This phytosanitary treatment was adopted by the [X] Session of the Commission on Phytosanitary Measures in 201[X].
The annex is a prescriptive part of ISPM 28.

**ISPM 28**
**Annex X**

# INTERNATIONAL STANDARDS FOR PHYTOSANITARY MEASURES

# ISPM 28 PHYTOSANITARY TREATMENTS

# PT [X]: Cold treatment for *Ceratitis capitata* on *Citrus paradisi* (2007-210)

# (201[X])

| **Status box** | |
|---|---|
| *This is not an official part of the annex to the standard and it will be modified by the IPPC Secretariat after adoption.* | |
| **Date of this document** | 2016-11-28 |
| **Document category** | Draft annex to ISPM 28 |
| **Current document stage** | *To* CPM for adoption |
| **Major stages** | 2007-09 Treatment submitted<br>2007-12 TPPT meeting revised draft *Cold treatment of* Citrus paradisi *for* Ceratitis capitata<br>2008-04 CPM-3 added subject under the topic *Fruit fly treatments*<br>2008-09 SC approved for member consultation via e-decision<br>2009-06 Sent for member consultation<br>2010-07 TPPT meeting revised draft and recommended to SC for adoption<br>2011-11 SC recommended to CPM-7 for adoption<br>2012-03 Treatment received formal objections<br>2012-09 TPPT virtual meeting drafted response to formal objections (no revision recommended with formal objections)<br>2012-12 TPPT meeting reviewed draft (no changes made) and recommended to SC for adoption<br>2013-06 SC recommended to CPM-9 for adoption<br>2014-04 Treatment received formal objections before CPM-9 |

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| | 2014-06 TPPT revised draft<br>2014-09 TPPT responded to some formal objections<br>2015-11 SC assigned the status “pending”<br>2016-09 TPPT meeting (TPPT agreed that there are no fruit fly population differences in relation to cold treatment and no varietal/cultivar effects)<br>2016-09 TPPT recommended to SC for adoption<br>2016-11 SC recommended to CPM-12 for adoption via e-decision (2016_eSC_Nov_08) |
| **Treatment Lead** | 2010-11 SC: Mr Antarjo DIKIN (ID)<br>2012-12 TPPT: Mr Scott WOOD (US)<br>2012-12 TPPT: Mr Patrick GOMES (US)<br>2016-07 TPPT: Mr Daojian YU (CN)<br>2016-07 Mr Scott MYERS (US, Assistant Treatment Lead) |
| **Notes** | 2008-09 TPPT e-mail discussion<br>2010-10 TPPT e-mail discussion<br>2011-08 Formatted in basic template<br>2012-01 Formatted in CPM template and translated for CPM-7<br>2013-01 TPPT finalized response to formal objections<br>2013-05 Reformatted in new basic template<br>2013-09 Secretariat sent for editing before CPM-9<br>2016-11 Edited |

## Scope of the treatment

*[1]* This treatment describes the cold treatment of fruit of *Citrus paradisi*[1] to result in the mortality of eggs and larvae of *Ceratitis capitata* at the stated efficacy[2].

## Treatment description

*[2]* **Name of treatment** Cold treatment for *Ceratitis capitata* on *Citrus paradisi*

*[3]* **Active ingredient** N/A

*[4]* **Treatment type** Physical (cold)

*[5]* **Target pest** *Ceratitis capitata* (Wiedemann, 1824) (Diptera: Tephritidae)

*[6]* **Target regulated articles** Fruit of *Citrus paradisi*

## Treatment schedule

**Schedule 1: 2 °C or below for 19 continuous days**

[1] *Citrus* species and hybrids are named according to the nomenclature in Cottin, R. 2002. *Citrus of the world: A citrus directory* version 2.0. France, SRA INRA-CIRAD.

[2] 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.

[7] There is 95% confidence that the treatment according to this schedule kills not less than 99.9917% of eggs and larvae of *Ceratitis capitata.*

**Schedule 2: 3 °C or below for 23 continuous days**

[8] There is 95% confidence that the treatment according to this schedule kills not less than 99.9916% of eggs and larvae of *Ceratitis capitata.*

[9] The fruit must reach the treatment temperature before treatment exposure time commences. The fruit temperature should be monitored and recorded, and the temperature should not exceed the stated level throughout the duration of the treatment.

## Other relevant information

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

[11] Schedules 1 and 2 were based on the work of Anonymous (2007a, 2007b), Gastaminza *et al.* (2007) and Willink *et al.* (2007), using larval mortality.

[12] Schedule 1 was developed using the cultivars "Marsh Seedless", "Star Ruby", "Henninger's Ruby" and "Rouge la Toma".

[13] Schedule 2 was developed using the cultivar "Henninger's Ruby".

## References

[14] The present annex to the standard may refer to international standards for phytosanitary measures (ISPMs). ISPMs are available on the International Phytosanitary Portal (IPP) at https://www.ippc.int/core-activities/standards-setting/ispms.

[15] **Anonymous.** 2007a. Technical Panel on Phytosanitary Treatments – 110a. Quarantine cold treatment of grapefruit for medfly (*Ceratitis capitata* Wied). Document provided by the National Plant Protection Organization of Argentina.

[16] **Anonymous.** 2007b. Technical Panel on Phytosanitary Treatments – 111a. Quarantine cold treatment of grapefruit for medfly (*Ceratitis capitata* Wied). Document provided by the National Plant Protection Organization of Argentina.

[17] **Gastaminza, G., Willink, E., Gramajo, M.C., Salvatore, A., Villagrán, M.E., Carrizo, B., Macián, A., Avila, R., Favre, P., Toledo, S., García Degano, M.F., Socias, M.G. & Oviedo, A.** 2007. Tratamientos con frío para el control de *Ceratitis capitata* y *Anastrepha fraterculus* para la exportación de cítricos. *In* Moscas de los frutos y su relevancia cuarentenaria en la citricultura del Noroeste Argentino: once años de investigaciones 1996–2007. E. Willink, G. Gastaminza, L. Augier & B. Stein, eds. Centro de Investigaciones Cuarentenarias, Sección Zoología Agrícola, Estación Experimental Agroindustrial Obispo Colombres, Las Talitas, Tucumán, Argentina. Available at http://www.eeaoc.org.ar (last accessed 1 September 2016).

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

[19] **Willink, E., Gastaminza, G., Gramajo, M.C., Salvatore, A., Villagrán, M.E., Carrizo, B., Macián, A., Avila, R. & Favre, P.** 2007. Estudios básicos para el desarrollo de tratamientos cuarentenarios con frío para *Ceratitis capitata* y *Anastrepha fraterculus* en cítricos de Argentina. *In* Moscas de los frutos y su relevancia cuarentenaria en la citricultura del Noroeste Argentino: once años de investigaciones 1996–2007. E. Willink, G. Gastaminza, L. Augier & B. Stein, eds. Centro de Investigaciones

Cuarentenarias, Sección Zoología Agrícola, Estación Experimental Agroindustrial Obispo Colombres, Las Talitas, Tucumán, Argentina. Available at http://www.eeaoc.org.ar (last accessed 1 September 2016).