

## Annex

### **CONSTRUCTION PLAN REQUIREMENTS OF CHAMBER FOR COLD TREATMENT OF FRUITS**

The chamber for cold treatment of fruits should be equipped with refrigerating compressor, evaporator and ventilation system, and temperature recorder with enough numbers of temperature sensors. The documents covered following information should be recorded for backup. Size and capacity of chamber, Type of wall, floor and ceiling insulation, Brand, mode, model and capacity of the refrigerating compressor, evaporator and ventilation system, and Equipment temperature range, defrost circulation control, specific information documents and specifications of compound temperature recorders.

The cable of sensors should be long enough to reach every point which need to check the temperature. At least five (6) sensors must be used. two (2) sensors measure the temperature inside the chamber (separate at the air exit and return points) and four sensors are the minimum number for fresh fruit temperature measurement. The extra sensors are suggested to prepare except the minimum numbers of sensors.

The temperature recorder should allow for combination of all temperature sensors. Their capacity must allow for recording information from all temperature sensors at least every hour. Print capability is required to produce a hard copy identifying sensor, time and temperature, and specifying the register and container identification numbers.

# **OPERATIONAL PROCEDURES FOR COLD TREATMENT AT ORIGIN**

## **1. Type of Cold-Treatment Chambers**

- 1.1 Cold treatment at origin must be done in cold storage chambers authorized by the GACC and the NPPO.
- 1.2 NPPO officials are responsible for ensuring that the chambers used by exporters comply with the appropriate regulations and have cooling equipment capable of reaching or maintaining the required fruit temperature.
- 1.3 NPPO officials shall keep records of chamber fitting for cold treatment of citrus exported to China. These records include documents compliant with the following requirements:
  - (a) Location of infrastructure and construction plan, including specific owner and handler contact information;
  - (b) Size and capacity;
  - (c) Type of wall, floor and ceiling insulation;
  - (d) Brand, mode, model and capacity of the refrigerating compressor, evaporator and ventilation system, and
  - (e) Equipment temperature range, defrost circulation control, specific information documents and specifications of compound temperature recorders.
- 1.4 Prior to the start of each citrus export season, the NPPO shall deliver to the GACC name and address information of registered refrigerated chambers.

## **2. Types of Registers**

NPPO officials must ensure that the combination of temperature sensors temperature registers are as follows:

- a. Sensors must be accurate at  $\pm 0.15^{\circ}\text{C}$ , in the range of  $-3.0^{\circ}\text{C}$  to  $+3.0^{\circ}\text{C}$  ;
- b. The required number of sensors must be adjustable;
- c. Registers must be capable of recording and storing data during treatment until checked by the NPPO officials;

- d. Their capacity must allow for recording information from all temperature sensors at least every hour with the same precision as required from sensors, and
- e. Print capability is required to produce a hard copy identifying sensor, time and temperature, and specifying the register and container identification numbers.

### **3. Calibration of Temperature Sensors**

3.1 Calibration shall be done with a mixture of crushed iced water and distilled water using a certified thermometer approved by NPPO officials.

- a. Any sensor registering a temperature below  $-0.3^{\circ}\text{C}$  or above  $0.3^{\circ}\text{C}$  for a  $0^{\circ}\text{C}$  start must be replaced by another sensor that matches this criterion.
- b. The NPPO officials shall check the fruit sensors calibration upon treatment completion using the foregoing method.

### **4. Placement of Temperature Sensors under Supervision of NPPO or NPPO authorized personnel**

4.1 Packaged fruit must be transferred to the cold treatment chamber under the supervision of NPPO or NPPO authorized personnel.

4.2 At least two sensors must be used to measure the temperature inside the chamber (separate at the air exit and return points). The following four sensors are the minimum number for fresh fruit temperature measurement:

- a. One probe in the middle of the fruit at the center of the treatment chamber;
- b. One on a corner of the top layer of fruit at the center of the chamber;
- c. One near the air return in the intermediate portion of loaded fruit, and
- d. One near the air return at the top of the fruit load.

4.3 Sensors must be placed and the register connected under the supervision and direction of NPPO officials.

4.4 Registration may start at any time, but the start of treatment shall

only be measured from the moment at which all fruit sensors reach the specified treatment temperature.

- 4.5 When using the minimum number of sensors, if any one of them is out of the validity range for four consecutive hours, the treatment shall be deemed invalid and must be repeated.

## **5. Verification of Treatment Results**

When treatment records show parameter compliance with the requirements, the NPPO officials may authorize ending the treatment. If sensors have been approved pursuant to “Section 3”, it shall be deemed successfully completed.

Sensors must be calibrated prior to fruit removal from the chamber.

## **6. Confirmation of Treatment Results**

- 6.1 Upon treatment completion, the sensors must be re-calibrated as per “Section 3”. All calibration records should be kept and provided at GACC’s request.

- 6.2 Any re-calibrated sensor reading after treatment higher than at placement requires reading register adjustment. Should the adjusted register reading show that it does not comply with the treatment plan requirements, the results shall be considered invalid. The NPPO and the exporter shall jointly decide whether a new treatment is to be applied.

- 6.3 Sufficient statistics must be attached to the printed temperature record as proof of treatment completion.

- 6.4 The NPPO officials must approve the aforesaid record and statistics before ratifying the results as successful, and this approval must be submitted for review at the GACC’s request.

- 6.5 For treatments not meet the requirements, the register may be reconnected for ongoing treatment if either of the following conditions is met:

- a. The NPPO officials confirm that the treatment meets the requirements stated in “Section 6.3” or
- b. The time between completion and re-start is less than 24 hours.

In both cases, the data may continue to be recorded upon

reconnecting the registers.

## **7. Container Loading**

7.1 The containers must be inspected by NPPO officials to guarantee that they carry no pests, and their entrance covered to prevent insects from entering;

7.2 The fruits shall be loaded into the containers in insect-proof constructions, or the entrance to the chamber and container isolated with insect-proof materials.

## **8. Containers Seal**

8.1 A NPPO official shall install a numbered seal on the container door, recording the seal number on the phytosanitary certificate.

8.2 The seal may only be removed by a customs official at the Chinese port of arrival.

## **9. Storage of Fruit Not Immediately Loaded**

9.1 If not immediately loaded, treated fruit may be stored, but safe storage conditions need to be checked by NPPO officials or NPPO authorized officer, i.e.:

(a) When the fruit is stored in the treatment chamber, the door must be closed;

(b) If transferred to other storage place, such transfer must be done in a trustworthy manner approved by the NPPO, and no other fruit may be stored with it, and

(c) Subsequent loading of the fruit into a container must be under supervision, as specified in “Section 7”.

## **10. Phytosanitary Certificate**

10.1 The temperature and duration of the cold treatment at origin must be stated in the treatment section of the Phytosanitary Certificate, together with the name or code of the packaging facility, or treatment chamber.

10.2 The Phytosanitary Certificate and cold treatment report must be delivered to the China Customs upon arrival of the citrus to China. The report must including temperature records and statistics, with NPPO official signoffs, and records of fruit temperature sensor

calibration.