

STATE OF ISRAEL
MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT
Plant Protection and Inspection Services

P.O. Box 78, Bet-Dagan 50250, Israel Tel: 972-3-9681586 Fax: 972-3-961571



May 24, 2021

To: Mr. Atish Chandra

Joint Secretary

Department of Agriculture, Cooperation & Farmers Welfare

Room No. 247, Krishi Bhawan, Dr. Rajendra Prasad Road,

New Delhi 110001 India

Re: PRA for the export of *Persea americana* (Avocado) seeds to India

Dear Mr. Atish Chandra,

As requested by PQ Form 24 of the Indian Directorate of Plant Protection, Quarantine and Storage, for the purpose of the importation of *Persea americana* (Avocado) seeds from Israel to India, I take pleasure in sending you the attached information.

Yours sincerely,

Tami Levi

Head of Pest Risk Analysis Division, PPIS

cc: Prof. Abed Gera, Director, PPIS
Ms. Shlomit Zioni, Deputy Director for Export and Import, PPIS
Ms. Dana Ichelczik, Head Plant Biosecurity, PPIS

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INFORMATION REQUIRED TO INITIATE THE PRA IN INDIA

1. Plant and Plant Product

1.1 Common name;

Avocado

1.2 Scientific (genus & species/strain/variety/cultivar) name;

Persea americana

1.3 Resistant or non-resistant varieties;

Varieties: West Idian Avocado Rootstock Seeds: Dganya 117, Ashdot 17, Tzrifin 99, Fairchild.

1.4 Countries that have already imported;

At present, the export destinations and quantities are as follows:

Chile 500,000 seeds / year

Peru 1,000,000 seeds / year

South Africa 100,000 seeds / year

Other export destinations for this product from Israel have been Spain and a few countries in Asia.

**1.5 Plant part to be imported (whole plant/seed/cutting/sapling/
budwood/bulb/fruit etc.);**

Seeds (pits), cleaned of fruit pulp.

2. Production Area

2.1 Place of production on map (country and province);

The main areas of avocado production nurseries in Israel are the Coastal Plain and around the Sea of Galilee, as seen in the map below.

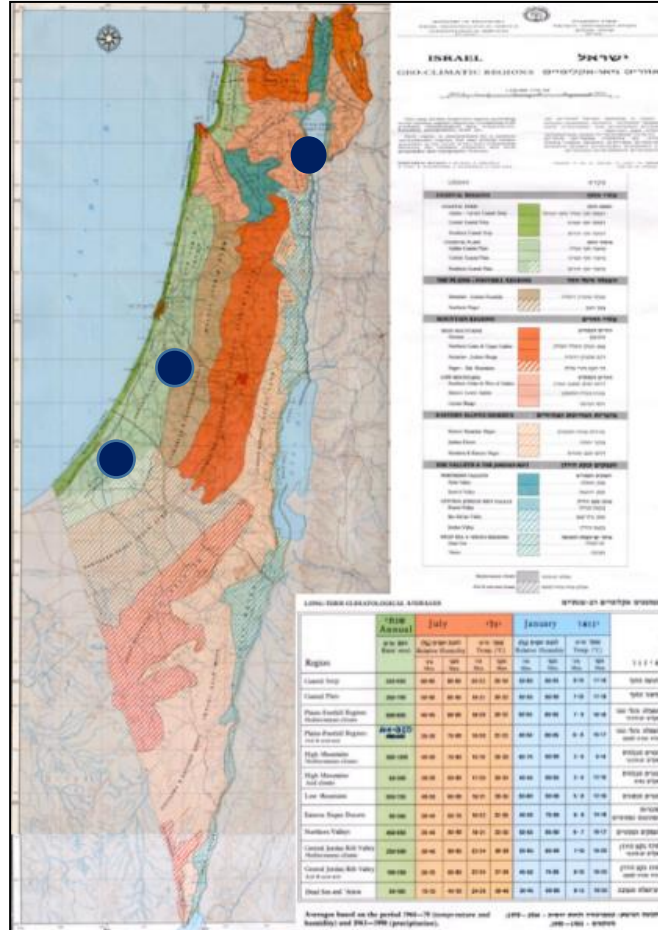
Among the potential places of production of avocado for seeds, the production sites that presently intends to export are in Ha'on (South of the Sea of Galilee), Izra'am Farm (Near Netivot city, Northern Negev), and Brurim Farm (Near Re'em Junction, Coastal plain)

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A



plantation of avocado for seed production in Izra'am

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A young plantation of avocado for seed production in Ha'on

2.2 Production and Export (tons/year);

Estimation: Approximately 10,000 units in the first year and then according to demand.

3. Cultivation practices

3.1 Harvest method and time;

The fruit grow during June-August, and mature in September-October.

Mature fruit are harvested and the seeds are separated from the flesh, rinsed and stored as described herein.

3.2 Plant protection measures (to control and eradicate the pests);

No pathogens or pests have been reported attacking the seeds of avocado in Israel:

No internal avocado seed pests are present in Israel. Nevertheless, seeds are cleaned in a way that leaves no risk of pests. The risk of pathogens that may be relevant to the seed, is eliminated during the mother plant cultivation by inspection and preventative treatments pre-harvest, then in the harvest of clean fruit and finally in the disinfection of seeds.

A few phytosanitary problems that are under attention in the cultivation of avocado for seed production in Israel are:

Verticillium dahliae is a sanitary problem if avocado is planted in areas that were used for potato plantation. Growers take care of avoiding plantation after potatoes, so this is a minor problem in Israel.

Botryosphaeria is a potential problem in avocado cultivation but has not been reported as a problem in seeds in Israel.

Avocado sunblotch Viroid has been reported in avocado in Israel and mother plants are therefore monitored and sampled for this viroid: Five percent of the trees are sampled annually

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by the PPIS and tested for Avocado Sunblotch Viroid (ASBV) at the virology laboratory of the PPIS. The tests for ASBV are conducted by a RT-PCR method.

At the nursery, plants are also officially tested for *Phytophthora cinnamomi* and nematodes.

Specific official inspection can be carried out according to specific import requirements of the importing country.

Monitoring:

- Once every two weeks: a field inspection by the company agronomist, focusing on plant viability, disease symptoms, weeds.
- Nursery plants are visually inspected for Botryosphaeria and sampled twice a year for *Phytophthora cinnamomi*. Nursery plants are sampled for nematodes, too.
- Avocado rootstocks seeds are grown in an Isolated farm which follows a strict sanitation policy
- The plantation is fenced with gates to prevent entry of anyone unauthorized
- All operations are done inside the farm: Seedlings are produced by the exporter, grafts are made onsite and no plant material is brought from outside the farm
- All the agricultural tools (tractors, sprayer, pruner, discus, etc.) remain in the farm premises and are dedicated only to this cultivation. Tools are disinfected before each entry into the plantation.
- Pruning during cultivation
- Weeding
- Preventative spray of copper against fungi
- Hand sanitizer with alcohol is applied upon entry to plantations
- Dipping shoes in antiseptic solution upon entry to plantations
- Trees in seed producing orchards are officially sampled twice a year for PCR lab testing against Avocado sunblotch viroid.



Disinfection at the entrance to an avocado plantation site in Izra'am: disinfection for shoes and machinery wheels

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4. Pest List (separately for all the pests)

Please see Appendix 1 for pest list

5. Packaging

5.1 Method of packaging;

The seeds are stored in a nylon net, inside a plastic bag in a closed carton, on pallets, at 4°C. Airfreight is under 4°C, too.



Avocado seeds in a nylon net, inside a plastic bag and in closed carton



Cartons with avocado seeds, loaded onto a pallet, labelled and ready for shipment

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5.2 Inspection procedure;

- Once every two weeks: a field inspection by the company agronomist, focusing on plant viability, disease symptoms, weeds.
- Nursery plants are visually inspected for *Botryosphaeria* and sampled twice a year for *Phytophthora cinnamomi*.
- Visual inspection of the seeds by the grower during the peeling process.

5.3 Post harvest treatment;

- Avocado rootstock seeds are picked into containers
- Within 2-3 hours they are refrigerated at 4° C
- Refrigerated for 2-5 days and then delivered for peeling
- Fission of the fruit and removal of the seed
- Seeds disinfection with a fungicide: dipping in broad range fungicides to prevent the development of any fungi after harvest.
- Drying the seeds for 24 hours in a closed room
- Storage in a nylon sack or burlap sack, inside a plastic bag in a closed carton, on a pallet, at 4°C
- Deliver to customers at 4° C.

5.4 Conditions and security of storage place.

- Storage in a burlap sack or nylon bag, inside a plastic bag in a closed carton, on a pallet, at 4° C
- Delivery to airport at 4° C in a closed and cooled truck and from the airport to the destination country under similar conditions. During shipment, the seeds are not subject to any phytosanitary risk.
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6. Export program (policy/activity)

6.1 Trading partners; Dvori-Or nursery market the avocado seeds produced by Kibbutz Ma'agan.

6.2 Existing procedure for issuing phytosanitary certificates (including Additional Declaration).

The phytosanitary certificate (PC) issuance system in the PPIS operates according to the international standard ISPM12 as well as an internal standard that is part of the organization quality system. Inspectors who are permitted to complete and sign phytosanitary certificates, are trained and authorized for this purpose, and undergo annual refresher training.

PC issuance is based on the PPIS database of Additional Declarations (ADs), which reflects all destination countries requirements, and provides the ADs per the unique combinations of product, product type, purpose and destination country. The database is maintained within the Ministry of Agriculture intra-net.

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PC issuance will not be possible if the unique combination of parameters does not exist in the database, or if the combination is blocked for any reason. A PC will be signed only if it fully reflects the destination country requirements. The general scheme of the PC issuance process is presented in the figure below.

Inspectors record their inspection in a designated form – the Inspection Report, with appended documentation where appropriate. This form is checked prior to signing the PC, along with the appended documentation, to confirm that the consignment is in compliance with the requirements.

