



National Plant Quarantine Service

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Mr. Hoang Trung
Deputy Director General
Plant Protection Department
Ministry of Agriculture & Rural Development
Vietnam

29 October 2010

Dear Mr. Hoang Trung

I am pleased to inform you that NPQS has made a determination to permit the entry of fresh Dragon fruit (*Hylocereus undatus*) from Vietnam. *The import requirements of fresh dragon fruit from Vietnam* was released on the MIFAFF's web site dated on 28 October 2010 and effect into same day.

Please be informed that the import requirement remain unchanged from the draft risk management measures. I also attached a copy of *The import requirements of fresh dragon fruit from Vietnam* for your information. Please feel free to contact us, if there is any question about this matter.

I am looking forward to our continued cooperation and relationship on the plant quarantine field.

Sincerely yours,



Seung-Jin Jang
Director
International Quarantine Cooperation Division
National Plant Quarantine Service
Ministry for Food, Agriculture, Forestry and Fisheries
Republic of Korea

Attachment : The Import Requirements of Fresh Dragon fruit from Vietnam.

Cc.: Ms. Tran Thi Quynh, Commercial Attaché, the Embassy of Vietnam in Korea.

ATTACHMENT:

Import Requirements of Fresh Dragon Fruit From Vietnam

1. Areas and Plant of Application

Fresh dragon fruit (*Hylocereus undatus*) commercially produced in Vietnam

2. Means of Conveyance

Air cargo or ship cargo (except hand luggage carried by passenger or post cargoes)

3. Registration of Export Orchards and Packinghouses

A. Orchards producing fresh dragon fruit for export to Korea shall register with the NPPO of Vietnam (hereinafter referred to as “PPD”) each year.

B. PPD shall implement strict control of orchards producing fresh dragon fruit for export to Korea against quarantine pests of Korea in Annex 2 and supervise and oversee to ensure that low pest prevalence status is maintained.

C. Packinghouses that sort and pack fresh dragon fruit for export to Korea shall register with PPD each year and regularly undergo disinfection and inspection.

D. The NPPO of Vietnam must inform the National Plant Quarantine Service of Korea (hereinafter referred to as “NPQS”), the list of registered orchards, packinghouses and vapor heat treatment facilities before commencement of dragon fruit exportation.

4. Sorting

A. The fresh dragon fruit for export to Korea shall be sorted and packed only in packinghouses registered with PPD.

B. When sorting fresh dragon fruit for export to Korea, it must be ensured that dragon fruit produced from unregistered orchards or fresh fruits of other kinds are not sorted together.

C. PPD shall oversee, when sorting fresh fruits, to ensure that contaminants including infected fruits, pests, soil, and plant debris are removed.

D. The sorting process of dragon fruit for export must include washing with water and compressed air cleaning.

5. Vapor Heat Treatment

A. The vapor heat treatment facility shall be registered with PPD and PPD shall oversee and carry out regular inspection.

B. The vapor heat treatment shall be conducted on each consignment at the registered facilities in attendance of plant quarantine inspectors of Korea and Vietnam.

C. The vapor heat treatment must be conducted by raising the fruit core temperature up to 46.5°C or higher and applying treatment for 40 minutes. (relative humidity over 90%)

D. Other details of vapor heat treatment shall be comply with the Guidelines for Vapor Heat Treatment in Annex 1.

6. Packing and Labeling

A. The packinghouses for fresh dragon fruit which have been treated shall be equipped with insect-proof facilities and regularly undergo disinfection.

B. Dragon fruits that have been approved by the export inspection shall be sealed in each packing cartons using the methods (including sticky tape, sticker or label) approved by PPD.

C. On the outside the export packing cartons or pallets of palletized cargo shall be labeled “For Korea” and “the names (or registration numbers) of orchards and packinghouses”.

D. In case there are any ventilation holes on packing cartons or palette of palletized cargo, they shall be covered with a net mesh of no more than 1.6mm in diameter.

E. Export consignments that have been packed shall be covered with insect proof nets to prevent re-infestation from the pest during the storage or conveyance.

7. Pre-clearance Inspection

A. PPD of Vietnam shall send NPQS a letter requesting for pre-clearance inspection by a Korean plant inspector 30 days before commencement of vapor heat treatment.

B. The invitation letter shall include the following information pertaining to export.

- (1) The number of plant quarantine inspectors from Korea and required inspection period;
- (2) Estimated volume of export; and
- (3) Vapor heat treatment site

C. NPQS plant quarantine inspector shall carry out vapor heat treatment and export inspection jointly with Vietnamese plant quarantine inspector

D. All costs pertaining to the pre-clearance inspection by NPQS plant quarantine inspector shall be paid by the Vietnamese side in accordance with the schedule for overseas travel cost of Korea.

8. Export Inspection and Certification

A. The export inspection shall be carried out on 2% sample jointly by the Korean and Vietnamese plant quarantine inspector, and a phytosanitary certificate shall be issued on consignments passed by the export inspection.

B. In case a live fruit fly is detected as a result of export inspection, export inspection shall be suspended until the cause is identified and remedial measures are implemented. Nevertheless, in case other live quarantine pests are found, the consignment can be exported after the treatment.

C. For consignments passed by the export inspection, PPD shall issue a phytosanitary certificate which includes additional declaration specified as in the below:

- (1) “This consignment comply with the import requirements agreed between NPQS and PPD.”
- (2) The name (or the registration number) of the registered orchard and packinghouse; and the name of the vapor heat treatment facility, treated date, temperature and duration
- (3) Date of inspection and signature of a Korean plant quarantine inspector
- (4) In case of a ship cargo, PPD shall seal the container and indicate the seal number.

D. Consignments that were passed by the export inspection shall be managed separately from that were rejected or that were not inspected in order to prevent cross contamination of pests.

E. Consignments that were passed by the export inspection shall be stored and managed in order to prevent recontamination by contaminants such as pests and soil, until their arrival in Korea.

9. Import Inspection

A. Upon arrival of consignments, plant quarantine officers shall check the additional declarations prescribed under article 8. C.

B. If a packing carton that is missing the labels prescribed under article 6. B and C, all or parts of the consignment shall be destroyed or returned.

C. If there are no problems found as a result of the inspection specified in the above, import inspection shall be conducted.

D. In case a live fruit fly is found during the import inspection, the consignment shall be destroyed or returned, and the import inspection shall be suspended until the cause is identified and remedial measures are implemented.

E. In case a live quarantine pest is detected during the import inspection, the consignment shall be treated and if there are no treatments available, it will be destroyed or returned.

10. Others

In case a new unassessed pest is intercepted or Korea's quarantine pest is continuously intercepted, pest risk assessment shall be conducted and necessary measures can be determined based on the result of assessment.

ANNEXE 1: Guidelines for Vapor Heat Treatment

A. Procedure and process of VHT

- The temperature of the vapor heat treatment chamber shall be maintained at 47°C or higher during the treatment.
- After the fruit core temperature reached 46.5°C, it shall be treated for more than 40 minutes and the relative humidity in the chamber shall be maintained at 90% during the treatment.
- The overall VHT time should exceed at least over 4 hours.
- After the vapor heat treatment, the fruits shall be allowed to hydro cooling for 30 minutes and be subject to air cooling for 20 minutes. Before packing, fruits shall be stored in sanitized room at 19°C for 2 hours.

B. Standards for checking VHT facilities

- Through the visual and physical inspection of all facilities, inspectors should check whether the facilities meet the requirements to prevent re-infection of fruits as well as other aspects that may affect the result of the treatment.
- The VHT chamber, circulation fan and heaters shall be cleaned and inspected every week.
- The temperature and humidity sensors shall be checked and calibrated every month.

C. Standards for sensor calibration test

- All sensors shall be calibrated before the use and every month by dipping them in a standard water bath where a standard thermometer and hygrometer are installed.
- The allowed correction factor of $\pm 0.3^{\circ}\text{C}$ shall be applied to all sensors.
- The result of the temperature measurement shall be printed out more than 3 times every 5 minutes.

D. Standards for VHT chamber test

- The VHT chamber test must be conducted at the commencement of each season and additional test may be carried out if necessary.
- Load empty crates to the maximum capacity inside the chamber.
- Place the permanent sensor at the center of each crate placed close to the vapor heat outlet.
- The chamber should be heated to the temperature of 46.5°C or higher and stabilized for more than 1 hour.
- Monitor the temperature of all sensors and check whether they conform to the fluctuation tolerance of $\pm 0.3^{\circ}\text{C}$. (Calculate the difference between the highest and the lowest temperature/2 = $\pm 0.3^{\circ}\text{C}$.)
- The time required to reach the temperature of 46.5°C shall not exceed 1 hour for all sensors.
- The temperature measurement shall be printed every 5 minutes.

E. Cold spot test

- The test shall be conducted at the beginning of every export season or if deemed necessary.
- Load the fruits to the maximum capacity inside the chamber.
- Pick the largest and heaviest fruit for the temperature test and put it in each pallet.
- The test fruit shall be green and hard, and their weight must be within the same range.
- Place the temperature sensor in the crate located at the top, middle and bottom of each pallet.
- Apply the VH treatment in the same manner as it is done in the actual fruit export. (The treated volume may be exported after the test.)
- The spot which reached the temperature of 46.5°C last shall be determined as the cold spot.
- According to the test result, the location of permanent sensor shall be determined

F. Installation of thermometer and hygrometer

- In order to check from outside, the temperature and humidity inside the VHT chamber and temperature of the core of fresh fruits located at the top, middle and bottom of the loaded fruits (including the cold spot) automatic temperature and humidity recording equipment shall be installed (if necessary, the record shall be printed.)
- Install the temperature sensors at more than 3 of the cores of fresh fruits and more than 2 locations of each VHT chamber. (At least more than 1 temperature sensor shall be installed at the cold spot identified through the cold spot test.)
- In order to ensure recording of fruit core temperatures, insert a sensor. (If necessary, connect some fruits.)

G. Prevention of fruit re-infection after VHT

- All doors and openings to the chamber, packing houses and storage facilities shall be installed with proper insect-proof facilities.
- After VHT, fruits shall be placed in crates, plastic palettes or on tables, relevant containers be washed everyday and the table be disinfected before packing.
- Fruits that are VHT applied shall be separated from fresh fruits, and fruits that are not VHT applied shall not come into contact with fruits that are VHT applied.
- Persons working on packing shall wash their hands and dry them before packing.
- Fruits that are VHT applied shall be packed in the sanitized room. (They shall not be packed in the same space with fruits that are not VHT applied.)
- Fruits that are packed shall be covered with an insect proof net.
- Fruits that are treated shall be loaded to a clean container or truck for transportation.

H. Standards for treatment rejection

- In case the fruit core temperature is not raised to 46.5°C and last for 40 minutes during the treatment, or in case the humidity is not maintained at 90%
- In case a live fruit fly is detected after VHT
- In case damaged fruits such as over-ripen fruits are found more than 30%, this lot shall be rejected and the VHT process should be checked.
- In case damaged fruits such as over-ripen fruits are found less than 30%, only the damaged fruits shall be rejected and the rest will be passed.
- In case a small sized fruit is used as the test sample among fruits mixed with different sizes
- In case the temperature sensor is not inserted in the testing sample
- In case there are factors that affected the result of the treatment

ANNEXE 2: Quarantine pests of fresh dragon fruit from Vietnam

- **Pathogens:**

Colletotrichum capsici, *Alternaria* sp., *Aspergillus* sp., *Cladosporium* sp., *Diplodia* sp., *Colletotrichum* sp., *Curvularia* sp., *Fusarium* sp., *Phoma* sp., *Gloeosporium* sp., *Penicillium* sp., *Phomopsis* sp.

- **Pests:**

Bactrocera correcta, *B. cucurbitae*, *B. dorsalis*, *Dysmicoccus brevipes*, *D. neobrevipes*, *Ferrisia virgata*, *Maconellicoccus hirsutus*, *Planococcus lilacinus*, *P. minor*, *Pseudococcus jackbeardsleyi*, *Aphis* sp., *Toxoptera* sp., *Cataenococcus* sp., *Coccus* sp., *Dysmicoccus* sp., *Planococcus* sp., *Pseudococcus* sp., *Platynota* sp., *Tarsonemus* sp.