Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
[1]	G	Substantive	In order to ensure that vapour heat treatments are applied effectively, we request that consideration is given to the development of a generic standard on the use of vapour heat treatment as a phytosanitary measure (analogous ISPM 18 on irradiation treatments).	To provide harmonised guidance on requirements for conducting vapour heat treatments effectively.	EPPO,Russian Federation ,Ukraine ,Morocco ,Uzbekistan
[2]	G	Substantive		The amount of information evaluated by the TPPT is not reflected in the information presented following the format adopted for phytosanitary treatments. Altough references are cited in the document, frequently it is difficult to get them or they are unavailable, not having enough information for the application of the treatment in practice. This is specially important for treatments like this which is not a conventional treatment, where guidance on the application may be needed for NPPos. The draft should explain with more detail the operational procedure of the treatment. This comment should be considered for all the treatments including the treatments already adopted.	Costa Rica ,Nicaragua ,El Salvador
[3]	G	Substantive		The amount of information evaluated by the TPPT is not reflected in the information presented following the format adopted for phytosanitary treatments. Altough references are cited in the document, frequently it is difficult to get them or they are unavailable, not having enough information for the application of the treatment in practice. This is specially important for treatments like this which is not a conventional treatment, where guidance on the application may be needed for NPPOs. This comment should be considered also for other treatments including those already adopted.	Uruguay
[4]	G	Substantive		The amount of information evaluated by the TPPT is not reflected in the information presented following the format adopted for phytosanitary treatments. Although references are cited in the document, frequently it is difficult to get them or they are unavailable, not having enough information for the application of the treatment in practice.	COSAVE,Paraguay ,Argentina ,Chile,Brazil
[5]	G	Substantive	we recommend that this treatment should not be adopted.	We recommend that this treatment be returned to the TPPT for several reasons. Primarily we do not believe that there is sufficient data to support the reported efficacy of this treatment. 1. If the research supporting this ISPM Annex was done correctly, it should not matter what variety this treatment is used on; it would kill at the same internal	United States of America

Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
				temperature no matter the variety. 2. If this ISPM Annex is meant to be self-sufficient than certain questions should be addressed for clarification. For example, where are the probes placed? Should there be more than one load? How is efficacy measured? These are important questions that can make a difference in treatment efficacy. If probes are only placed in the center, the outside material may not reach the needed temperatures. This will not be known unless probes are placed in the extreme areas. 3. There are some concerns regarding the article that was used as the basis for this treatment. -- Naturally infested material was not used. The researchers inoculated the commodity with the insects and then tested the treatment. Insects that are artificially inoculated in the commodity are known to be less hardy. -- The article states that the most tolerant stage was the young eggs. This is contradictory to other work as it is usually the third instar larva that is the most tolerant stage. -- The article states that if the commodity gets up to 47°C it will turn to mush. This treatment will be difficult as the treatment temperature is so close to the temperature at which the commodity is ruined. This will be hard to accomplish with commercial treatments. 4. Paragraph 25 cited two references. One by Iwata et al (1990) and the other by Hallman & Mangan (1997). Are there other references re: vapor heat that should be included in this standard? 5. The research was conducted in 1990 using a limited number of melons (38 treated melons total; 8 to 10 per replicate). No mention was made of large scale confirmatory testing within a chamber or facility to see if the small scale results actually work on an operational scale. How does the small scale treatment of 4 to 5 melons relate to treatment of commercial lots of melons on a large operational scale within a facility or chamber? 6. The annex states a “heat-up time” ranging from 3 to 5 hours, a minimum air temperature of 46 degrees C, a minimum “core” temperature of 45 degrees C, a dwell time of 30 minutes, and ambiente temperatures for cooling method. The annex makes no mention of the need for an approved work plan/compliance agreement, calibration of VH facilities or chambers, specifications for sensory probes (number required, testing, placement), load factors (kg/m3), acceptable deviation (if any) from minimum temperatures and relative humidity, reading interval during approach time, reading interval during dwell time, and what conditions	

Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
				constitute a failed treatment. Should these elements also be included in the annex? If so, should they be part of the protocol under paragraphs 14 through 19 or under other pertinent information cited in paragraphs 20 through 24? 7. The experiments were conducted solely with one particular variety of melon (Earl's favourite) Cucumis melo var. reticulata. Should the use of this treatment be limited solely to this variety of melon or is the data robust enough to apply to any melon type? 8. Iwata et al specifies a range of 44-45 degrees C as the temperature of the melon core. The graph specifies pulp temperature. The type of probe used for the experiments is not mentioned in the methods nor is the actual placement of the probe. What does APHIS require in terms of the type of probe and its placement? 9. Iwata et al tested thermal injuries of melons treated in severe conditions of VH treatment in which the saturated water vapor in air reached 48 degrees C and the core temperature reached 47 degrees C. Treated fruits were held at 30 degrees C instead of 27 degrees C used following a normal treatment. Should the annex mention the adverse effects on fruit quality under "Other pertinent information" paragraphs 20 through 24?	
[6]	G	Substantive		The amount of information evaluated by the TPPT is not reflected in the information presented following the format adopted for phytosanitary treatments. There are other treatments that should be evaluated and should be necessary to describe an operative procedue to be following by the countries because is not a common treatment as methil bromide where you can obtain information in everywhere, in this case this treatment is relativelly new.	Mexico
[7]	G	Substantive	This draft standard need to have verification test. Because the tolerance vaies among different geographic populations.	the tolerance of different geographic population varied. See : 1)Hallman (1994) found that fruit flies reared at a constant 30°C were more tolerant of hot water immersion than those reared at constant lower temperatures. 2)Virgilio, M., Delatte, H., Backeljau, T. & De Meyer, M. 2010. 'Macrogeographic population structuring in the cosmopolitan agricultural pest Bactrocera cucurbitae (Diptera: Tephritidae)'. Molecular Ecology 19: 2713-2724. (PR). 3)Genetic relationships Bactrocera cucurbitae geographic populations Yunnan Province, http://eurekamag.com/research/012/120/genetic-relationships-bactrocera-cucurbitae-geographic-	China

Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
				populations-yunnan-province.php	
[8]	G	Substantive	In order to ensure that vapour heat treatments are applied effectively, the EU and its 27 Member States (hereinafter referred to as the 'EU') request that consideration is given to the development of a generic standard on the use of vapour heat treatment as a phytosanitary measure (analogous ISPM 18 on irradiation treatments).	To provide harmonised guidance on requirements for conducting vapour heat treatments effectively.	European Union
[9]	G	Substantive	The amount of information evaluated by the TPPT is not reflected in the information presented following the format adopted for phytosanitary treatments. Although references are cited in the document, frequently it is difficult to get them or they are unavailable, not having enough information for the application of the treatment in practice. The draft should explain with more detail the operational procedures of the treatment.		OIRSA
[10]	G	Technical	The parameters in standards need to be re-confirmed.	Some technical parameters are questioned because they are obtained from the small scale test. In current commercial treatment for melon fruit fly, the parameters are quite diference. E.g. pre-heating time is 3-5 hours in [15], in commercial case at least 7-8 hours.	China
[11]	3	Translation	**6. Draft ANNEX: Vapour heat treatment of *Cucumis melo* var. *reticulatus* for *Bactrocera cucurbitae*, ISPM 28:2007**	Translate the title to Spanish as follow: "6. PROYECTO DE ANEXO: TRATAMIENTO TÉRMICO CON VAPOR A LA CUCUMIS MELO VAR. RETICULATUS CONTRA BACTROCERA CUCURBITAE, NIMF 28:2007" Explanation: for better understanding	OIRSA
[12]	5	Substantive	Date of this document: 2011-06-20 Document category: Draft new Annex XX to ISPM 28:201- Current document stage: 2011-06 Member consultation Origin: SC added subject:2006-110 under topic:2006-024, Fruit fly treatments	General Comment: A Specific ISPM for VHT as a phytosanitary measure should be developed to provide guideline on the use of VHT prior to the acceptance of this draft annex.	Malaysia

Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
			Major stages: Treatment submitted to TPPT in 2006; Text updated July 2010; Approved by SC E-decision 2011-05 to go for MC Notes: 2011-04 formatted in template. 2011-05-16 formatted for MC. Sent to translation (Fr, Es) 2011-05-16. -		
[13]	7	Substantive	This treatment applies to the vapour heat treatment of *Cucumis melo* var. *reticulatus* (netted melon) fruit to result in the mortality of eggs and larvae of *Bactrocera cucurbitae* (melon fly) at the stated efficacy level1.	Please specify specific larval stage/s used in the experiment.	Philippines
[14]	7	Technical	This treatment ~~applies to the vapour heat treatment of *Cucumis melo* var. *reticulatus* (netted melon) fruit to~~ results in the mortality of eggs and larvae of *Bactrocera cucurbitae* (melon fly) at the stated efficacy level1.	Change “treatment applies to the vapour heat treatment…” to “this treatment results in the mortality of eggs and larvae of Bactrocera cucurbitae (melon fly)…” The beginning of the sentence sounds redundant and should be changed to remove redundancy.	United States of America
[15]	9	Editorial	**Name of treatment** Vapour heat treatment of *Cucumis melo* var. *reticulatus* fruit for *Bactrocera cucurbitae*	In the Spanish version: For a clearer wording, we suggest changing the current preposition: Nombre del Tratamiento: Tratamiento térmico con vapor "DE" fruta Cucumis melo var. reticulatus contra Bactrocera cucurbitae Change the use of the preposition as follows: Nombre del Tratamiento: Tratamiento térmico con vapor "PARA" fruta Cucumis melo var. reticulatus contra Bactrocera cucurbitae	Mexico
[16]	9	Translation	**Name of treatment** Vapour heat treatment of *Cucumis melo* var. *reticulatus* fruit for *Bactrocera cucurbitae*	Translate to Spanish as follow: "Nombre del tratamiento Tratamiento térmico con vapor, a la fruta de Cucumis melo var. reticulatus contra Bactrocera cucurbitae" Explanation: for better understanding	OIRSA
[17]	11	Editorial	**Treatment type** Water Vapour heat	clarity	United States of America
[18]	13	Editorial	**Target regulated articles** Fruit of *Cucumis melo* var. *reticulatus* (~~N~~netted melon)	Consistency with first line of paragraph number 7	EPPO,Russian Federation ,European Union ,Ukraine

Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
					,Morocco ,Uzbekistan
[19]	13	Substantive	**Target regulated articles** Fruit of *Cucumis melo* var. *reticulatus* (Netted melon)	Please verify stage of maturity of the fruit used during the experiment, size, weight and quality considerations.	Philippines
[20]	13	Translation	**Target regulated articles** Fruit of *Cucumis melo* var. *reticulatus* (Netted melon)	Translate to Sapanish as follow: "Artículos reglamentados objeto del tratamiento Fruta de Cucumis melo var. reticulatus (melón cantaloupe)" Accepted term in Spanish	OIRSA
[21]	15	Editorial	This schedule requires a pre-heating time of between 3 to 5 hours using saturated water vapour (of greater than 90% ~~RH~~relative humidity (RH)) at 46 °C to allow the core of the melons to reach the target temperature of 45 °C.	For clarity, use the full term (relative humidity) before the abbreviation (RH)	EPPO,Russian Federation ,Ukraine ,Morocco ,Uzbekistan
[22]	15	Editorial	This schedule requires a pre-heating time of between 3 to 5 hours using saturated water vapour (of greater than 90% RH) at 46 °C to allow the core of the melons to reach the target temperature of 45 °C. Then, expose the melons at 46 °C for 30 minutes.	To avoid redundancy with para 16. Further clarification on 'initial temperature': Initial temperature of the fruits before pre-heating need to be specified as it has an effect over the duration of the pre-heating time.	Malaysia
[23]	15	Editorial	This schedule requires a pre-heating time of between 3 to 5 hours using saturated water vapour (of greater than 90% ~~RH~~relative humidity (RH)) at 46 °C to allow the core of the melons to reach the target temperature of 45 °C.	For clarity, use the full term (relative humidity) before the abbreviation (RH)	European Union
[24]	15	Substantive	This schedule requires a pre-heating time of between 3 to 5 hours using saturated water vapour (of greater than 90% RH) at 46 °C to allow the core* of the melons to reach the target temperature of 45 °C. *" core " means the center of placenta having dense seeds inside of the fruit.	The place for temperature monitored is determined by the structure of fruits. As for melons, it is not the fresh (endocarp) but the placenta. For reference, in case of the vapor heat treatment test for green pepper, the sensor is inserted into the center of the placenta where is the tickest part and seeds concentrate. (see Sugimoto et al., 1983)	Japan
[25]	15	Substantive	This schedule requires a pre-heating time of between 3 to ~~5~~ 8 hours using saturated water vapour (of greater than 90% RH) at 46 °C to allow the core (placenta) of the melons to reach the target temperature of 45 °C. Then expose the melons at 46 °C for 30 minutes.	8 hours: Some VHT facilities need 7-8 hrs pre-heating. Pre-heating time varies, depending on the size of the chamber and pre-treatment temperature. placenta: For clarification Then expose the melons at 46 °C for 30 minutes: For elaboration	Philippines ,Korea, Republic of ,Viet Nam ,India
[26]	15	Substantive	This schedule requires a pre-heating time of between 3 to ~~5~~ 8 hours using saturated water vapour (of greater than 90% RH) at 46 °C to allow the core (placenta) of the melons to reach the target	8 hours: Some VHT facilities need 7-8 hrs pre-heating. Pre-heating time varies, depending on the size of the chamber and pre-treatment temperature. placenta: For clarification Then expose the melons at 46 °C for 30 minutes: For	Thailand

Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
			temperature of 45 °C. Then expose the melons at 46 °C (of greater than 90% RH) for 30 minutes.	elaboration	
[27]	15	Substantive	~~This schedule requires a pre-heating time of between 3 to 5 hours using saturated water vapour (of greater than 90% RH) at 46 °C to allow the core of the melons to reach the target temperature of 45 °C.~~	Shouldn't be a time range—the treatment should start when fruit reaches correct temperature. Need more details--where are the probes placed? Core temperature of which fruit, those in the center of the shipment, in the upper right corner, etc.? Are there multiple probes?	United States of America
[28]	15	Technical	This schedule requires a pre-heating time of between 3 to 5 hours using saturated water vapour (of greater than 90% RH) at 46 °C or above to allow the core of the melons to reach the target temperature of 45 °C.	The size and capability of equipment/facility and the quantity of fruits for the treatment are different between the test treatment and the commercial treatment. (see Hallman & Mangan,1977) Therefore, in the large facility for the commercial treatment, saturated water vapour at 46 oC or above is needed to heat the core of the fruits to 45 oC within the required time.	Japan
[29]	15	Technical	~~This schedule requires a pre-heating time of between 3 to 5 hours using saturated water vapour (of greater than 90% RH) at 46 °C to allow the core of the melons to reach the target temperature of 45 °C~~.This schedule requires a pre-heating time of between 3 7 to 5 8 hours using saturated water vapour (of greater than 90% RH) at 46 °C to allow the core of the melons to reach the target temperature of 45 °C.	According to commercial heat treatment for mango et al and other fruits, at least 7-8 hours are needed for preheating time. the preheating time varies, depending on the size of Chamber and the pre-treatment fruit temperature.	China
[30]	16	Editorial	~~Once the core temperature of the fruit reaches 45 °C, expose the melons at 46 °C using saturated water vapour (of greater than 90% RH) for 30 minutes.~~	To avoid redundancy with para 15.	Malaysia
[31]	16	Editorial	~~Once the core temperature of the fruit reaches 45 °C, expose the melons at 46 °C using saturated water vapour (of greater than 90% RH) for 30 minutes.~~	Avoid redundancy with paragraph 15.	Thailand ,Korea, Republic of ,Viet Nam ,India
[32]	16	Editorial	Once the core temperature of the fruit reaches 45 °C, ~~expose~~ maintain the melons at 46 °C using saturated water vapour (of greater than 90% RH) for 30 minutes.	To clarify and maintain continuity with paragraph 15.	Costa Rica ,Nicaragua ,El Salvador
[33]	16	Editorial	Once the core temperature of the fruit reaches 45 °C, ~~expose~~ mantain the melons at 46 °C using saturated water vapour (of greater than 90% RH) for 30 minutes.	Clearer wording and to be consistent with paragraph 15	Mexico
[34]	16	Editorial	Once the core temperature of the fruit reaches 45 °C, ~~expose~~ maintain the melons at 46 °C using saturated	To clarify and maintain continuity with paragraph 15	OIRSA

Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
			water vapour (of greater than 90% RH) for 30 minutes.		
[35]	16	Substantive	Once the core temperature of the fruit reaches 45 °C, expose the melons at 46 °C using saturated water vapour (of greater than 90% RH) for 30 minutes.	Does this mean that actual treatment (30 minutes) starts only when the fruit pulp temp reaches 45 Deg C and the chamber temp reaches 46 Deg C and the RH is 90% up?	Philippines
[36]	16	Substantive	Once the core temperature of the fruit reaches 45 °C, expose the melons at 46 °C using saturated water vapour (of greater than 90% RH) for 30 minutes. The treatment condition can be set on higher temperature (more than 45 C) but exposure time is shorter (less than 30 minutes). Treatment also consider maturity level and weight of the fruit.		Indonesia
[37]	16	Substantive	Melons should be slowly heated to a core temperature of ~~Once the core temperature of the fruit reaches~~ 45 °C, then ~~,~~ exposed ~~the melons~~ at 46 °C using saturated water vapour (of greater than 90% RH) for 30 minutes.	For clarity	United States of America
[38]	16	Technical	Once the core temperature of the fruit reaches 45 °C, expose the melons at 46 °C or above using saturated water vapour (of greater than 90% RH) for 30 minutes.	as above comment of para 15	Japan
[39]	17	Substantive	This treatment should be followed by cooling at ambient air temperatures. Cooling method by combination of water cooling and followed by air cooling on certain period.		Indonesia
[40]	17	Technical	This treatment must ~~should~~ be followed by cooling at ambient air temperatures.	According to TPPT recommendation, cooling at ambient air temperature is required for good performance of treatment , so "should" should be replaced by "must".	Costa Rica ,Mexico ,Nicaragua ,El Salvador
[41]	17	Technical	This treatment must ~~should~~ be followed by cooling at ambient air temperatures.	According to TPPT recommendation, cooling at ambient air temperature is required for good performance of treatment, so “should” should be replaced by “must”	OIRSA
[42]	18	Editorial	Efficacy and confidence level of the treatment is effective dose (ED) 99.9922at the 95% confidence level.	For clarity, use the full term (effective dose) before abbreviation (ED)	EPPO,Russian Federation ,European Union ,Ukraine ,Morocco ,Uzbekistan
[43]	18	Editorial	Efficacy and confidence level of the treatment is ED99.9922at the 95% confidence level.	Make a statement somewhere in the treatment what ED stands for (effective dose) and how the number was	Yemen ,Oman

Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
				obtained, or a footnote of how it is calculated.	
[44]	18	Technical	Efficacy and confidence level of the treatment is 99.9948~~ED99.9922~~at the 95% confidence level.	According to the reference, Efficacy calculated to be ED99.9948.	Japan
[45]	18	Technical	~~Efficacy and confidence level of the treatment is ED99.9922at the 95% confidence level.~~ Efficacy and confidence level of the treatment is ED99.9922at the 95% confidence level.	The value of ED99.9922 is smaller that ED99.99683, which is more acceptable for members in treatment.	China
[46]	18	Translation	Efficacy and confidence level of the treatment is ED99.9922at the 95% confidence level.	In the spanish version the ED should be DE (dosis efectiva)	Mexico
[47]	18	Translation	Efficacy and confidence level of the treatment is ED99.9922at the 95% confidence level.	Translate to Spanish as follow: "La eficacia y el nivel de confianza del tratamiento es DE99.9922 a un nivel de confianza del 95%." Explanation: acronym used in Spanish	OIRSA
[48]	19	Technical	The commodity temperature and relative humidity should be monitored during treatment and should not fall below the stated level.	Monitoring interval should be mentioned	Malaysia
[49]	19	Technical	The commodity temperature and relative humidity should be monitored during treatment and should not fall below the stated level.	Monitoring interval should be specified.	Japan ,Korea, Republic of ,Viet Nam ,India
[50]	21	Technical	Following treatment, fruit was not artificially cooled.	Seek clarification on why the fruit should not be artificially cooled. Example of artificially cooling procedure is needed.	Malaysia
[51]	21	Technical	~~Following treatment, fruit was not artificially cooled.~~	Guidance on cooling fruit after treatment is provided in paragraph 17. This paragraph does not provide other relevant information.	Costa Rica ,Uruguay ,Mexico ,Nicaragua ,El Salvador
[52]	21	Technical	~~Following treatment, fruit was not artificially cooled.~~	Guidance on cooling fruit after treatment is provided in paragraph 17. This paragraph does not provide other relevant information	OIRSA
[53]	22	Editorial	In evaluating this treatment, the technical panel on phytosanitary treatments ~~TPPT~~ considered issues associated with treatments based on temperature, taking into account the work of Hallman and Mangan (1997).	For clarity, use the full term (technical panel on phytosanitary treatments)	EPPO,Russian Federation ,European Union ,Ukraine ,Morocco ,Uzbekistan
[54]	24	Technical	This schedule was developed using cultivar “Earl’s Favourite”. Add followings as other relevant information after para 24:	According to the reference, it is reported that the damage occured when the core temperature of the fruits exceeded 47 oC.	Japan

Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
			If the core temperature exceeds 47 oC, damages may occur on the surface and the flesh of the fruits.		
[55]	25	Editorial	**References** **Hallman, G.J. & Mangan, R.L**. 1997. Concerns with temperature quarantine treatment research. *In* Proceedings of the 1997 Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reduction, San Diego, California, USA. Available at http://www.mbao.org/mbrpro97.html (accessed September 2010). **Iwata, M., Sunagawa, K., Kume, K. & Ishikawa, A**. 1990. Efficacy of vapour heat treatment on netted melon infested with melon fly, Dacus cucurbitae, Coquillett (*Diptera: Tephritidae*). Research Bulletin of the Plant Protection Service, Japan, 26: 45–49.	A blank is missing in the last line.	EPPO,Russian Federation ,Ukraine ,Morocco ,Uzbekistan
[56]	25	Editorial	**References** **Hallman, G.J. & Mangan, R.L**. 1997. Concerns with temperature quarantine treatment research. *In* Proceedings of the 1997 Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reduction, San Diego, California, USA. Available at http://www.mbao.org/mbrpro97.html (accessed September 2010). **Iwata, M., Sunagawa, K., Kume, K. & Ishikawa, A**. 1990. Efficacy of vapour heat treatment on netted melon infested with melon fly, Dacus cucurbitae, Coquillett (*Diptera: Tephritidae*). Research Bulletin of the Plant Protection Service, Japan, 26: 45–49.	A blank is missing in the last line.	European Union
[57]	26	Substantive	1The scope of phytosanitary treatments does not include issues related to pesticide registration or other domestic requirements for approval of treatments. Treatments also do not provide information on specific effects on human health or food safety, which should be addressed using domestic procedures prior to approval of 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	Is the effect on quality of the fruits already considered in this treatment? eg. internal breakdown, discoloration, etc.	Philippines

Comment no.	Paragraph no.	Comment type	Comment	Explanation	Country
			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.		