BILATERAL QUARANTINE ARRANGEMENT

between the

Department of Agriculture

of the

Republic of South Africa (DoA SA)

and the

Plant Protection and Inspection Services

of Israel (PPIS)

regarding the

Conditions for the Importation of fresh grapes (*Vitis vinifera*)

from the Republic of South Africa into Israel

Prepared by David Opatowski, PRA, PPIS, Israel

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1. Introduction

1.1 Purpose

This arrangement on plant quarantine requirements is between the Plant Protection and Inspection Services (PPIS) of the Ministry of Agriculture and Rural Development, Israel and the Department of Agriculture of the Republic of South Africa (DoA SA). This arrangement is to enable South Africa to send consignments of fresh grapes (*Vitis vinifera*) to Israel while minimizing the phytosanitary risks involved. It is understood that the producing country's national plant protection organization is officially and directly responsible for assuring that the requirements detailed herein are fully implemented prior to export.

1.2 Scope

This paper contains the conditions that permit the importation of fresh grapes from the Republic of South Africa into Israel. It also outlines the responsibilities in implementing this arrangement by the two quarantine services.

1.3 Background

Until October 2000, fresh grapes from the Republic of South Africa were not permitted entry into Israel. This was consistent with the policy that prohibited the import of plant material from new sources until a pest risk analysis (PRA) has been completed. The PRA was completed in October 2000 and the PPIS concluded that the importation of fresh grapes from the Republic of South Africa could be permitted, provided that the Republic of South Africa met the requirements described in a bilateral arrangement that was signed on that date. Following a number of years of experience in the import of this commodity, this revised arrangement puts into place the agreed changes in the import requirements as agreed by the two sides.

2. Definitions

2.1 Quarantine Pests for Israel

These pests, according to information received from the exporting country or from the literature may occur in the Republic of South Africa on grapes and are not known to occur in Israel or are present in Israel but are not widespread and are being officially controlled.

Arthropods

Acia lineatifrons
Aleurocanthus spiniferus
Aleurocanthus woglumi
Ceratitis rosa
Cryptolarynx vitis
Cryptophlebia leucotreta
Epilachna undulata
Eremnus spp.
Gryllus bimaculatus
Heliothrips sylvanus
Phlyctinus callosus
Pseudococcus calceolariae
Quadraspidiotus perniciosus
Tortrix capensis

Pathogens

Coniella petrakii	*Botryosphaeria obtusa*
Coniothyrium diplodiella	*Elsinoe ampelina*
Eutypa armeniacae	*Greeneria uvicola*
Guignardia bidwellii	*Sphaceloma ampelinum*
Trichoderma viridae	*Xanthomonas ampelina*

This list does not include all quarantine pests, such as passenger pests that may arrive or a new pest of grapes in the Republic of South Africa.

Quarantine action will be taken when a quarantine pest is intercepted on an imported shipment.

2.2 Regulated non-quarantine pests

These are pests whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact and which is therefore regulated in Israel.

Not Applicable

3. General requirements

3.1 Quality and safety standards

Pesticide residues should conform either to the Israeli Regulations on Maximum Pesticide Residue Limits (Doc 585 1997 or its amendments, website: www.moag.gov.il/ppis) or to the maximum residue limits of pesticides according to Codex Alimentarius (1998) of the FAO / WHO.

Quality requirements should conform either to the Israeli quality standards or should be according to the UN/ECE Standard for Table Grapes (FFV-19) UN, Geneva 1999.

3.2 Variety restrictions

All varieties are covered by this arrangement.

3.3 Seasonal and quantity restrictions

Importation is not restricted to a specific season or quantity.

3.4 Trial period

A trial period of two years (since October 2000) has been fulfilled with an extra two years, to test an alternative management option for grapes from the Hex River Valley. During these years a number of concerns and suggestions were raised by both sides. The arrangements on these issues are incorporated in this revised bilateral arrangement.

4. Responsibilities of DoA

4.1 Production site requirements

For areas covered by this arrangement and specific requirements for each area see appendix I. Other areas not specifically mentioned in appendix I are prohibited unless added to this document by arrangement of the two sides.

The grapes must originate from vineyards approved for export to Israel by the DoA SA where cultural practices and chemical controls are carried out to ensure freedom from pests and diseases.

These vineyards should be identified according to the growers' name and vineyard identification numbers. A list of these vineyards should be sent to PPIS prior to commencement of export and no later than the 1st of November.

Vineyards should be homogenous in character. Vineyards with other fruit trees or other crops present are disqualified for export to Israel.

The grapes must originate from vineyards free of *Aleurocanthus woglumi* and must be from areas free from citrus groves or there must be at least 500m' between the edge of the vineyard and the citrus groves.

The grapes must originate from vineyards free from *Quadraspidiotus perniciosus* during the last two growing seasons.

4.2 Inspection during active growth

The vineyards must be monitored, with the aid of pheromone specific traps, and found free from *Ceratitis rosa* for at least three months prior to export.

4.3 Recording and reporting of new pest discovered in the production areas

Grapes should not be sent from any area except those mentioned in appendix I

Any discovery of a new pest in any area from which grapes are exported to Israel, such as *Aleurocanthus spiniferus,* should be reported immediately to PPIS.

4.4 Packinghouse requirements and labeling

A list of approved packinghouses should be sent by DoA SA to PPIS prior to commencement of export and no later than the 1st of November.

Only new, unused cartons are acceptable. Each box should be marked with the packinghouse name, grower's name and vineyard number or codes identifying this.

4.5 Post-harvest treatments

See appendices II and III.

4.6 Handling and storage of export

Boxes should be safeguarded after inspection and packing and kept separately in cooled rooms until they are shipped. Boxes should not be left outside, exposed to the environment or in close proximity to incoming harvested or culled fruit.

4.7 Pre-shipment inspection

The grapes must be pre-shipment inspected at the packinghouses by PPECB personnel and then by DoASA officials at the port, before shipment, for freedom from pests and diseases. Each pallet, after the phytosanitary inspection of DoASA at the port, should then be marked on each side with a label stating "Approved for Israel". During the first season of this arrangement the inspection at the port will also be under the supervision of PPIS. Inspections should be according to the following:

Lot size:	1-160	cartons	Sample size	25 cartons
	161-800	cartons		50 cartons
	801 and above	cartons		100 cartons

The definition of lot for this purpose is per grower, vineyard plot and grape variety.

These samples should be taken in a representative manner from each pallet.

Presence of quarantine pests or diseases should automatically disqualify that lot and the vineyard from which it was harvested, to export to Israel during that season.

4.8 Shipping requirements

Shipments should be sent from Capetown and Durban seaports only [1]. Fruit should be cold treated in-transit according to appendix II. Each container should be sealed with a seal approved by the DoASA and the seal number stated in the Phytosanitary Certificate.

Shipments must be free of pests, soil, sand, leaves, and plant debris, including woody material, except stems of fruit. If the pallet is made of wood the pallet must be either heat treated or fumigated with methyl bromide, in accordance with "Guidelines for Regulating Wood Packaging Material in International Trade" (ISPM 15) and marked with an approved international mark certifying this treatment.

5. Documentation:

5.1 Import permit

An import permit from PPIS is required.

[1] Any additional seaport requested may be added provided that this has been prearranged and agreed upon by PPIS.

5.2 Phytosanitary certificate and additional declarations

A Phytosanitary Certificate (PC) is required and the original must accompany the shipment to Israel. Copies should also be given to the captain of the ship and also faxed to the PPIS office in Bet Dagan at least three working days prior to the arrival of the shipment in Israel Fax: 00972-3-9681571.
The importer should bring the original certificate to the PPIS official at the port of arrival.

The phytosanitary certificate should include,

a) the additional declaration:

"The consignment is in accord with the bilateral quarantine arrangement on grapes from the Republic of South Africa to Israel, revised October 2006. In addition, the fruit originate from vineyards free from *Quadraspidiotus perniciosus* during the last two growing seasons and found free from *Ceratitis rosa* for at least three months prior to export according to pheromone traps. The grapes were inspected and found free of *Phlyctinus callosus* and free of *Aleurocanthus woglumi, Tortrix capensana*, weeds and other quarantine pests and diseases."

b) the seal numbers of the containers in the consignment.

c) the grapes in this consignment have been produced in (specify area i.e. Orange River Valley or Hex River Valley).

d) if any mandatory pre-export treatment is carried out, this must be stated and the fumigation facility number / name included. Details of methyl bromide fumigation must also include dosage, treatment duration, and grape pulp temperature.

5.3 Required additional information

The following information should be sent to PPIS at the beginning of each fruit-growing season.

a) A list of approved vineyards. Maps showing their locations must be kept at DoASA for inspection by PPIS, if required. (# 4.1 above).

b) A list of approved packinghouses (# 4.4 above).

The following information should be sent to PPIS at least two weeks before commencement of shipments to Israel:

c) A report on the pheromone trapping surveys for *Ceratitis rosa* for each approved vineyard (# 4.2 above).

6. Responsibilities of PPIS

6.1 Pre-clearance and/or supervision

Pre-clearance by PPIS may be required if a problem arises.

6.2 Preshipment: on-site inspection, sampling and testing

On site inspections by PPIS may be required if a problem arises.

6.3 On-arrival inspection

PPIS inspectors will verify that the PC conforms to the requirements specified in the Israeli Import Permit and in this document.

Shipments will be examined for freedom from pests, soil, sand, leaves, and plant debris.

Shipments are subject to inspection and sampling on arrival to determine if pests are present. A representative sample of the contents will be randomly selected, at the inspector's discretion, and examined. If live pests are found, samples will normally be sent for laboratory identification, and the shipment held pending the results.

6.4 Quarantine action

On arrival in Israel the grapes may be refused entry and returned to origin, disposed of or treated if they do not meet the requirements or if they are found to be infested with any live quarantine pests.

The discovery of living stages of any quarantine pest/s in any shipment may result in suspension of the importation program until remedial action is taken at origin.

The importer is responsible for any costs relating to disposal, removal or rerouting, including costs incurred by PPIS to monitor the action taken. Treatments, where they are possible, will be applied only with the arrangement and at the expense of the importer.

The PPIS will report to DoASA any pest interceptions or non-compliance with any of the conditions of this arrangement.

7. Names, mailing addresses, telephone, facsimile and e-mail numbers

Mr Eldad Landshut,
Director, Plant Protection and
Inspection Services
PPIS
Beit-Dagan, 50250
Israel
Tel: 972-3-9681500
Fax: 972-3-9681571 or 07

Dr Marinda Visser

Department of Agriculture
Directorate Plant Health
Private Bag14, Gezina 0031Pretoria
Republic of South Africa
Tel: 0027-12-319-6539 / 29
Fax: 0027-12-319 6580

8. Authorization

8.1 Applicability

This arrangement will commence on the date of the signature below. The arrangement will remain in effect unless rescinded or due to any of the circumstances given above as cause for such action. Either side may suggest changes in this arrangement for discussion at any time.

PPIS reserves the right to suspend or change (in arrangement with DoA SA) the requirements for, the importation of grapes from the Republic of South Africa in the event that Israel's phytosanitary requirements are not met or a change in the pest status of the commodity in South Africa has occurred.

8.2 Signatures

Signed on the 31 **day of** October **of the year 20** 06
(in the English language)

name Marinda Visser	**name** ELDAD LAMDAN
title Director: Plant Health	**title** Director PPIS
signature	**signature**
For the Department of Agriculture Republic of South Africa	**For the Plant Protection and Inspection Services, Israel**

Appendix I

Areas and their special requirements

1. Orange River Valley: Cold treatment

2. Areas where *Phlyctinus callosus* is present - Hex River Valley:

a) Methyl bromide + Cold treatment or

b) Stem barriers (Plantex®, or any other PPIS approved substance) + Karate application during growth, when necessary + Cold treatment

Stem barrier application

1. Only vineyards that have been under DoA's direct supervision for the proper application of stem barriers, during the whole of the season, are approved.

2. A list of these vineyards must be sent to PPIS by 1st of November.

3. All vines in the vineyard must be treated with stem barriers, including vines less than three years old. Presence of untreated vines of any age will disqualify that vineyard for export to Israel.

4. Application of the stem barriers must be applied during winter after pruning but no later than the middle to third week of September.

5. All old and loose bark just below the crown in an area of at least 25cm wide, or the whole stem, must be removed and burned. All new bark that could reduce the efficacy of the stem barriers must also be removed during the following months.

6. A strip, at least 10cm wide, of stem barrier must be applied to all stems, trellis poles and support wires in contact with the soil. No passage for any snout beetles onto the vine canopy should remain at all anywhere in the vineyard.

7. All long shoots that could in time touch the soil or any other place where it could form a bridge for insects to reach the canopy must be removed every two weeks.

8. Weeds must be kept under strict control to prevent them as acting as bridges to the canopy and to eliminate feeding sources for the snout beetles.

9. The stem barriers must be checked once or twice a month and regenerated to keep it tacky/sticky by stirring with a stick or changing with a new strip. Dust and insects may settle on the glue thus making the strip ineffective. This must be prevented at all times. Records of these checks must be kept.

10. No picking trays should be left on the vineyard floor before or during harvest.

11. Presence of any *P. callosus* adults on vines in the orchard (above the stem barrier), in packinghouses or in the consignment at any time, will disqualify that orchard for that season for export to Israel under these conditions.

Appendix II

PROCEDURE FOR IN-TRANSIT COLD TREATMENT
TO ERADICATE FALSE CODLING MOTH IN GRAPES
Revised October 2006

Prepared by Dr Yigal Nitzan, Inspection Service – PPIS, Israel

1. Containers

a) Containers' type and series must be USDA-approved (PPQ Treatment manual). The data list of the container to be used should be mailed to PPIS-Israel in advance prior to the export season or, if a new container is added to the list, with the updated USDA-approved container list (including mark-numbers, owner name, volume, type of recording device and designated date).
b) Must be sound, insulated, in good working order and of close type (doors of a tight sealing).
c) Must have the capacity to maintain the grape pulp temperature for cold treatment.
d) Must be equipped with an automatic (on board, built-in) recording device.
e) Must be pre-cooled to the cold treatment temperature (or below) prior to loading for at least 12 hours ((preferably 24h) in a container with a calibrated recording device and sensors, placed according to the location plan) . During the 12 hours the temperature of the cold treatment is continuously maintained and the temperature recording device and sensors are operating effectively.

2. Temperature Recording System

a) Must be an automatic recording device (preferably the built-in Datacorder Microlink Type 1 or 2i) to continuously monitoring the grape pulp temperature in at least 3 locations in the container (according to the enclosed plan) at outside of the container during the cold treatment.
b) The automatic temperature reading must be recorded continuously at least once every hour in units of 0.1oC for a minimum of one month after calibration or up to the end of the cold treatment, which ever is the longest (see 6b below).
c) The recording device must be capable to produce a printout of the accumulated temperature data at any request. The data may be first downloaded into a laptop computer before printing.

3. Sensors

a) Sensor's type must have an optimal accuracy for the temperature range of this cold treatment (like PT100).
b) Outer sheath of sensor must be fitted for insertion to grapes through a puncture and without breaking the fruit (ca 5cm or less long, ca 3.8mm diameter or less and sensing unit located within the first 20mm or less of the sensor's tip).
c) Sensor's connection to the cable must be waterproof to prevent malfunctions caused by immersion in the ice-water mixture (during calibration) or by grape's juice during cold treatment.

d) Must be tagged with a number identical to sensor's number accompanying its readings in the printout produced by the recording system. The tag of the sensor's number shall be firmly attached to the sensor cable 10cm from the sensor.
e) Only calibrated sensors (which must be calibrated immediately prior to loading) will be used for cold treatment (see 6b below).

4. Calibration of Temperature Monitoring System

a) Calibration must be performed not more than one month before shipment
Calibration of the temperature monitoring system must be conducted by the DoA authorized personnel.
b) The calibration of the temperature-recording device together with its sensors must be conducted simultaneously as an effectively operating system.
c) The calibration must be conducted using a mixture of crushed ice and water in a clean, insulated container. At least 10 minutes of adaptation period, and confirmation (with a calibrated thermometer) that the water temperature has reached a steady state of 0.0ºC is essential before the next steps.
d) During the calibration all the temperature sensors, and the calibrated thermometer, must be immersed in the water part of the mixture without touching each other, sides or bottom of the container or ice pieces. The mixture must be constantly stirred while testing. Only after the readings are stabilized at the lowest constant temperature the calibration readings can be conducted.
e) A cylinder made metal net (mesh diameter ca. 2mm) with one end closed, immersed with it's closed end down into the water of the mixture, can be a useful means. This cylinder prevents a direct contact between the temperature sensors immersed in the water inside it and the ice particles that are limited to the ice/water mixture outside the net.
f) Two consecutive readings, of the lowest temperature, must be recorded to ensure that there is no change in the readings during the calibration. If the range between the two readings of a sensor is 0.2ºC or more and this is also the case in the third reading this sensor must be replaced and rejected for further use for cold treatment (only a 0.1ºC difference is allowed between two consecutive readings). The time interval must be 10 minutes, or more, between the two readings.
g) Any sensor for which the reading shows a deviation of more than ±0.2ºC from 0.0ºC must be replaced and rejected for further use for cold treatment.
h) The temperature of the mixture's water must be carefully maintained. The temperature must be checked regularly with the calibrated thermometer and additional ice shall be added, if needed. After each addition of ice or water, 10 minutes of adaptation period is needed.

5. Fruit Loading and Location of Temperature Sensors in Fruit Pulp

a) Loading and locating of fruit temperature sensors must be conducted by the DoA authorized personnel.
b) Containers must be pre-cooled to the cold treatment temperature (or below) for at least 12 hours prior to the loading.
c) Grape pallets must be marked with a label of identification number. Each number may be used only once in a season. Rejected pallets must be excluded from shipment and their number must not be in use throughout the season.

d) Palletized grapes, after being subjected to quality and phytosanitary inspections, in their final packages with an indication of destination "Approved for Israel" on each pallet), must be pre-cooled uniformly to the cold treatment temperature, or below prior to loading.
e) The loaded grapes must be uniformly at the temperature of –0.55ºC, or below.
f) During the loading the temperature sensors used to measure the fruit pulp temperature must be inserted carefully into the fruit. Sensors inserted into grapes must penetrate two or more fruit in order to be fixed in place and conduct accurate temperature measurements. The sensor's tip must not extend beyond the fruit, as well as fruit rupture and opened by sensor insertion, to prevent measuring air temperature instead of fruit pulp temperature. In these cases, the cold treatment is rejected.
g) Records from at least 3 fruit temperature sensors are requested in order to monitor the old treatment in a container. These sensors must be distributed throughout the fruit in a representative cross section of the container that enables an adequate monitoring of the temperature.
h) Location of fruit temperature sensors must be according to the plan (Annex IV) as follows:
    1. Sensor No. 1: preferably near the cooler, in right pallet, 2nd level from the floor, center of corner box, nearest to cooler & right side wall. Alternatively, this sensor may be placed as above but at the front of the pallet, facing the door.
    2. Sensor No. 2: in the center of the container, in mid-height of the pallet, center of box.
    3. Sensor No. 3: near the door, in left pallet, 2nd level from the top of the pallet, center of corner box, nearest to door & left side wall..
i) After the completion of loading, the container door must be closed properly and sealed with a numbered metal seal. The seal must be intact until arrival at the port of entry in Israel, where the PPIS inspectors only are authorized to open it. Containers with a broken seal must be rejected.
j) The cooling system must be stopped during fruit loading or before any door opening.

6. Cold Treatment Temperature

a) The cold treatment temperature and duration are **-0.55ºC or below for at least 22 days**. If the temperature exceeds -0.3ºC the treatment must be extended for at least 8 hours for each day or part of a day the temperature is above –0.3ºC. If the temperature exceeds +1.1ºC at any time, the treatment is rejected. Only when all fruit pulp sensors measure temperatures of the cold treatment (-0.55ºC) the treatment is initiated.
b) Temperatures must be recorded at least once every hour.
c) The accuracy and calibration of the temperature recording system must be maintained until re-calibration has been performed in Israel.
d) Re-calibration at port of entry, which shows a deviation from the original calibration at South Africa, may change the readings to be above the temperature of -0.3ºC and thus cause extension of the treatment, or above +1.1ºC and thus cause rejection of the treatment.

7. Documentation

Shipment documents for the total load must be provided to PPIS offices as follows:

I. Sent by email (rinad@moag.gov.il), except the PC copies which should be sent by facsimile (Fax: 00972-3-9681571) at least 3 working days prior to the arrival of the shipment.

II. Original documents (hard copies) to be given to the Ship's Master for handing over to PPIS office at the point of entry

III. The following documents apply:

1. Report to officer in charge at the port of entry (see Annex I).
2. Phytosanitary document.
3. Certificate of Origin and Load (see Annex II).
4. Certificate of Loading and Calibration (see Annex III).
5. Temperature readings printout taken from the temperature recording system, including sensors calibration and temperature data of the cold treatment.
6. Location of Temperature Sensors (Annex IV).

8. PPIS Inspection at the Point of Entry

a) No container will be allowed entry into Israel or opened until the cold treatment has been confirmed as required and all relevant documents are checked and found satisfactory.

b) Both phytosanitary and quality inspection must be conducted.

c) The PPIS inspector shall reject/destroy/reship the shipment or complete cold treatment if one or more of the following cases arises:

1. The shipment is not accompanied with a valid phytosanitary certificate.
2. Essential documents of the load, calibration of temperature recording system, cold treatment data, export inspection sensor locations etc. are lacking or ill-prepared (see Annex II, III & IV).
3. Cold treatment was unsuccessful.
4. Container doors are not completely closed (see 1b above).
5. Container seal is broken or was replaced (see 5i above).
6. Temperature sensor extends beyond the fruit or is not located in the planned box (see 5h above), or fruit was ruptured.
7. If more than 2% of the cartons are broken (cartons containing sensors are excluded).
7. Pallets are not marked with "Approved for Israel" (see 5d above).
8. Re-calibration at the point of entry show higher values than that calibrated in RSA and which require correction of the temperature data received over the designated temperatures of the cold treatment (see 6d above).

ANNEX I

Date _____

PPIS Officer in charge

Port of _____

ISRAEL

Dear Mr. / Ms.,

Enclosed please find location records of temperature recording instruments in _____ containers:

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and a copy of our certificates covering the consignment of the product:

These containers are due to arrive in ISRAEL at_____ port on _____ __, 20…, on board of M/V _____.

Yours sincerely,

_____	_____	_____
Inspection place	Name of Authorized Inspector	Signature and Stamp

ANNEX II

Date: _____

Certificate of Origin and Load

This is to certify that the _____
(Name of product)

_____in this container is a **product of South Africa** and from the _____ **area**. The loading of the consignment was carried out under my supervision.

Description of the consignment:

Exporter:_____

_____

Consignee:_____

_____

Name of vessel:_____

Loading was completed on: Date:_____Time:_____

Port of destination:_____

Number of cartons:_____

Container No:_____

_____

In-transit cold treatment:_____
(temperature and duration)

_____	_____	_____
Inspection place	Name of Authorized Inspector	Signature and Stamp

ANNEX III

Date: _____

Certificate of Loading and Calibration for Cold Treatment in Self-Refrigerated Container for ISRAEL

Country of origin: South Africa **Area**: _____

Location of loading: _____

Name of vessel: M/V_____

Container No.: _____

Name of product: _____

Type of air delivery: Bottom / Upper
Type of loading pattern: Palletized (Y / N)

Recording instrument type: Datacorder Micro Link 1 / Datacorder Micro Link 2 I
Recorder Serial No.: _____
Printing interval: 1 Hour.

Sensor calibration (at 0.0^{o} C):

Sensor No.	Test I	Test II	Correction factor (during cold-treatment the readings are corrected automatically?: Y /N)
1			
2			
3			

Start of loading : Date_____Time_____

End of loading: Date_____Time_____

Recorder start time: Date_____Time_____

Average pulp temperature at loading : _____

Container Seal No.:_____

_____	_____	_____
Inspection place	Name of Authorized Inspector	Signature and Stamp

ANNEX IV

Date: _____

Location of Temperature Sensors in Self-Refrigerated Container for ISRAEL

Name of vessel: M/V _____

Container No.:_____

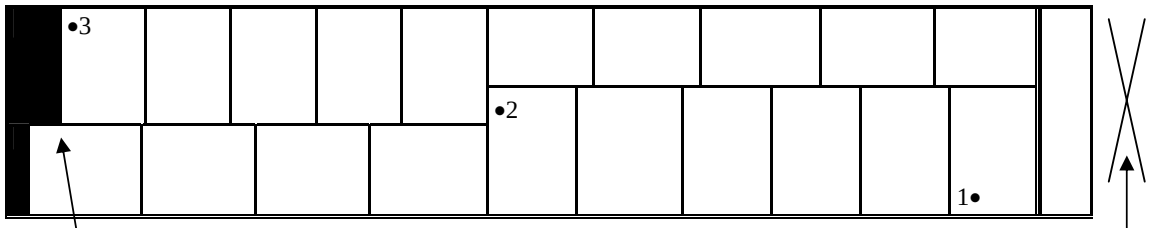
_____

Sensor No. 1: near the cooler [in right pallet, 2nd level from the floor, center of corner box, nearest to floor, cooler & right side wall].

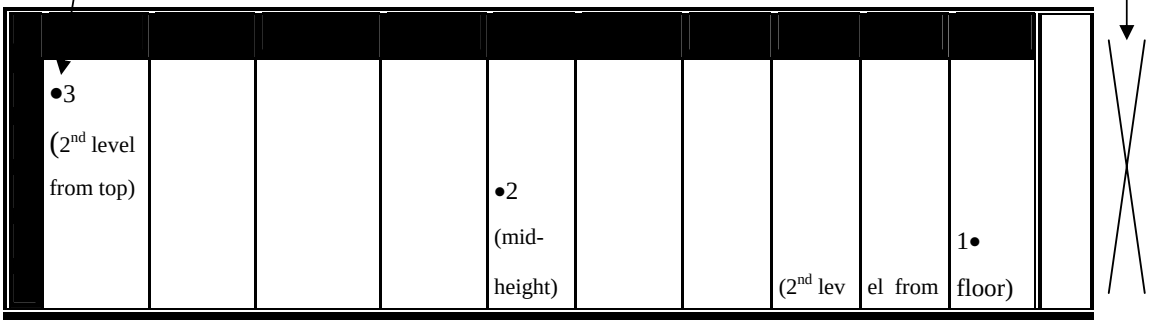
Sensor No. 2: in the center of the container [in mid-height of the pallet].

Sensor No. 3: near the door [in left pallet, 2nd level from the top of the pallet , center of corner box, nearest to door & left side wall].

UPPER VIEW (schematic)



door **SIDE VIEW (schematic)** cooler



_____ _____ _____

Inspection place Name of Authorized Inspector Signature and Stamp

Appendix III

Treatment Schedule for Grapes for external pests:

The grapes must be fumigated with methyl bromide for *Phlyctinus callosus* according to the following.

Temperature	**Dosage rate Methyl Bromide**	**Minimum Concentration Readings At:**	
		0.5 hr	**2 hr**
°C	**g/m^3**	**g**	**g**
27 or above	24	19	14
21-26	32	26	19
16-20	40	32	24
10-15	48	38	29
4-9	64	48	38