

Quarantine Requirements for the Importation of Fresh Mangosteens (*Garcinia mangostana*) from Thailand

Promulgated by COA on July 12, 2019 and take into force since July 12, 2019
(In case of any discrepancy between the Chinese text and the English translation thereof, the Chinese text shall govern.)

1. The importation of fresh mangosteens (*Garcinia mangostana*) (hereinafter referred to as mangosteens) from Thailand must follow the “Quarantine Requirements for the Importation of Plants or Plant Products into the Republic of China”, as well as the quarantine requirements.

2. Requirements for orchards
 - 2.1 Mangosteens shall be produced from orchards which are registered by the Department of Agriculture (hereinafter referred to as “DOA”) and the pest control measures are under the supervision of DOA.
 - 2.2 DOA shall ensure that records of pest control measure or working diaries are undertaken and kept by registered orchards. DOA also shall keep orchard registration numbers, name and address of the producers for inspection. The dossier shall be made available to the plant quarantine authority of Taiwan (hereinafter referred to as “BAPHIQ”) upon request, and BAPHIQ may conduct on-site verification.

3. Mangosteens must be treated in vapor heat treatment (VHT) facilities approved by DOA and BAPHIQ prior to the export. VHT commences when the core temperature of pulp reaches 46°C or above for at least 58 minutes, with relative humidity of 90% or above.

4. Requirements for VHT facilities (including packinghouses and cold storage):
 - 4.1 Facility cleanliness shall be maintained and the facility shall be

sanitized regularly.

4.2 Entrances, exits or doors shall be equipped with insect-proof equipment such as downward-facing air curtain, plastic curtains or insect proof apparatus. Windows and air holes at the facilities must be covered with screen and with opening of no larger than 1.6 mm.

4.3 The entryway to the packing area must be in a dark enclosure and have multiple doors (with three doors at least).

4.4 VHT chamber shall be equipped with automatic data loggers outside of the chamber to monitor the humidity and the temperature of the fruits in the chamber. The data loggers shall be able to print the data out.

4.5 The packing houses shall have an insect sticking board installed on the inside, light-inducing traps or other non-sex pheromone traps in order to detect any harmful pests.

DOA must keep records of the name, registration number and address of the approved VHT facilities. The registration list must be made available to BAPHIQ when DOA invites BAPHIQ to conduct on-site audit.

5. Prior to the commencement of VHT operations one year one time, DOA shall invite BAPHIQ to jointly perform inspection and conduct verification tests to the VHT facilities according to the verification guidelines specified in the attachment. Only the facilities that have been verified and are compliant can commence with the VHT treatment operation.

Facilities that have passed inspection but have not conducted treatments to mangosteens for export to Taiwan after three months shall be verified again.

6. Requirements for VHT:

6.1 DOA and BAPHIQ officers shall jointly supervise the quarantine treatment.

- 6.2 At least one fruit temperature sensor shall be installed within each pallet of the chamber. The sensor shall be positioned at the coldest spot according to the outcome of the vapor heat treatment verification test.
- 6.3 Temperature sensors shall be inserted into the fruit's pulp to confirm they are able to read the core temperature of the fruits with accuracy.
- 6.4 Mangosteens for exporting to Taiwan shall not be treated together with mangosteens for exporting to other countries which have different quarantine requirements, nor shall they be treated with other fresh fruits in the same heat treatment.
- 6.5 After the VHT has been completed, fruits with temperature sensors shall be dissected to confirm if the sensor stays at the center of the fruits. If not, the treatment is considered a failure, and the fruits shall be treated again.

7. Requirements for mangosteens after completion of VHT:

- 7.1 Fruits shall be packed in one of the following methods:
- 7.1.1 Packed by sealed packaging or packed by sealed carton. If packing cartons have ventilation holes, the holes shall be covered with screening with openings of no larger than 1.6 mm.
- 7.1.2 The opening of each sealed carton shall be sealed by approved quarantine labelled card of (The size of the card shall be 15 cm or more x 10 cm or more) with the word "TREATED-PQ-DOA-THAILAND." The card shall not be reused and be labelled with serial number; the label card shall be pasted on the opening of each sealed carton.
- 7.2 Fruits shall be transported in one of the following methods:
- 7.2.1 Packed on pallets. The pallets shall be closely wrapped on all sides and covered with screen with openings of no larger than 1.6 mm to prevent the entry of pests. The openings shall be sealed by approved quarantine tape labelled with serial numbers.

The quarantine tape shall not be used again. The DOA shall provide a sample of the sealing tape to the BAPHIQ beforehand.

7.2.2 Packed by sealed container. A numbered seal must be placed on loaded container door. The seal number and the container number shall be noted on the phytosanitary certificate issued by the DOA.

7.3 Each packed carton or pallet shall be clearly marked with the name of the approved VHT facility or the registration number along with the words “To Taiwan”.

7.4 After the packing has been completed, the mangosteens shall be stored in a closed facility before being loaded on to the container. The fruits shall not be stored with other mangosteens for domestic market or for export to other countries which have different quarantine requirements, or with other varieties of fresh fruits. The shipping container shall not be loaded with other fresh fruits or commodities for export to Taiwan.

8. Requirements for export inspection:

8.1 Inspections shall be conducted in insect-proof facilities with sufficient lighting and equipped with inspection apparatus and inspection table.

8.2 Inspection shall be conducted to the same lot of mangosteens treated in the same VHT facility to ensure the efficacy of disinfestation.

8.3 At least 2% of the random sample of the packed cartons in a given lot of the consignment shall be inspected. For each sampling carton, one fruits shall be taken and cut for inspection in every fifty fruits.

8.4 Quarantine officers from both the DOA and the BAPHIQ shall conduct quarantine inspection jointly to ensure the fruits are free of harmful pests.

8.5 Shall there be a detection of fruit fly larvae or eggs during export inspection, the larvae or eggs shall be observed under a normal environment for 3 hours or 48 hours respectively beginning from

the time when larvae or eggs were detected to determine if they are living organisms. The VHT where pests are intercepted must suspend all of its operations during the observation period.

8.6 Shall there be interception of live fruit flies during inspection, all fruits of the intercepted lot which underwent the same treatment will be prohibited for export to Taiwan and export operations of mangosteens from Thailand to Taiwan will also be suspended. Exports can be resumed after BAPHIQ approves the improvement measures made to correct the cause of interception.

8.7 If any other harmful pests are intercepted, that consignment must be repacked and sampled or treated with appropriate quarantine treatments prior to the export to disinfest or mitigate the pests of quarantine concern.

8.8 Mangosteens that have passed export inspection but are not exported within fourteen days must be re-inspected according to these requirements and re-issued with a phytosanitary certificate before the exportation.

9. Mangosteens which pass the export inspection shall be accompanied with a phytosanitary certificate issued by DOA with the following additional declarations, and also endorsed by a BAPHIQ inspector:

9.1 Name or registration number of the VHT facility, serial number of the quarantine tape, container number and seal number.

9.2 Date of VHT, treatment temperature and treatment duration.

9.3 Stating that mangosteens have been inspected and found free of carambola fruit flies (*Bactrocera carambolae*) and papaya fruit flies (*Bactrocera papayae* Drew & Hancock) and other quarantine pests of Taiwan.

10. Import inspection

10.1 Procedures, methods and sampling methods for import inspection shall follow Taiwan's "Enforcement Rules on The Plant Protection

and Quarantine Act” and other quarantine regulations.

- 10.2 Mangosteens that have not met with these quarantine requirements will be rejected from entry, and will be re-shipped or destroyed.
- 10.3 Shall fruit fly larvae or eggs be intercepted during import inspection, the larvae or eggs shall be observed under a room temperature environment for 3 hours or 48 hours respectively to determine if larvae or eggs are alive. The BAPHIQ shall notify DOA of the interception immediately. The VHT facility that performed the treatment shall suspend all of its operations during the observation period.
- 10.4 If live fruit flies are intercepted during import inspection, the intercepted consignment will be rejected from entry, and will be re-shipped or destroyed. BAPHIQ shall notify DOA immediately to suspend the export of mangosteens to Taiwan. Export will be resumed only after the cause of infestation is clarified, and BAPHIQ approves and verifies the improvement measures that have been taken.
- 10.5 Fresh mangosteens from those suspended production sites (prefectures) that have passed export inspection and obtained a phytosanitary certificate prior to the suspension date shall be loaded on board traveling to Taiwan within three days and undergo stricter import inspection.
- 10.6 Shall pests other than fruit flies be intercepted during import inspection, quarantine measures will be taken in accordance with relevant quarantine regulations.

11. Guidelines for BAPHIQ inspectors to conduct on-site verification and inspection in Thailand:

- 11.1 Standard working hours will be from 8:30 to 17:30 each day from Monday to Friday.
- 11.2 Shall overtime work be required, DOA shall consult with the on-site BAPHIQ inspector 24 hours in advance of the overtime

work. Overtime working hours are listed below:

11.2.1 Normal working days overtime starts from 17:30 and shall not exceed 21:30.

11.2.2 Weekends or public holiday (Taiwan) overtime starts from 8:30 and shall not exceed 21:30.

11.3 Shall overtime be required beyond the aforementioned timeframe, the request shall be agreed by a BAPHIQ inspector before overtime is commenced.

11.4 An interpreter shall be made available when a BAPHIQ inspector is on duty.

12. Requirements for on-site verification and inspection:

12.1 Two months prior to each mangosteens export season, DOA shall provide the details on the number of inspectors required, period of visit, estimated quantity of mangosteens to be exported to Taiwan and the lists of orchards and VHT facility registrations and their locations (including address and marked the locations on map), along with a formal letter of invitation to BAPHIQ for dispatching the inspectors.

12.2 BAPHIQ will dispatch inspectors to Thailand based on the aforementioned details to conduct verification of the VHT facilities and export inspection with DOA officers jointly. If the visit program requires 45 days, BAPHIQ can take turns to dispatch its inspectors.

12.3 All costs including logistics, per diem, overtime charge, incidental expenses, insurance, interpretation and visa fees associated with BAPHIQ conducting the on-site verification visit shall be borne by Thailand.

Appendix

Guidelines for the Verification of Vapor Heat Treatment (VHT) Facilities

1. BAPHIQ and DOA shall check the vapor heat treatment facilities (including packinghouses and cold storage) have met with these quarantine requirements before conducting the verification.
2. Procedures for the calibration of temperature sensors are as follows:
 - 2.1. Temperature sensors must be calibrated in a water bath equipped with a standard thermometer. The thermometer must be calibrated by an accredited organization each year. The calibration certificate must be kept available for BAPHIQ inspector.
 - 2.2. Submerge temperature sensors in the water bath with water temperature maintained at 46°C or 47°C. Once the temperature is stabilized, start recording the temperature every 5 minutes for five consecutive readings. The fruit's temperature sensors shall be accurate to $\pm 0.1^{\circ}\text{C}$.
 - 2.3. If any three out of the five sensor measurement readings are the same, that temperature reading will be used to calibrate the automatic data loggers.
 - 2.4. Any temperature sensor showing a reading outside the testing range or over a variation $\pm 0.3^{\circ}\text{C}$ must be replaced. If five temperature readings were all different, the sensor must also be replaced.
 - 2.5. DOA must take appropriate measures to prevent temperature and humidity records from being falsified.
 - 2.6. The record of temperature sensor shall be provided on a monthly basis once the VHT facility commences the operation.
3. Procedures for empty chamber testing in the VHT facility are as follows:
 - 3.1. Load maximum quantity of empty boxes possible to the empty chamber.

- 3.2. Place the automatic temperature sensors in the empty boxes that are closest to the vapor heat outlet. If there are multiple pallets in the chamber, temperature sensors shall be placed on every pallet.
- 3.3. The chamber shall be heated until all the temperature sensors have reached and maintained at 46°C or above with humidity confirmed at 90% or above in the chamber.
- 3.4. All temperature sensors must be confirmed to read 46°C or above for 58 minutes. The temperature readings must be recorded or printed every 5 minutes.
- 3.5. If there are multiple pallets in the chamber, all the temperature sensors positioned on the pallets must reach 46°C with a relative humidity of 90% or above during empty chamber testing. The record of temperature sensor shall be provided, and each record shall fall within a range of $\pm 2^\circ\text{C}$ between all the sensors.
4. Procedures for the cold spot test in the VHT facility are as follows:
 - 4.1. Testing shall be conducted to one-third of all pallets in the chamber depending on the temperature deviation in the empty chamber testing and locations.
 - 4.2. When conducting cold spot testing, the pallets that have been selected for cold spot testing must be loaded with filler fruits. The rest of the pallets shall be loaded with empty boxes. The pallet fans shall be switched on.
 - 4.3. VHT treatment pallets must be loaded with a maximum number of fruits that are permitted in a

commercial shipment for export in the cold spot test.

- 4.4. The size of the fruits inserted with the sensors for the core spot test shall be the biggest fruits in each pallet. All the test fruits shall be hard and at a similar weight.
- 4.5. Temperature sensors shall be inserted into the fruits' core and positioned on the top, middle and bottom of each pallet of filler fruits and at each of the four corners. Each pallet shall be set up with 15 fruit temperature sensors. Cold spot test can be conducted separately to each pallet. The test conditions for cold spot test must be the same as the actual treatment conditions for a commercial shipment. Only the fruits that have been treated and met with the quarantine requirements are permitted to be exported.
- 4.6. Fruits undergo VHT to bring the fruits' core temperature to the required treatment temperature of 46°C and maintained for at least 58 minutes. The automatic data loggers shall record the temperature every 5 minutes.
- 4.7. After the cold spot testing has been completed, fruits with temperature sensors shall be dissected to confirm whether the sensor stays at the center of the fruits if the difference of temperature between each sensor is too large. If not, the test shall be conducted again.
- 4.8. During the test, the cold spot is determined as the spot where the sensor reaches 46°C at the latest.
- 4.9. Temperature sensors shall be placed at the cold spots according to the cold spot test result for commercial operations.