Attachment A

Risk management measures for spider mites (Eutetranychus palmatus and Oligonychus afrasiaticus) and mealybugs (Planococcus ficus and Pseudococcus cryptus)

Consignment freedom verified by pre-export inspection

The *Final report for the review of biosecurity import requirements for fresh date fruit (from the Middle East and North Africa region* (the Final Report) recommends as a phytosanitary measure the option of consignment freedom verified by pre-export visual inspection for spider mites and mealybugs, and remedial action if live pests are found. The recommended pre-export inspection to be conducted for spider mites and mealybugs on a sampling size of 600 units (loose date fruit) per export consignment under one phytosanitary certificate. This 600-unit statistical sampling is described in ISPM 31 – *Methodologies for sampling of consignments*.

Australian Government Department of Agriculture, Water and the Environment (the department) appreciates confirmation from Iran NPPO that pre-export inspection will be implemented in accordance with this recommendation.

The department undertakes inspection on-arrival of the goods, also using a sampling size of 600 units, to verify freedom from pests of biosecurity concern to Australia. It may be useful to note that a portion of the samples are inspected using magnification to detect small and cryptic pests such as mites.

Note, export consignments found to contain any of these spider mites or mealybugs should be subject to remedial action. Remedial action may include withdrawing the consignment from export to Australia, or applying approved treatment to ensure the pests are no longer viable.

Risk management measures for fruit flies (Bactrocera zonata and Ceratitis capitata)

In-transit cold treatment:

Cold disinfestation using in-transit cold treatment (ITCT) for *Bactrocera zonata* and *Ceratitis capitata* in fresh dates is considered an effective management measure. The Australian Government Department of Agriculture, Water and the Environment (the department) recommends the following specifications for temperatures and exposure times where cold infestation treatment is utilised:

- fruit held at 1.11°C or below for 14 days, or
- fruit held at 1.67°C or below for 16 days, or
- fruit held at 2.22°C or below for 18 days.

Australia's recommended processes and procedures for implementing in-transit cold treatment (ITCT) on fresh dates are described in the Australian phytosanitary treatment application standard for cold disinfestation treatment[1] (please see attached application standard)

Written confirmation is required that the Plant Protection Organisation, Ministry of Agriculture, Iran is aware of the required cold treatment schedule and will undertake treatment (including container loading, security, probe placement, calibration) in accordance with the Australian phytosanitary treatment application standard for cold disinfestation treatment[1].

[1]https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/biosecurity/export/plants-plant-products/plant-exports-manual/resources/australian-phytosanitary-treatment-cold.pdf

The following should be considered for ITCT:

- ITCT is only permitted in self-refrigerated (integral) shipping containers capable of conducting the treatment for the entire journey to Australia. Shipping containers must be sealed once loading of the fruit is completed. Prior to commencement of ITCT, fruit pulp sensors must be calibrated and placed within the fruit under the supervision of an officer authorised by the National Plant Protection Organisation (NPPO).
- The fruit sensor calibration details must be recorded in the treatment section of the phytosanitary certificate which accompanies the consignment. Alternatively, the calibration details can be included as an attachment to the phytosanitary certificate. It is the responsibility of the shipping/transport company to download the electronic temperature logs from the container and forward to the department for treatment assessment and approval prior to container clearance.

Area freedom for fruit flies:

Assurance of area freedom of fruit flies requires information of movement regulations on host material to prevent the entry of the pest, and surveillance (such as trapping data) to verify the status of *C. capitata* in the export plantations.

The requirements for establishing pest free areas or pest free places of production or pest free production sites are set out ISPM 4: *Requirements for the establishment of pest free areas* and ISPM 10 *Requirements for the establishment of pest free places of production and pest free production sites.*

Should Iran wish to use area freedom as a measure to manage the risk posed by fruit flies, Iran would need to provide a detailed submission for Australia's review demonstrating the establishment and maintenance of area freedom in accordance with the requirements set out in ISPM 4 and 10.

Other alternative treatments (other than cold disinfestation treatment):

The department would review a treatment efficacy submission from Iran. Information required in a detailed submission would include methodology used, efficacy trial data for the most tolerant life stage associated with the commodity, the treatment schedule and the number of insects treated. For important pest such as fruit flies, Australia typically requires nil survivors in 30,000 insects treated.

Inspection

All consignments of fresh dates exported to Australia from Iran must be inspected by the Iran's NPPO and found free of quarantine pests. Pre-export visual inspection must be undertaken by the Iran's NPPO in accordance with ISPM 23: *Guideline for Inspection* and consistent with the principles of *ISPM 31: Methodologies for sampling of consignments.* Australia's recommended inspection sampling standard has been explained in the earlier section of this Attachment A.

Australian Government
Department of Agriculture and Water Resources

Australian phytosanitary treatment application standard for cold disinfestation treatment

Version 1.1

2 Requirements

2.1 Treatment chambers

2.1.1 Cold treatment can occur onshore in purpose built cool rooms as well as during transport in self-refrigerated (integral) containers.

2.1.2 All cool rooms and containers used for phytosanitary cold treatments must have the following characteristics:

- be clean and pest free
- have a system in place to prevent insect infestation or reinfestation of consignments, which may include insect proof materials covering all openings
- have lockable doors
- be able to reach and maintain treatment temperatures for a required period
- contain secure automatic temperature recording equipment accessible from outside of the treatment chamber.

Onshore cold treatment

2.1.3 Cool rooms used for onshore treatment must be permanent structures with appropriate temperature monitoring equipment and phytosanitary security in place. They must be fit for purpose and have measures in place to prevent infestation of product

2.1.4 The responsible certifying authority may require verification of temperature distribution through either:

- temperature mapping studies which characterise temperature distribution within the treatment chamber and the consignment
- records from use of the treatment chamber
- historical use of cold treatment with reference to the configuration of a treatment chamber and product.

In transit cold treatment

2.1.5 In transit cold treatment is the process of applying cold treatment to a commodity as it travels to its destination. The treatment can be started onshore and completed in transit, or for some countries, completed on arrival. In transit cold treatment must be carried out within a self-refrigerated (integral) container.

2.2 Temperature sensors

2.2.1 Temperature sensors must:

- have unique identification
- be distinguished as an air sensor or product sensor
- be able to be secured against movement or damage
- be accurate to ±0.3°C, unless otherwise prescribed by the importing authority.

2.3 Temperature recording equipment

2.3.1 All treatment chambers must have secure temperature recording equipment. The equipment must:

- accommodate the required number of sensors
- be tamper-evident
- not be affected by environmental conditions, including vibration
- record all temperature sensors at least hourly with readings graduated to 0.1 of a degree
- record data continuously for the duration of the treatment
- store data for the duration of the treatment and as long as necessary after the treatment is complete to allow for verification
- produce reports which identify each sensor, time and temperature, as well as identify the chamber where the treatment was undertaken.

3 Procedures

3.1 Precooling

In transit cold treatment

3.1.1 Product for cold treatment should be precooled to the treatment temperature or below before the treatment begins. The importing authority may require the product to be precooled to the treatment temperature or below before allowing the product to be loaded into the export container.

3.1.2 To verify precooling, the responsible certifying authority will conduct random product temperature sampling with a calibrated thermometer prior to loading.

Onshore cold treatment

3.1.3 Product for cold treatment must be at the treatment temperature or below before the treatment can begin however precooling checks by the responsible certifying authority is not usually required.

3.2 Number of sensors

3.2.1 If there are no specific import requirements then the number of sensors in the treatment chamber must be as follows:

- onshore treatment chamber
  - four (4) product sensors
  - two (2) airflow sensors
- in transit treatment chamber (refrigerated container)
  - three (3) product sensors.

3.2.2 If additional sensors are used, there is an expectation that they maintain the correct temperature/time combination. They may not provide alternative assurance in the event of a sensor failure.

Note: Refrigerated containers may contain integrated airflow temperature detection equipment.

3.3 Calibration of sensors

3.3.1 Calibration of temperature sensors must be undertaken by a suitably trained individual and supervision by the responsible certifying authority or their representative may be required.

3.3.2 The calibration of sensors must be conducted using a slurry of crushed ice and fresh water in accordance with procedures in Annex A. A calibrated thermometer capable of reading to 0.1 of a degree may be required to verify ice slurry temperatures.

3.4 Loading

3.4.1 When loading the treatment chamber, product must be packed in a manner which ensures an even airflow around pallets taking into account:

- density
- composition
- package shape

- size
- volume
- packing configuration
- dunnage

3.4.2 The temperature of the precooled product must not rise significantly while loading.

3.5 Mixed product consignments

3.5.1 Unless specifically permitted by the relevant import requirements, treatment chambers must not contain more than one type of product.

3.5.2 Where more than one type of product is permitted in the treatment chamber at one time:

- there must be at least one probe in each different product
- the most stringent time and temperature requirements must be applied to the entire load. That is, the lowest temperature and longest time derived from the treatment schedules of the products being loaded.

3.6 Placement of temperature sensors

3.6.1 Sensors must be placed by a suitable trained individual. Supervision by the responsible certifying authority or their representative may be required.

Onshore cold treatment

3.6.2 Sensors must be placed as follows for onshore cold treatment:

- two airflow sensors at the inlet (return air) and the outlet (supply air) points of cold air, to measure chamber temperature, and
- four product sensors
  - the centre of the stack in the warmest part of the treatment chamber
  - the corner of the top stack in the warmest part of the treatment chamber
  - further sensors will be placed in different areas in the treatment chamber where temperature or airflow may be impacted and placed from midway to the top height of the stack.

In transit cold treatment

3.6.3 Three sensors must be placed as follows for in transit cold treatment:

- the top of the stack nearest to the air return intake
- slight aft (towards the doors) of the middle of the container, halfway between the top and bottom of the stack.
- one pallet stack in from the doors of the container, halfway between the top and bottom of the stack.

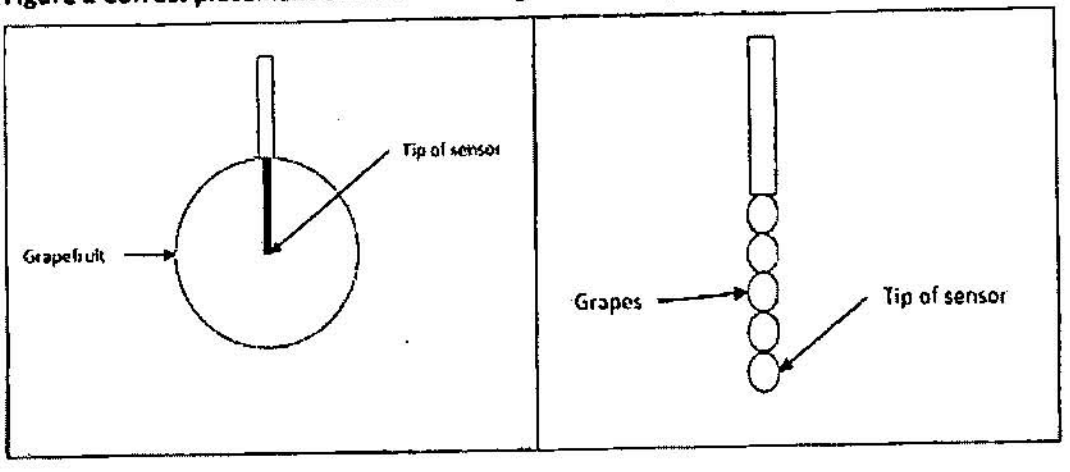
3.6.4 In all cases, a diagram showing the location and identification of each sensor must be available.

3.6.5 Product sensors must be inserted into the product so as much of the sensor as possible is covered, making sure that the tip does not extend beyond the product.

3.6.6 Where the size of the product varies, the temperature sensors must be placed into the largest size product.

3.6.7 A coil of slack cable must be spooled either inside the carton or taped to the outside of the carton to mitigate against sensor dislodgement during treatment. The cable must also be secured to the carton to prevent the sensor being pulled out of the product.

Figure 1 Correct placement of sensors for large and small product



3.7 Treatment period

3.7.1 Temperature recording may start at any time. However the cold treatment starts when all temperature sensors are at or below the prescribed treatment temperature for the nominated treatment schedule and the treatment chamber is sealed.

3.7.2 The duration of the cold treatment will be as required by the specified treatment schedule.

3.8 Sealing treatment chambers

3.8.1 Loaded treatment chambers must be sealed with a numbered seal.

3.8.2 The treatment chamber details and seal number must be recorded.

4 Verification of treatment

4.1.1 After cold treatment, the product temperature sensor readings must be provided in a report to the responsible certifying authority. This may be provided in hard copy or electronically depending on the temperature recording equipment and any import requirements which apply.

4.2 Sensor recalibration

4.2.1 Once the treatment is complete, the responsible certifying authority and/or importing authority may require recalibration of temperature sensors before confirming that the cold treatment schedule has been met. Any correction factor recorded will be applied against the temperature records.

4.2.2 Product sensors that exhibit a variation greater than the variation allowed in this standard or the import requirements, whichever is less, will be deemed to have failed recalibration and the treatment failed.

4.3 Treatment failure

4.3.1 The treatment may be deemed to have failed if any of the following occurs:

- if the treatment chamber seal has been tampered with
- if sensors are placed incorrectly in the product or in an incorrect location within the treatment chamber
- if one or more sensors fail to record for four (4) hours or more
- if temperature records show that the temperature and/or time required by the nominated treatment schedule has not been met
- if one or more product sensors fail recalibration, that is, any adjustment shows the nominated treatment schedule has not been met.

4.3.2 The responsible certifying body may determine if it is possible to restart a treatment following a failure.

5 Phytosanitary security measures

5.1.1 Treatment facilities must have a phytosanitary security system in place and the identity and integrity of each consignment must be maintained.

5.2 Phytosanitary security

5.2.1 Phytosanitary security must be maintained during and after treatment. The responsible certifying body may determine specific phytosanitary security measures. The most common methods of securing product against pests include:

- using a secure area with product segregation and traceability
- using secure packaging
- a combination of both.

5.2.2 Procedures must be in place to identify and segregate treated product and allow for movement without the risk of it mixing with any other product.

5.2.3 The procedures must cover all practices that pose a phytosanitary security risk to the treated products including receivals, storage and dispatch. The procedures must enable consignments to be linked to a specific treatment and be traced back to a packhouse and grower, if required.

5.2.4 Treated product must be kept in secure conditions to prevent infestation by regulated pests when stored at the treatment facility.

5.2.5 After treatment all product must be identified as 'treated' for identification and traceability purposes.

5.2.6 If product is treated in bulk and packed post-treatment the entire pathway including transport and packhouse, must be established and maintained as free from regulated pests. No other product is to be in the packhouse at the same time.

6 Documentation

6.1 Procedures

6.1.1 The following documents must be kept by treatment providers and made available to the responsible certifying authority when requested:

- treatment procedures
- phytosanitary security procedures

6.2 Records

6.2.1 The following records must be kept and made available to the responsible certifying authority when requested:

- all records pertaining to cold disinfestation treatment including:
  - treatment chamber number or name where the treatment took place
  - recorder serial number
  - date and time (local) the sensors are calibrated
  - results from sensor calibration with a minimum of two temperature readings for each and correction factor if required
  - sensor placement
  - date and time treatment chamber was sealed
  - treatment chamber seal number
  - type of product treated
  - volume of product treated
  - temperature data.
- any additional records required by the importing authority.

6.2.2 All records must be retained for a minimum of two years, unless otherwise specified by the responsible certifying authority, import requirements or other regulations.

Appendix A: Calibration of temperature sensors

1) Check individual sensors to verify that they are properly labelled and correctly connected to the temperature recorder. If necessary this can be accomplished by hand warming each sensor when its number appears on the visual display panel of the recording instrument. A temperature change, which can be observed on the instrument, should occur. If the instrument fails to react, the sensor is incorrectly connected or malfunctioning and should be corrected by the instrument representative.
2) Prepare a mixture of clean ice and fresh water in a clean insulated container.
3) Crush or chip the ice to completely fill the container.
4) Add enough water to stir the mixture.
5) Stir the ice and water for a minimum of 2 minutes to ensure the water is completely cooled and good mixing has occurred. Generally, the ice will occupy approximately 80-85% of the total volume of the container, with the water occupying the remaining space.
6) Add more ice as the ice melts.
7) Stir the ice water slurry to maintain a temperature of 0°C.
8) Submerge the sensors in the ice water slurry without touching the sides or bottom of the container.
9) Stir the slurry mixture again.
10) Continue testing of each sensor in the ice water slurry until the temperature reading stabilises.
11) Allow at least a 1 minute interval between two consecutive readings for any one sensor; however, the interval cannot exceed 5 minutes. The difference between the two readings cannot exceed 0.1°C.
12) Record at least two consecutive readings on the calibration report. If the two readings are different, test the sensors again and record the temperature.
13) Contact an instrument company representative/technician immediately if the time interval exceeds the normal amount of time required to verify the reading and accuracy of the sensor and recorder system. The recorder used with the sensors must be capable of printing or displaying on demand and not just at hourly intervals.
14) The instrument company representative/technician can correct any deficiencies in the equipment before certification.
15) Replace any sensor that reads more than plus or minus 0.3°C from the standard 0°C (after adjustment and re-calibration).
16) Replace and recalibrate any sensors that malfunction.
17) Determine the calibration factors to the nearest 0.1 of 1°C (i.e. 0.1°C, 0.2°C).

18) If the temperature recorder microprocessor can be zeroed, tared, or if the calibration factors can be otherwise entered into the recorder microprocessor for automatic adjustment this must be done. In this case, verify that the adjustment factors have been entered or that the recorder was zeroed or tared by the instrument company representative. Enter zero as the calibration factor for each individual sensor in the written calibration report that is submitted with the consignment.

19) If the temperature recorder microprocessor cannot be zeroed, tared, or if the calibration factors cannot be entered into the recorder microprocessor memory (so that they are sustained in memory and can be viewed again after all the factors are entered), the calibration factors for each individual sensor must be recorded on the written calibration report that is submitted with the consignment.

20) After the calibration factors have been accounted for, no other changes should be made to the temperature recorder microprocessor.

Source: USDA Treatment manual s3-7-4

Glossary

Import Requirements	Specific phytosanitary measures prescribed by an importing authority, concerning consignments moving into that territory.
Product	The plant product to be treated.
Responsible certifying authority	The National Plant Protection Organisation (NPPO) and State/Territory Departments of Agriculture responsible for certifying the treatment. It may also include any other party approved under the authority of the NPPO or State/Territory Departments of Agriculture.
Sensor	Equipment/probe for monitoring the product/air temperature.
Treatment	Official procedure for the killing, inactivation or removal of pests, or for rendering pests infertile or for devitalization. [FAO, 1990, revised FAO, 1995; ISPM 15, 2002; ISPM 18 2003; ICPM, 2005].
Treatment chamber	Any enclosure where cold treatment takes place. This includes cool rooms and self-refrigerated containers.

References

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