure to pupariate as the measure of mortality.

The TPPT also considered De Lima *et al* (2017).

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.

De Lima, C.P.F. 2007. *Cold treatment at 1 °C, 2 ° C and 3 °C of Australian table grapes (*Vitis vinifera *L.) infested with eggs and larvae of the Mediterranean fruit fly* Ceratitis capitata *(Wiedemann) Diptera: Tephritidae*. South Perth, Australia, Department of Agriculture and Food Western Australia. 126 pp.

De Lima, C.P.F., Jessup, A.J., Mansfield, E.R. & Daniels, D. 2011. Cold treatment of table grapes infested with Mediterranean fruit fly *Ceratitis capitata* (Wiedemann) and Queensland fruit fly *Bactrocera tryoni* (Froggatt) Diptera: Tephritidae. *New Zealand Journal of Crop and Horticultural Science*, 39 (2): 95–105.

De Lima C.P.F., Mansfield E.R. & Poogoda S.R. 2017. International market access for Australian tablegrapes through cold treatment of fruit flies with a review of methods, models and data for fresh fruit disinfestation. *Australian Journal of Grape and Wine Research*, 23: 306–317.

Hallman, G.J. & Mangan, R.L. 1997. Concerns with temperature quarantine treatment research. *In* G.L. Obenauf, ed. *Proceedings of the Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reduction*. San Diego, USA, 3–5 November 1997, pp. 79-1–79-4.