**2010-102: Draft Annex to ISPM 28 - Cold treatment for *Ceratitis capitata* on *Citrus clementina* (2010-102)**

| **Comm. no.** | **Para. no.** | **Comment type** | **Comment** | **Explanation** | **Country** | **SC Responses** |
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| 1.  | *G*  | Substantive  | I support the document as it is and I have no comments |  | Lao People's Democratic Republic, Canada, Georgia, Thailand, Nepal, Barbados, Dominica, New Zealand, Korea, Republic of, Ghana, Belize, Australia  | **Noted** |
| 1.  | *G*  | Substantive  | I support the document as it is and I have no comments |  | Burundi, Gabon  | **Noted** |
| 3.  | *G*  | Substantive  | Suggest  to set  specific operational procedures firstly taking example of  the irradiation treatments and then draft the standards as annex.  | The specific operational procedures should be established as soon as possible, otherwise it can't provide guidance. | China  | **Considered, but not incorporated**This is an operational requirement and not part of the schedule. Pre-cooling, temperature monitoring and recording are important operational issues, and they will be addressed in the specification for the draft standard on *Requirements for the use of temperature treatments as a phytosanitary measure* (2014-005). This operational ISPM will enhance the implementation of the treatment schedules but the schedules are not dependent on them (if the schedule is met, then the treatment will work).  |
| 4.  | *G*  | Substantive  | Cold treatments shoulod be put on hold to be revised only when the formal objection on treatments schedules presented at CPM 9 have been resolved. | Cold treatments should be put on hold to be revised only when the formal objections on treatment schedules presented at CPM 9 have been resolved. | COSAVE, Uruguay, Chile, Brazil, Peru, Argentina  | **NOTED.** The TPPT has considered the pending issues. The TPPT agreed that there were no differences in cold tolerance between populations of *Ceratitis capitata* from different regions of the world, and that there is no evidence of differences between varieties tolerance to cold in citrus species. |
| 5.  | *G*  | Substantive  | ﻿Japan appreciates and supports development of phytosanitary treatments as international standards that can be used by a wide range of countries. With the understanding that the standard treatments should meet the requirements described in section 3 of ISPM 28, especially versatility of the treatment e.g. application should be applicable to a wide range of countries. Therefore, the proposed treatment schedule needs to be reviewed and velified taking into account the possible variation in cold tolerance of fruit fly population in different regions. In this context, available research data supporting existing treatment schedules should be collected from countries where *C. capitata ﻿*is present in order to verify if the proposed treatment schedule achieves the stated efficacy in a wide range of countries. For this purpose, Japan is willing to provide the IPPC Secretariat with available research data which were submitted by exporting countries, subject to the approval of these countries. ﻿﻿﻿ | According to the research data by Santaballa et al. (2009) in Spain which was referred to the proposed schedule (2°C or below for 16 continuous days)(2010-102), viable larvae (third instar) were found on Day 12 under the condition of 2±0.5°C. On the other hand, research data submitted by the other country to Japan showed that a viable larva (third instar) was found on Day 14 under the same temperature. These researches suggest possible regional differences in fruit fly populations in terms of cold tolerance.  | Japan  | Considered, but not incorporated.The TPPT agreed that there were no differences in cold tolerance between populations of *Ceratitis capitata* from different regions of the world, and that there is no evidence of differences between varieties tolerance to cold in citrus species. |
| 6.  | *G*  | Substantive  | The frequency of temperature monitoring should be specified | For better implementation of the standard | OIRSA  | **Considered, but not incorporated**This is an operational requirement and not part of the schedule. Pre-cooling, temperature monitoring and recording are important operational issues, and they will be addressed in the specification for the draft standard on *Requirements for the use of temperature treatments as a phytosanitary measure* (2014-005). This operational ISPM will enhance the implementation of the treatment schedules but the schedules are not dependent on them (if the schedule is met, then the treatment will work).  |
| 7.  | *G*  | Technical  | Disagree to adopt the draft annex for the conditions for adopting are not perfectly satisfied. | 1.High security of phytosanitary treatment requires a large number of studies and test data. The standard is based on only 1 reference, which can hardly support the cold treatment standard. 2.The study of the reference by Santaballa E. et al (2009)in the standard demonstrates a treatment schedule of 2℃ or below for 16 continuous days. The study of the cold treatment for Ceratitis capitata on Citrus sinensis by De Lima et al. (2007) demonstrates a treatment schedule of “2 ℃ or below for 18 continuous days”, while the study by Willink et al. (2007) supports the schedule of “2 ℃ or below for 21 continuous days”, which indicates that there could be a big difference of low temperature tolerance between different geographical populations of Ceratitis capitata. And hence it may incur high phytosanitary risk that the draft standard extrapolates the study findings from a specific geographical population of Ceratitis capitata to all the populations of the species worldwide. 3.Pre-cooling before treatment, temperature monitoring and recording during the treatment have a direct influence on the efficiency. The draft standard sets only the temperature and duration requirements for the treatment without illustrating the approach to meeting such requirements. Some important operational requirements such as temperature monitoring and recording are not addressed in the draft at all. Should the draft standard be approved, the ambiguous and incomplete operational requirements could render the treatment invalid. Considering the wide application and significant influence of the cold treatment worldwide, it is recommended that taking the example of setting the series of irradiation treatment standards, an comprehensive operational standard similar to < Gidelines for the Use of Irradiation as a Phytosanitary Measure> (ISPM 18) be set in advance to standardize the operational requirements including pre-cooling, temperature monitoring and recording, and then proceed to specific cold treatment measures. 4.There is no scientific basis to reflect the difference of the different variety Citrus. | China  | **Considered but not incorporated**1. The TPPT discussed the objections and agreed that one paper comprising a number of studies is enough to support the treatment if it provides sufficient evidence of the treatment efficacy and meets the requirements stated in ISPM 28:2007 (Phytosanitary treatments for regulated pests). 2. Agreed.3. The TPPT agreed that reference to pre-cooling should be taken out of the draft treatments because it is an operational requirement and not part of the schedule. Pre-cooling, temperature monitoring and recording are important operational issues, and they will be addressed in the specification for the draft standard on *Requirements for the use of temperature treatments as a phytosanitary measure* (2014-005). This operational ISPM will enhance the implementation of the treatment schedules but the schedules are not dependent on them (if the schedule is met, then the treatment will work).  **4**. With reference to ISPM 28:2007 section 3.2.1, other cultivars should be taken into consideration only when there is evidence that varietal differences may impact treatment efficacy. |
| 8.  | *G*  | Technical  |  | The USA recommends that this treatment not be approved by the IPPC. Our concerns involve infestation of the fruit and the condition of the fruit fly colony used during this research, as follows: 1. Colony replenishment. It is important that test populations accurately represent wild insect populations. Therefore, regular replenishment of the colony with field-collected individuals is a critical component of phytosanitary treatment research. While Santaballa et al. (2009) stated that replenishment occurred periodically, few additional details (e.g., frequency, methodology) were provided. 2. Chemical treatment of study fruit. Fruit were treated with mineral oil and Malathion 50 at 0.2% five months before harvest, as well as receiving post-harvest fungicide and waxing treatments. No information was presented showing that these treatments have no effect on the fitness or survivability of Ceratitis capitata. The use of chemicals adds an additional, uncontrolled variable into the study. This is particularly concerning given the high control mortality rates observed in this study. 3. High control mortality. Based on the inoculation rate of the clementines, it appears that control mortality rates exceeded 90% in some replicates. While we recognize that this may partially be the result of the high inoculation rate of eggs into the clementines (i.e., 200 eggs/fruit), we are concerned that the colony used in this work may be the same colony used by Santaballa et al. (1995). In this latter paper, the survival rate of eggs to adults was only 53% in diet. 4. Artificial infestation. Santaballa et al. (2009) infested the commodity via artificial inoculation. However, they presented no information comparing the cold tolerance of Mediterranean fruit fly in artificially-infested clementines with naturally-infested clementines. The USA reviewed Santaballa et al. (2009) and an unpublished technical report outlining the same research in May 2012 at the request of Spain. We determined that there is uncertainty with regards to this research and it was not approved by USDA at that time. Since then, Spain has decided to proceed with a new cold treatment research project for Mediterranean fruit fly in clementines. The USDA and Spain finalized the research protocol for this project in November 2013 and research should be commencing this year. Therefore, it may be better for the IPPC to wait on approving a Spanish cold treatment for Mediterranean fruit fly in clementines until the new research has been completed. Literature Cited: Santaballa, E., R. Laborda, and M. Cerda. 2009. Quarantine cold treatment against Ceratitis capitata (Wiedemann) (Diptera: Tephritidae) to export clementine mandarins to Japan. Bol. San. Veg. Plagas 35: 501-512. Santaballa, E., R. Laborda, and A. Dalmau. 1995. Report of quarantine cold treatment to control Ceratitis capitata (Wied) to export oranges to Japan. Technical report. | United States of America  | **Considered but not incorporated.** Point 1.TPPT reviewed the information provided by the submitter, saying the laboratory strain was periodically inoculated with wild pupae, which seemed appropriate for the Panel (TPPT Report 2012-Nagoya). 2. After 5 months, Malathion and mineral oil residues, as well as post harvest treatments should not affect survival of the medfly in the fruit, even more if the eggs are introduced inside the fruit. 3. Agreed that high mortality in controls can be due to high inoculation rates, among other things, but the TPPT had confidence that the colony was adequate.4. Although naturally infested fruit is always better, artificial inoculation has been accepted by many countries, and in this case, the infestation was done according to TPPT criteria.  |
| 9.  | *1*  | Editorial  | **Draft Annex to ISPM 28:2007: Cold treatment for *Ceratitis capitata* on *Citrus CLEMENTINA* clementina var. *clemenules* (2010-102)** | Name of species should be in small caps. | Singapore  | **Considered, but not incorporated**Agreed, but the correct way is as considered in point 10. |
| 10.  | *1*  | Editorial  | **Draft Annex to ISPM 28:2007: Cold treatment for *Ceratitis capitata* on *Citrus clementinaCLEMENTINA* var. Clemenules ﻿*﻿clemenules* (2010-102)** | 1) Name of the species not in capitals. 2) "Clemenules" with a capital and not in italics if it is a cultivar name. | EPPO, European Union, Georgia, Serbia, Morocco  | **Incorporated / Modified** |
| 11.  | *1*  | Editorial  | **Draft Annex to ISPM 28:2007: Cold treatment for *Ceratitis capitata* on *Citrus clementinaCLEMENTINA* var. *clemenules* (2010-102)** | Edit | United States of America, Mexico  | **Considered, but not incorporated**Agreed, but the correct way is as considered in point 10. |
| 12.  | *1*  | Translation  | **Draft Annex to ISPM 28:2007: Cold treatment for *Ceratitis capitata* on *Citrus CLEMENTINA* var. *clemenules* (2010-102)** | "Cold treatment for Ceratitis capitata" should be translated into Spanish as "Tratamiento con frío contra Ceratitis capitata" | OIRSA  | **Noted.** The Secretariat will forward to FAO translation services |
| 13.  | *2*  | Editorial  |

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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** | 2014-04-23 |
| **Document category** | Draft Annex XX to ISPM 28:2007 |
| **Current document stage** | 2014-04 SC approved for MC |
| **Major stages** | 2010 Cold treatment for *Ceratitis capitata* on *Citrus clementina* var. c*Clemenules* Treatment submitted2010-07 TPPT reviewed treatment and requested additional information2012-05 TPPT received additional information2012-12 TPPT requested additional information 2013-02 TPPT sent letter to Submitter through Secretariat2013-05 Submitter responded2013-07 TPPT recommended to SC for MC only for var. *Clemenules*2013-09 TPPT approved treatment schedule (virtual meeting) 2014-02 SC e-decision for approval for MC2014-03 Secretariat applied changes suggested by forum and opened poll2014-03 SC approved draft treatment for MC via poll |
| **Treatment lead** | 2010-11 Mr Antarjo DIKIN (ID)2012-05 Mr Ray CANNON (UK)2012-12 Mr Andrew JESSUP (AU) |
| **Secretariat notes** | 2013-09 Secretariat started using previously revised footnote regarding treatment adoption2014-04 Editor edited text  |

 | Variety names should not be capitalized. Global change. | United States of America  | **Considered, but not incorporated.** According to The International Code of Nomenclature for Cultivated Plants (ICNCP), also known as the Cultivated Plant Code, variety name should be capitalized.  |
| 14.  | *4*  | Editorial  | This treatment comprises the cold treatment of fruit of *Citrus clementina* var. *Cclemenules*1 to result in the mortality of eggs and larvae (all ages) of *Ceratitis capitata* (Mediterranean fruit fly) at the stated efficacy2. | Edit. The Secretariat should ensure that all treatments not include the common name because common names are varied across regions and across languages. In addition, common names have not been included in adopted standards. | United States of America  | **Considered, but not incorporated.** According to The International Code of Nomenclature for Cultivated Plants (ICNCP), also known as the Cultivated Plant Code, variety name should be capitalized.**Incorporated.**Avoiding common names. |
| 15.  | *4*  | Technical  | This treatment comprises the cold treatment of fruit of *Citrus clementina* var. *Clemenules*1 to result in the mortality of eggs and larvae (all instarsages) of *Ceratitis capitata* (Mediterranean fruit fly) at the stated efficacy2. | More technically correct | United States of America, Mexico  | **Incorporated.** |
| 16.  | *4*  | Translation  | This treatment comprises the cold treatment of fruit of *Citrus clementina* var. *Clemenules*1 to result in the mortality of eggs and larvae (all ages) of *Ceratitis capitata* (Mediterranean fruit fly) at the stated efficacy2.  | "This treatment comprises the cold treatment of fruit of Citrus clementina var. Clemenules to result in the mortality of eggs and larvae (all ages) of Ceratitis capitata (Mediterranean fruit fly) at the stated efficacy." should be translated into Spanish as "Este tratamiento consiste en el tratamiento con frío a frutos de Citrus clementina var. Clemenules para provocar la mortalidad de los huevos y larvas (de todas las edades) de Ceratitis capitata (mosca mediterránea de la fruta) con la eficacia indicada." | OIRSA  | **Noted.** The Secretariat will forward to FAO translation services |
| 17.  | *6*  | Editorial  | **Name of treatment** Cold treatment for *Ceratitis capitata* on*Citrus clementina* var. *Cclemenules* | Edit | United States of America  | **Considered, but not incorporated.** According to The International Code of Nomenclature for Cultivated Plants (ICNCP), also known as the Cultivated Plant Code, variety name should be capitalized |
| 18.  | *6*  | Translation  | **Name of treatment** Cold treatment for *Ceratitis capitata* on *Citrus clementina* var. *Clemenules*  | "Cold treatment for Ceratitis capitata" should be translated into Spanish as "Tratamiento con frío contra Ceratitis capitata" | OIRSA  | **Noted.** The Secretariat will forward to FAO translation services |
| 19.  | *9*  | Editorial  | **Target pest** *Ceratitis capitata* (Wiedemann)(Diptera: Tephritidae)(Mediterranean fruit fly) | Common name already given in paragraph [4]. | EPPO, European Union, Georgia, Serbia, Morocco  | **Incorporated.** |
| 20.  | *9*  | Editorial  | **Target pest** *Ceratitis capitata* (Wiedemann)(Diptera: Tephritidae)(Mediterranean fruit fly) | Ensure that the Secretariat make these draft standards consistent with adopted standards (i.e. Species name, author, family/order information, no common name listed) | United States of America  | **Incorporated.** |
| 21.  | *10*  | Editorial  | **Target regulated articles** Fruit of *Citrus clementina* Hhort. ex Tanaka (Clemenules) | According to Cottin 2002, ‘Hort ‘should be changed to ‘hort’ | EPPO, European Union, Georgia, Serbia, Morocco  | **Considered, but not incorporated.**According to Cottin, R. (2002). Hort must be capitalized. |
| 22.  | *10*  | Editorial  | **Target regulated articles** Fruit of *Citrus clementina* Hort. ex Tanaka (cClemenules) | Edit | United States of America  | **Considered, but not incorporated.** According to The International Code of Nomenclature for Cultivated Plants (ICNCP), also known as the Cultivated Plant Code, variety name should be capitalized |
| 23.  | *13*  | Editorial  | The efficacy is effective dose (ED)99.9906 at the 95% confidence level.  | Not sure to fully understand this traditional sentence in PTs. | EPPO, Georgia, Serbia, Morocco  | **Considered, but not incorporated.**This sentence is being changed to: For *Citrus clementina* var. C*lemenules* there is 95% confidence that the treatment according to this schedule kills not less than 99.9906 of eggs and larvae of *Ceratitis capitata*. |
| 24.  | *13*  | Translation  | The efficacy is effective dose (ED)99.9906 at the 95% confidence level. | "The efficacy is effective dose (ED)99.9906 at the 95% confidence level" should be translated as "La eficacia es: dosis efectiva (DE)99.9906 a un nivel de confianza de 95%." | OIRSA  | **Noted.** The Secretariat will forward to FAO translation services |
| 25.  | *16*  | Technical  | Pre-cooling of the commodity to treatment temperature mustmay be required. | To align this para with para [14] where it states the fruit must reach the treatment temperature before the treatment starts. | United States of America  | **Considered, but not incorporated.**TPPT considers that this paragraph has to be excluded. |
| 26.  | *17*  | Editorial  | In evaluating this treatment the Technical Panel on Phytosanitary Treatments (TPPT) Considered, but not incorporated the technical justification for extending the treatment for all *Citrus reticulatae* varieties and hybrids as originally submitted but recommended including only the one variety, “Clemenules”, based on the work presented in Santaballa *et al.* (2009). | Spelling mistake (should be reticulata) | EPPO, European Union, Georgia, Serbia, Morocco  | **Incorporated.** |
| 27.  | *19*  | Editorial  | **Santaballa, E., Laborda, R. & Cerdá, M.** 2009. Quarantine cold treatment against *Ceratitis capitata* (Wiedemann) (Diptera: Tephritidae) to export clementine mandarins to Japan. *Boletín de Sanidad Vegetal Plagas,* 35: 501–512 (in English). | A blank is missing after "Diptera:". | EPPO, European Union, Georgia, Serbia, Morocco  | **Incorporated.** |
| 28.  | *19*  | Technical  | **Santaballa, E., Laborda, R. & Cerdá, M.** 2009. Quarantine cold treatment against *Ceratitis capitata* (Wiedemann) (Diptera:Tephritidae) to export clementine mandarins to Japan. *Boletín de Sanidad Vegetal Plagas,* 35: 501–512 (in English). | The US rejects this research because of use of chemicals and waxes to fruit during and post-harvest; no information on replenishing the colony; no tests on dead rate, 3% survival on diet in the colony; artificial infestation with no comparison to impact. See USA general comments | United States of America  | **Considered, but not incorporated.**Same as Comment 8. |