WORK PLAN FOR THE EXPORT OF YELLOW PITAYA FROM THE REPUBLIC OF COLOMBIA

I Definition

1. Product included in the program

Yellow pitaya (*Hylocereus megalanthus*, syn. *Selenicereus megalanthus* Haw.) which is produced in the orchards of the Republic of Colombia designated by the Colombian Agricultural Institute (ICA).

II Participants' Responsibilities

1. Colombian Agricultural Institute (ICA)

(a) Provide and maintain an up-to-date work plan for the program.

(b) Provide management and supervision of the program.

(c) Coordinate the activities and communications of the program with Ministry of Agriculture, forestry and fisheries of Japan (MAFF) and pertinent organizations (facility staff, exporter, etc.).

(d) Certify new vapor heat treatment (VHT) chambers and facilities and re-certify them once a year.

(e) Send the list of approved VHT facilities to Japan before the export season of the year in case that there is additions or changes.

(f) Keep the onsite certification of VHT and conduct the export inspections to ensure that the MAFF requirements have been met according to this work plan.

(g) Ensure that all facilities and equipment are in good working conditions and have an appropriate event recorder and back up for VHT, and that the packing facilities are clean, pests free, and fully enclosed to prevent live South American fruit fly (*Anastrepha fraterculus* Wiedemann) entry.

(h) Ensure that all cartons are properly marked and certified according to the work plan.

(i) Maintain and document an accurate record of VHT, inspection and any problem encountered.

(j) Sign and issue phytosanitary certificates for export shipments.

(k) Inform MAFF of any serious problems which result in rejection of VHT or the export shipment and in the case of any serious violation as determined by ICA.

(l) Approve all VHT chambers, treatments, and shipments.

(m) Keep implementation records of documents of the system such as the:

(1) Method and frequency of the calibration of the self-registering thermosensors, and the results.

(Calibration shall be conducted during the audit and compared with the calibration result during the other period.).

(2) Appropriateness in VHT method for commercial shipments (loading, self-registering thermosensor position, etc.) and confirmation method (interval of temperature record, etc.).

(3) Situation in keeping temperature record (VHT time, VHT chamber, commodity,

amount, fruits size, sensor fruits size, self-registering thermosensor position, starting time, treatment temperature record, ending time and if the information on people who confirmed the treatment is kept properly.)

(4) Record for the abnormal incidents such as VHT chamber troubles, etc. are properly kept, and if the measures to cope with the troubles are appropriate.

(5) Export inspection

(6) Copies of Phytosanitary Certificates issued by ICA

(7) Documents exchanged between ICA and each facility (contents of improvement, application for repair, reports, etc.).

(8) Record of abnormal incidents such as VHT chamber problems, etc. and details on the measures taken (all these should be documented and signed by ICA inspector with the date.)

2. Ministry of Agriculture, forestry and fisheries of Japan (MAFF)

(a) MAFF can request submitting records or documents which ICA are kept.

(b) If any suspicious points or non-compliance issues appears from submitted records or documents, MAFF can request ICA to clarify the suspicious points or correct non-compliance issues.

3. Pertinent organizations

(a) Maintain a South American fruit fly proof facility for the program.

(b) Facilitate of the work plan implementation through the strict compliance with agreed procedures.

(c) Provide the necessary assistance and logistic support for timely completion of work plan.

(d) Inform the acquisition of new VHT chambers and changes into the facilities and request the re-certify them.

(e) Maintain all facilities and equipment in good working conditions ensure timely registration of events and the availability to have an appropriate event recorder and back up for VHT, and that the packing facilities are clean, pests free and fully enclosed to prevent live South American fruit fly entry.

(f) Maintain and document an accurate record of VHT, inspection and any problems encountered.

(g) Apply all VHT chambers, VHTs, and shipments.

III Operational Procedures

1. VHT Chamber and Facility Approval

(a) Each exporting company will submit to ICA a copy of VHT facilities, diagram of the layout of the packing facilities, and a site plan showing the relationship of VHT facilities and packing facilities.

(b) Any new or modified VHT chamber must receive approval and examined by ICA.

(c) ICA keep the latest information regarding the facilities (a copy of VHT facilities, diagram of the layout of the packing facilities, and a site plan showing the relationship of VHT facilities

and packing facilities, floor plans of the facilities, number of self-registering thermometers and hygrometers, etc.) ICA certified, in case of MAFF's requests.

2. Inspection and Certification

(a) Conducted under ICA and accompanied by the phytosanitary certificates issued by that Authority, which acknowledges that, as a result of inspection, it is apparently free of any quarantine pests or diseases, especially South American fruit fly.

(b) ICA inspectors will conduct the inspection and VHT for the yellow pitaya fruit export to Japan, and will ensure that requirements have been met according to this work plan. Also, VHT date, the treatment method, VHT duration and VHT temperature must be recorded in the treatment section of the phytosanitary certificate.

3. VHT

The fresh yellow pitaya fruits shall be disinfested with saturated vapor in VHT facilities. The temperature at the innermost fruit pulp shall be raised to 46.0 degrees centigrade and has been kept 46.0 degrees centigrade or higher for 20 minutes.

4. VHT Facility

(a) VHT facility shall satisfy the following requirements, which ICA inspector will be responsible for:

(1) It shall have a self-registering thermometer and hygrometer.

(2) The self-registering thermometer shall be capable of measuring the core temperature of one or more fresh fruit each at the top, middle and bottom layer of a pile, as well as the air temperature within VHT chamber at one or more places.

(3) The self-registering hygrometer shall be capable of measuring the air humidity within VHT chamber at one or more places.

(4) VHT facility shall be capable of keeping the innermost fruit pulp temperature of 46.0 degree centigrade.

5. Inspection and Confirmation of Disinfestation

(a) The confirmation of the enforcement of disinfestation shall be, as a rule, conducted by ICA inspectors as follows;

(1) The innermost fruit pulp temperature in VHT chamber shall be raised to 46.0 degrees centigrade with saturated vapor. Subsequently, the temperature has been kept at 46.0 degrees centigrade or higher for 20 minutes.

(2) The measuring points of the innermost fruit pulp temperature are set appropriately and so on.

(b) ICA inspector will review the following documents and verify that VHT has met all the requirements. These records will be kept in a special file in case of MAFF's request.

(1) The computer printout of the start of VHT and the last hour of VHT signed by ICA inspector.

(2) The diagram of the chamber showing the self-registering thermosensor placements

within the treatment load.

(3) The complete computer printout and all appropriate documents related to this program will be kept at ICA office for at least one year for the in case of MAFF's request.

6. Packing and Packing Facility

(a) When air holes are provided in the packages, one of the following conditions must be met:

(1) Fruit shall be wrapped with a packing material such a kind of polyethylene bag before they are packed in a package. (When there are air holes, the diameter of the hole shall be 1.6 mm or less.)

(2) Air holes shall be screened. (The diameter of the screen mesh shall be 1.6 mm or less.)

(3) The package or the bundled packages shall be covered by a screen. (The diameter of the screen mesh shall be 1.6 mm or less.)

(b) The places for packing must satisfy the following conditions:

(1) It shall be installed adjoining to VHT facilities, windows and any other opening shall be screened (diagonal of the screen must be less than 1.6mm) in order to prevent infestation by South American fruit fly.

(2) It shall be used exclusively for packing treated fresh yellow pitayas.

(3) It shall be disinfested with insecticide prior to its use each year and shall be disinfested as often as necessary.

7. Inspection of Packing Facilities and VHT facilities

(a) ICA shall conduct the inspection of the packing facilities and VHT facilities

(b) If live South American fruit fly is found in the packing facility, no shipment from that facility will be allowed. The cause of the find will be thoroughly investigated by ICA and the incident will be documented.

(c) The sealing of packages will be carried out under the supervision of ICA.

8. Confirmation of Export Inspection

(a) At least 5 per cent of the total number of cartons of export yellow pitaya shall be inspected to confirm the freedom of quarantine pests and diseases, especially South American fruit fly.

(b) Should any live quarantine pests and diseases be found in the inspection, no shipment will be allowed from this facility. The cause of the infestation or infection shall be thoroughly investigated by ICA and the incident will be documented.

(c) In the case when live South American fruit fly is found, MAFF should be notified immediately. Until the cause is identified and it is approved by MAFF, no VHT shall be conducted.

9. Marking

Indications mentioned for yellow pitaya shall be according to the following (a) as format and letters. Indications shall be marked on the side surface of each package or bundle of packages where can easily be noticed and be large enough to be recognized easily.

(a) Indication for yellow pitaya

- Indication of completion of export inspection (as format)

10. Phytosanitary Certificate

(a) Following confirmation that the fruit was treated in accordance with this work plan, and that no quarantine insect pests or diseases were found during the export inspection as described in this work plan, ICA will sign and issue a phytosanitary certificate for each VHT.

(b) The phytosanitary certificate shall also bear especially following remarks:

(1) The fresh fruits are not infested with the South American fruit fly.

(2) The fresh fruits have been disinfested with VHT.

(c) VHT date, treatment method, VHT duration and VHT temperature should be recorded in the Treatment section of the Phytosanitary Certificate. The name of this box is: Treatment or Disinfestation or Disinfection.

11. Transportation Method

Treated and certified fruits may be exported to Japan as air freight and/or ship cargo.

12. Import inspection

(a) In case that any live South American fruit fly be found in the inspection at the port of entry in Japan, no shipment will be allowed from the facility. As for shipment in transiting to Japan from the facility, it shall be re-export to Colombia or to a third country.

(b) ICA shall suspend certification of fruit from the facility until MAFF confirms that the appropriate corrective action have been conducted against the cause identified by ICA.

IV Violation

1. Any serious infraction of the conditions of this work plan which indicates that the program is not properly managed to prevent the threat of South American fruit fly, may be subject to cancellation of the current system.

2. MAFF shall be invited to conduct necessary on-site inspections of the facility in relation to the determination of certification procedures.

V Revision of the work plan

MAFF or ICA may propose an amendment to this work plan to the other party by the letter in case the where the amendment is considered necessary and may revise this work plan under an agreement between MAFF and ICA.

Annex

Procedure of Inspection of Vapor Heat Treatment (VHT) Facility

1. Calibration of Self-Registering Thermosensors and Humidity Sensors

To verify the accuracy of the graduations that marks the self-registering thermosensors and humidity sensors to use, self-registering thermosensor and humidity sensors calibration must be performed according to the following procedure, taking into account the possibility to make errors during the export period, the calibration must be done more than once a month.

(1) Using a standard thermometer, all self-registering thermosensors and humidity sensors are placed within a tank of constantly hot water at a temperature of 46.0 degree centigrade; the numerical value of each self-registering thermosensor and humidity sensor must be adjusted to 46.0 degree centigrade, which must be recorded in the registration temperature.

(2) After adjusting the numerical values of each self-registering thermosensor or humidity sensor, to take three times the register of temperature at five minutes intervals.

(3) In the three previous measurements, apply the temperatures became the same value twice or more, and adjust each self-registering thermosensor or humidity sensor to those values. If the values are different all three times, continue the measurement two more times continuously, then apply the temperature became equal to two times.
Adjust each self-registering thermosensor or humidity sensor.

(4) If the reading value exceed 46.0±0.3 degree centigrade or the values of measurement are different five times, replace the self-registering thermosensor or humidity sensor.

2. VHT Chamber Test

To confirm whether the vapor heat treatment chamber has the capacity to raise the temperature and humidity levels, confirm the following points:

(1) Stack empty crates inside VHT chamber to the maximum capacity, then heat inside VHT chamber; the self-registering thermosensor in the crate placed near the exit of hot air has to reach 46.0 degree centigrade (if there are multiple units of different pressure, confirm it in each unit.)

(2) The humidity in VHT chamber in the case (1) must be more than 90% and over.

(3) If there are multiple units of different pressure in VHT chamber, and the running test is conducted with selected units, confirm the points (1) and (2), and after the temperature inside units of VHT chamber reached 46.0 degree centigrade, operate with the constant-value

control, confirm that difference among average temperature in each unit is within 1 degree centigrade.

3. Running Test for The VHT Chamber Located at Calle 65 No. 93-22 Bogota. (Running Test for Other VHT Chamber is written in following 4.)

The test is used to determine the self-registering thermosensors location during VHT for the export of yellow pitaya from the Republic of Colombia to Japan. The running test procedures are:

(1) Stack the fruit in VHT chamber and install six self-registering thermosensors in larger six fruits located on the top, middle and lower shelves of the two crate columns aligned back to front.

(2) Start to heat, using saturated vapor, until the all fruits temperature reaches 46.0 degree centigrade, making the measurement at five minutes intervals.

(3) The running test results show the places within VHT chamber in which the temperature does not lift easily. In those places must be placed self-registering thermosensors for fruits that are used during VHT for Japan.

(4) If the fruits used in the running test to meet following conditions, it is considered that such fruits completed VHT for Japan.

(a) The innermost fruit pulp temperature in VHT chamber shall be raised to 46.0 degrees centigrade with saturated vapor. Subsequently, the temperature has been kept at 46.0 degrees centigrade or higher for 20 minutes.

(b) The measuring points of the innermost fruit pulp temperature are set appropriately and so on.

(5) During VHT for Japan, self-registering thermosensors are installed into larger fruit, and the amount of fruit must not exceed the amount of fruit used during the running test.

4. Running Test for VHT Chambers except the Chamber Located at Calle 65 No. 93-22 Bogota

The test is used to determine the self-registering thermosensors location during VHT for the export of yellow pitaya from the Republic of Colombia to Japan. The running test procedures are:

.

(1) ① Stack the fruit in VHT chamber and install fifteen self-registering thermosensors in the center of larger fifteen fruits located at the central part and the four corners on the upper, middle and bottom layer respectively.

However, if there are multiple units of different pressure in VHT chamber, install self-

registering thermosensors according to ②.

② If there are multiple units of different pressure, install fifteen self-registering thermosensors in the center of larger fifteen fruits located at the central part and the four corners on the upper, middle and bottom layer in each unit. All of unit must be checked during the running test.
Furthermore, the conditions for the running test, such as a kind of fruit and a placement of fruit etc., must be under the same condition in each unit.
However, in case of the chamber test (as stated above 2), if it is confirmed that the difference among average temperatures in each unit is within 1 degree centigrade, the runnning test can be executed with more than 1/3 of units. If the running test is executed selecting units, to stack the fruits in unit sampling, for the other units close the entrance of hot air, stop the different pressure fans of the unit, or stack the empty crates and ignite the different pressure fans of the unit.

(2) Start to heat, using saturated vapor until the all fruits temperature reaches 46.0 degree centigrade, making measurements at five minutes intervals.

(3) The running test results show the places within the chamber in which the temperature does not lift easily. In those places must be placed self-registering thermosensors for fruits that are used during the quarantine treatment.

(4) If the fruits used in the running test to meet follows. It is considered that such fruits completed VHT for Japan.
(a) The innermost fruit pulp temperature in VHT chamber shall be raised to 46.0 degrees centigrade with saturated vapor. Subsequently, the temperature has been kept at 46.0 degrees centigrade or higher for 20 minutes.
(b) The measuring points of the innermost fruit pulp temperature are set appropriately and so on.

(5) If there are multiple units of different pressure in VHT facility, and if the running test is conducted several times, the MAFF inspector must attend at least one execution.