परामर्शिका

सीज़न 2023: भारत से दक्षिण कोरिया को आम के निर्यात हेतु सूचना

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प्रिय निर्यातक एवं हितधारक,

यह परामर्शिका सीज़न 2023, भारत से दक्षिण कोरिया को आम के निर्यात की सूचना के संबंध में है।

आम के निर्यात को सुविधाजनक बनाने हेतु , सभी निर्यातकों को सूचित किया जाता है कि वे वीएचटी/एचडब्ल्यूटी ट्रीटमेंट करने के लिए एक अनुसूची तैयार करें।

इस संबंध में , एपीडा को खेप (कंसाइनमेंट) विवरण के साथ वीएचटी /एचडब्ल्यूटी ट्रीटमेंट के बारे में अनुसूची भी प्रदान की जाए , ताकि खेप (कंसाइनमेंट) के बारे में सुविधा संचालकों को आवश्यक जानकारी अग्रेषित की जा सके। व्यापार को सुविधाजनक बनाने हेतु , एनपीपीओ भारत के अधिकारी, जिन्हें पैक हाउस को फाइटो-सैनिटरी प्रमाण-पत्र जारी करने के लिए प्रतिनियुक्त कोरियाई इंस्पेक्टर के साथ प्रतिनियुक्त किया जाएगा , वे भी तदनुसार अपने कार्य की योजना बनाएंगे। इससे आमों के ट्रीटमेंट हेतु पहले से योजना बनाने एवं पूर्व तैयारी करने में सहायता मिलेगी ताकि इस पर चर्चा की जा सके तथा सुविधा संचालक को उपलब्ध कराया जा सके।

इसके अतिरिक्त, अपेक्षित जानकारी क्वारंटाइन अधिकारियों के लिए दक्षिण कोरिया को निर्यात करते समय पूर्व जागरूकता एवं सुचारू कामकाज के लिए भी सहायक हो सकती है।

साथ ही, सभी निर्यातकों को सलाह दी जाती है कि वे अपने आम के बागों का पंजीकरण/नवीनीकरण संबंधित राज्य बागवानी/कृषि विभाग के माध्यम से एपीडा के मैंगो.नेट ट्रैसेबिलिटी सिस्टम के अंतर्गत करवाएं।

यू.के. वत्स
महाप्रबंधक

Import Requirements for Fresh Mango Fruits from India into Korea

1. A product subjected to the requirements

Fresh fruits of mango *(Mangifera indica* L.) commercially produced in India

2. Means of conveyance

Air cargo or ship cargo (except for hand luggage or parcel post)

3. Registration of orchards and packinghouses (including Vapor Heat Treatment(VHT) and Hot Water Treatment(HVVT) facilities)

A. The owner of the orchards producing fresh mango fruits for export to Korea (hereinafter referred to as "export orchards") and packinghouses (hereinafter referred to as "export packinghouses") shall register the orchards and packinghouses with Agricultural and Processed Food Products Export Development Authority(hereinafter referred to as "APEDA") of India each year, and the orchards and packinghouses should be supervised by APEDA. Whereas VHT & HWT will be registered by NPPO, India.

B. The NPPO of India must inform the Animal and Plant Quarantine Agency of Korea(hereinafter referred to as "APQA") of the list of registered orchards and packinghouses before commencement of mango exportation every year.

C. The concerned state Department of Horticulture/Agriculture in association with APEDA shall supervise whether integral pest management is being carried out in the export orchards in order to prevent occurrence of Korea's quarantine pests (Annex 1). And it shall conduct monitoring of each export orchard, especially focusing on the occurrence of *Cytosphaera mangiferae* and *Xanthomonas campestris* pv. *mangiferaeindicae,* and shall manage the orchards to ensure that low pest prevalence status is maintained through proper measures upon the outbreak.

D. Packinghouses shall be equipped with facilities to prevent pest incursion. The packinghouse manager shall, on a regular basis, disinfect the facilities to prevent pest re-contamination. The NPPO of India shall check the sanitary conditions of the packinghouses each year before export.

4. Sorting

A. The fresh mango fruits for export to Korea shall be sorted and packed only in packinghouses registered with the APEDA of India.

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

C. The mango fruits for export to Korea must be brushed and washed by water, And the fruits shall be dipped in 200ppm solution of sodium hypochlorite at 52°C for 2 to 3 minutes in order to prevent the infection of *Cytosphaera mangiferae* and *Xanthomonas campestris* pv. *mangiferaeindicae.*

5. Vapor Heat Treatment(VHT) or Hot Water Treatment(HWT)

A. The fresh fruits of mango for export to Korea shall be treated with saturated vapor by raising the fruit core temperature up to 47.5°C or higher for 20 minutes or with hot water at over 48°C for 60 minutes or more. The hot water treatment shall be applied only for mango fruits less than 500g in weight.

B. The vapor heat treatment or hot water treatment shall be conducted on each consignment in a registered facility under the supervision of plant quarantine inspectors of Korea and/or India.

C. Details of the vapor heat treatment and hot water treatment shall comply with the "Guidelines for Vapor Heat Treatment" in Annex 2 and "Guidelines for Hot Water Treatment" in Annex 3.

6. Export inspection and certification

A. The export inspection shall be carried out jointly by the APQA and the Indian plant quarantine inspectors, on over 2% sample of the entire cartons of fruits treated with vapor heat or hot water.

B. The consignment shall be certified on a phytosanitary certificate as free of *Cytosphaera mangiferae, Xanthomonas campestris pv. mangiferaeindicae, Sternochetus frigidus* and *S. mangiferae* in particular, through target inspection by APQA and India inspectors for those pests.

C. In case that any live fruit fly is detected as a result of the export inspection, the relevant consignment shall be rejected and the export of mango fruits from the concerned orchard and treatment facility shall be suspended until the cause is identified, remedial actions are taken. But, any live fruit fly is detected continuously the import inspection could be suspended until the cause is identified, remedial actions are taken, and the two countries reach an agreement. In case that *Cytosphaera mangiferae, Xanthomonas campestris* pv. *mangiferaeindicae,* and live *Sternochetus frigidus* or *S. mangiferae* are intercepted during the export inspection, the consignment shall be rejected and the export of mangoes from the orchards where the infested fruits were produced, shall be suspended for the remainder of the export season. The NPPO of India shall inform such pest detections to Korea. Nevertheless, in case that other live quarantine pests of Korea are found, the consignment may be exported after removing or destructing the pests through treatment, etc.

D. The shipping container shall be sealed under supervision by the India customs authorities. However, the integrity & phytosanitary security of the consignment will be ensured during transportation from packinghouse to the point of exit(Airport/Seaport).

E. For consignments that passed the export inspection, the NPPO of India shall issue a phytosanitary certificate with additional declaration specified below:

(1) "This consignment complies with import requirements agreed between APQA and the NPPO of India, and is free from *Cytosphaera mangiferae, Xanthomonas campestris* pv. *mangiferaeindicae, Sternochetus frigidus* and *S. mangiferaei;*

(2) The name (or registration code) of the vapor heat treatment or hot water treatment facilities, orchard, pack-houses and date, temperature and duration of the treatment should be marked on the treatment section of the phytosanitary certificate; and

(3) Date of inspection and signature of a APQA plant quarantine inspector.

F. Consignments that passed the export inspection shall be stored, managed and transported separately from those that were rejected or that were not inspected in order to prevent the recontamination by contaminants such as pests and soil, etc. until their arrival in Korea.

7. Packing and labeling

A. Each packing carton of the fresh fruits of mango that have been passed the export inspection, shall be sealed using the methods (including sticky tape, sticker or label, etc.) approved by the NPPO of India.

B. The label "For Korea" and "the name (or registration code) of orchards and packinghouses", shall be marked outside of the each export packing carton.

C. In case that there are any ventilation holes on packing cartons, all holes shall be covered with net screen with a mesh size of less than 1.6x1.6 mm, in order to prevent pest re-infestation during storage or transportation.

8. Import inspection

A. Upon arrival of the consignments, a APQA plant quarantine inspector shall check the sealing and packing of the cartons. In case that there are any problems with the sealing or packing under Article 7A and 7C in the above or in case that there are consignments in which the additional declaration or labeling under Article 6E and Article 7B is missing, the entire or parts of the consignment shall be destroyed or returned.

B. If no problems are found as a result of the checking pursuant to Section A of the above, import inspection shall be carried out in accordance with Korea's Plant Protection Act and relevant regulations.(This article will be applied to the consignments treated and inspected solely by India plant quarantine officers in the future.)

(1) In case that any live fruit fly is found during the import inspection, the relevant consignment shall be destroyed or returned, and the import of mango from the orchard from where such consignment is sourced and the concerned treatment facility, shall be suspended until the cause is identified and remedial actions are taken. But, if any live fruit fly is detected continuously the import of inspection could be suspended until the cause is identified, remedial actions are taken and the two countries reach an agreement.

(2) In case that *Cytosphaera mangiferae, Xanthomonas campestris* pv. *mangiferaeindicae,* or live *Stemochetus frigidus or S. mangiferae* are intercepted, the relevant consignment shall be treated (destroyed or returned if there is no available treatment method) and the import of fresh mango fruits from the relevant export orchard shall not be permitted for the remainder of that season.

(3) In case that any other live quarantine pest of Korea is detected during the import inspection, the consignment shall be treated, or if no treatment is available, the consignment shall be destroyed or returned.

(4) In case that any new pest that has not been assessed is found or in case that Korea's quarantine pests in Annex 2 are detected continuously, increasing the risk of pest entry, APQA may conduct pest risk assessment and determine necessary quarantine measures based on the results of the assessment.

(5) APQA shall inform the NPPQ of India of the pest interception.

9. Pre-clearance inspection

A. The fresh mango fruits for export to Korea shall be undergone a pre-clearance inspection by APQA plant quarantine inspector. The NPPO of India shall send a letter to APQA requesting the pre-clearance inspection, 20 days before commencement of export.

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

(1)The required number of APQA inspectors and inspection period;

(2)Estimated export volume; and

(3)The places of vapor heat treatment or hot water treatment

C. The APQA plant quarantine inspector shall check the process of vapor heat treatment or hot water treatment, and perform a joint export inspection in collaboration with the Indian plant quarantine inspectors, and if necessary, check sanitary conditions of export orchards and packinghouses.

D. The APQA plant quarantine inspectors shall indicate the date of export inspection and sign on the back of the phytosanitary certificate.

E. The costs for the APQA plant quarantine inspector pertaining to the pre-clearance inspection shall be borne by APEDA in accordance with the APQA's rGuidelines for Overseas Travel Costs for Pre-clearance Inspection ȷ .

F. The pre-clearance inspection shall be carried out for the first year after market access has been permitted, and whether to continue the pre-clearance inspection or not, shall be determined after reviewing the results of first year's pre-clearance inspection through consultation between the two sides. C) - 1 4 A 1 - 7 = 1 c 4 -

[ANNEX 1] Quarantine pests associated with fresh mango fruits from India

- **Pathogens(7 species)**

***Cytosphaera mangiferae* ***

***Xanthomonas campestris* pv. *mangiferaeindicae* ***

Ceratocystis paradoxa

Oidium mangiferae

Pestalotiopsis mangiferae

Phytophthora heveae

Elsinoe mangiferae

- **Insect Pests(21 species)**

***Bactrocera carambolae* ***

***Bactrocera caryeae* ***

***Bactrocera correcta* ***

***Bactrocera cucurbitae* ***

***Bactrocera dorsalis* ***

***Bactrocera dorsalis* sp. complex ***

***Bactrocera invadens* ***

***Bactrocera tau* ***

***Bactrocera zonata* ***

***Sternochetus frigidus* ***

***Sternochetus mangiferae* ***

Coccus viridis

Abgrallaspis cyanophylli

Aonidiella aurantii

Aonidiella orientalis

Aulacaspis tubercularis

Hemiberlesia rapax

Lepidosaphes beckii

Parlatoria ctypta

Parlatoria oleae

Brevipalpus phoenicis

* **The 13 species require specific risk mitigation measures.**

* If any other pests that are not mentioned in the above are found during import inspection, the consignment shall be disposed in accordance with Korea's Plant Protection Act and relevant regulations.

[ANNEX] 2: Guidelines for Vapor Heat Treatment

1. Standards for checking VHT facilities

A. Through the visual and physical inspection of all facilities, inspectors shall 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.

B. The VHT chamber, circulation fan and heaters shall be cleaned and inspected every week.

C. The temperature and humidity sensors shall be checked and calibrated before commencement of export and in case of necessity.

2. Standards for sensor calibration test

A. All sensors shall be calibrated before use and every month by dipping them in a standard water tank where a standard thermometer and hygrometer are installed.

B. The accuracy of fruit temperature sensor shall be ±0.1 t within the hot treatment temperature(47.5°C).

C. Zero adjustment shall be corrected based on 3 measurements recorded every 5 minutes. The sensor whose error range of measured value is over ±0.3 C cannot be used.

3. Standards for VHT chamber test

A. The VHT chamber test must be conducted at the commencement of each season and additional test may be carried out whenever necessary.

B. The test shall be performed by loading empty crates inside the chamber to the maximum capacity.

C. Place the permanent sensor at the center of each crate placed close to the vapor heat outlet.

D. The chamber shall be heated until the temperature reaches 47°C or higher and shall be stabilized.

E. Monitor the temperature of all sensors and check whether they conform to the fluctuation tolerance of ±0.3t . (Calculate the difference between the highest and the lowest temperature/2 = ±0.3°C.)

F. The temperature measurement can be printed or recorded every 5 minutes.

4. Cold spot test

A. The test shall be conducted at the beginning of every export season or whenever deemed necessary.

B. Load the fruits to the maximum capacity inside the chamber, based on commercial export volume.

C. Pick the largest and heaviest fruit for the temperature test and put it in each pallet.

D. The test fruit shall be green and hard, and their weight must be within the same range.

E. Place the temperature sensor in crates located at the top, middle and bottom of each pallet.

F. Apply the VH treatment in the same manner as it is done in the actual fruit export. (The test treated volume may be exported after the test.)

G. The spot which reached the temperature of 47.5°C the latest shall be determined as the cold spot.

H. According to the test results, the location of permanent sensors shall be determined.

5. Installation of thermometer and hygrometer

A. 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.)

B. Install the temperature sensors into the cores of fresh fruits at more than 3 locations and at 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.)

C. Insert the temperature sensor to ensure that fruit core temperatures can be recorded. (If necessary, connect several fruits together.)

6. Procedure and process of VHT

A. The temperature of the vapor heat treatment chamber shall be maintained at 48°C or higher during the treatment.

B. After the fruit core temperature reaches 47.5°C, the treatment shall be held for more than 20 minutes and the relative humidity in the chamber shall be maintained at 90% or more during the treatment.

C. The overall time required for VHT shall be more than 2 hours.

D. After the vapor heat treatment, the fruits shall be allowed to hydro cool or air cooling for 30 minutes. Before packing, the fruits shall be stored in a sanitized room for 2 hours.

7. Prevention of fruit reinfection after VHT

A. All doors and openings to the chamber, packing houses and storage facilities shall be installed with proper insect-proof equipments.

B. After VHT, the fruits shall be placed in crates, plastic pallets or on tables while relevant containers shall be washed everyday and the table shall be disinfected before packing.

C. The treated fruits shall be separated from other fresh fruits, and fruits that were not treated shall not come into contact with fruits that have been vapor heat treated.

C. All persons working on packing shall wash their hands and dry them before packing.

E. Fruits that are VHT applied shall be packed in a sanitized room. (They shall not be packed in the same space with fruits that are not VHT applied.

F. The treated fruits shall be loaded into a clean container or truck for transportation.

8. Standards for treatment rejection

A. In case that the fruit core temperature is not raised to 47.5°C or higher and does not last for 20 minutes, consecutively, during the treatment;

B. In case that any live fruit flies are detected after VHT;

C. In case that damaged fruits such as over-ripe fruits are found more than 30%, the lot shall be rejected and the VHT process should be checked.

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D. In case that damaged fruits such as over-ripe fruits are found less than 30%, only the damaged fruits shall be rejected and the rest of the fruits will be approved.

E. In case that a small sized fruit is used as a test sample among fruits mixed with different sizes;

F. In case that the temperature sensor is not inserted into the testing sample; or

G. In case that there are factors that affect the result of the treatment

[ANNEX 3] Guidelines for Hot Water Treatment

1. How Water Treatment Facilities

A. Hot water treatment facilities shall maintain clean sanitary conditions; and be enclosed or be equipped with insect proof facility to prevent entry of pests.

B. Hot water treatment facilities shall be a batch system where baskets of fruit are loaded onto a platform which is then lowered into the hot water tank, where the water is circulated.

C. The hot water shall be filtered and clean, and shall undergo water quality control and be replaced regularly. The water used for hot water treatment for fruits for domestic markets or for other export markets shall not be reused for mango for export to Korea.

D. The water in hot tank shall be circulated continuously in order to keep the temperature over at **4** 8°C uniformly all throughout the tank.

2. Temperature sensor

A. The accuracy of the temperature sensor shall be within +0.3°C of the treatment temperature (48°C).

B. The temperature sensor shall be calibrated, just before the treatment of fresh fruits of mango for export to Korea each year and every month, based on 2 measurements of each temperature sensor recorded every 5 minutes using the standard thermometer. (A temperature sensor whose margin of error of the measurement exceeds ±0.3°C of the standard temperature cannot be used.)

C. The thermometer approved by the certified testing authority shall be used as a standard thermometer(the accuracy shall be within ±0.°C of 48°C).

D. The hot water tank shall allow the water circulation in order to keep the temperature uniformly in the hot water tank and the temperature sensors shall be installed at a depth 1/3 the distance from the bottom of the tank and this should be proven.

E. If necessary, temperature sensors to check the temperature of the tank and temperature of fruit pulp after treatment shall be prepared.

3. Temperature recorder

A. The temperature recorder must have the automatic temperature recording function (the strip chart or data logger) so that the temperature can be checked anytime from outside, and all temperature sensor measurements should be recorded, saved and printed. It shall also indicate identification number of the recorder and hot water treatment facility.

B. The accuracy of the temperature recorder shall be within ±0.3°C, and the temperature recorder shall be able to record the temperature at least every 2 minutes. It shall not be possible to make changes to the measurements.

4. Method of hot water treatment

A. The hot water treatment should be applied to only fruits whose weight is less than 500g that passed the quality test.

B. The temperature of the fruit core shall be over 21°C before hot water treatment. The fruit core temperature shall be measured randomly and if the temperature reaches expected temperature, the fruits shall be treated with hot water immersion.

C. The hot water treatment shall begin from the point when all temperature sensors in the hot water tank reach over 48°C for more than 60 minutes. (Nevertheless, it is acceptable even if the temperature of the hot water tank goes down to 47.4°C right after fruit immersion but the temperature shall again go up to 48°Cwithin 5 minutes.)

D. The fruits must be dipped more than 10cm below the water surface.

E. After the treatment, the fruits shall be kept at the air temperature without rapid cooling.

5. Prevention of recontamination after hot water treatment

Fruits treated with hot water dipping shall be stored, packed and conveyed in a facility equipped with enclosed or insect proof facility.

6. Rejection standards for hot water treatment

A. In case that the temperature of the hot water tank goes down to 47.4°C right after fruit immersion but the temperature shall not again go up to 48°C within 5 minutes;

B. In case that the temperature sensor measurements consecutively goes down below 48°C for more than 10 minutes during the process of hot water treatment;

C. In case that the temperature of the fruit pulp is lower than 46°C, when the fruit pulp temperature is randomly checked immediately after the treatment;

D. In case that a live fruit fly is found after the hot water treatment; or

E. In case that there are any factor that may influence the result of the treat