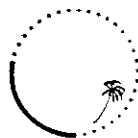


## SOUTH PACIFIC COMMISSION

Quarantine Advisory Leaflet 16  
1988



# AVOCADO

Latin name:	<i>Persea americana</i>
Family:	Lauraceae
Closely related plant:	<i>Cinnamomum zeylanicum</i> — Cinnamon
Trade commodity:	Fruit
Propagating materials:	Seeds, budwood, plants

## Quarantine Risks

Scan no. 8406  
(b)

Trade in avocado exists between countries of the SPC region and between them and neighbouring countries. Propagating material is occasionally imported into the region.

### Fresh fruit

A number of fruit flies infest avocado in the region and each has a different distribution. Those fruit flies of concern are:

*Dacus dorsalis* (oriental fruit fly), *D. facialis*, *D. passiflorae*, *D. psidii*, *D. triseriatus*, *D. tryoni* (Queensland fruit fly), *D. xanthodes*.

Other fruit flies exist in countries outside the region. Avocado fruits are hosts to *Ceratitis capitata* (Mediterranean fruit fly) which is present in Western Australia and Hawaii. All consignments of fruit need treatment or certification that they originated from a fruit fly-free area.

There are other insects which attack

leaves, stems and fruits and some of these are pests of other crops, such as:

*Aspidiotus destructor* (coconut scale), *Crossotarsus externedentatus* (pinhole borer), *Cryptophlebia pallifimbriana* (fruit borer), *Fiorinia florinae* (avocado scale), *Hemiberlesia palmarum* (palm scale), *Nipaecoccus nipae* (coconut mealybug), *Pseudoaonidia trilobitiformis* (trilobite scale), *Selenothrips rubrocinctus* (red-banded thrips), *Solenopsis geminata* (fire ant).

It is unlikely that these pests would be present on fruit of export quality and treatments are recommended only if they are found on inspection. All these pests would be killed by treatment for fruit fly.

There are no fungi or bacteria of quarantine importance that attack fruit. The fungus *Phytophthora cinnamomi* has restricted distribution in the region, is present in nearby countries, and is a root

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pathogen of considerable importance. It could spread to new areas in soil, the roots of plants, or in fruit infected after falling to the ground. Fruit of export quality is not likely to be a risk.

Avocado sunblotch is a disease of fruit caused by a viroid, and is of major quarantine importance.

### **Propagating material**

#### *Budwood and plants*

Insect pests could be carried on or inside

budwood or the stems of plants, and these could be infested with the sunblotch viroid. Plants have an additional hazard: the roots may be infected with *Phytophthora cinnamomi* and/or pathogenic nematodes, especially if contaminated with soil.

#### *Seeds*

Avocado sunblotch viroid is commonly seed-borne. Seed could harbour *P. cinnamomi*, if fallen fruits were used for propagation.

## **Quarantine Action and Treatments**

Mandatory commodity treatments should be given in the exporting country. These should be stated on a phytosanitary certificate, which should accompany the consignment and clearly state its origin.

### **Fresh fruit**

The seed of fresh fruit could produce plants infected with sunblotch viroid. Importations should be made only from those countries, or parts of countries, free from the disease. Trees from any area must be individually tested (indexed) for the viroid, either by grafting stems to sensitive indicator varieties or by biochemical tests. Few tests of this kind have been made in the region, so fruit should not be traded between countries.

A sample of the fruit should be inspected on arrival to ensure that no blemished fruit are present. If there are, *either*, examine the entire consignment, destroy blemished fruit and release the remainder, *or*, if impractical, destroy or reconsign the shipment. Any trash should be removed and burnt.

#### *Fruit flies*

If possible, a phytosanitary certificate should be obtained stating that the country or area from which the consignment originated is free of those fruit flies of concern. Specific treatments using methyl bromide at normal atmospheric pressure for the control of *D. dorsalis* and *C. capitata* are as follows:

*Either*, 32g/m<sup>3</sup> for 2.5 hours at 21°C or above followed by 7 days storage at 7°C or below. (The period of refrigeration may include up to 24 hours precooling time. The interval between the end of fumigation and the beginning of the cooling period should not exceed 24 hours).

*Or*, 32g/m<sup>3</sup> for 4 hours at 21°C or above. This treatment may cause some injury to the fruit and the importer should be warned of this possibility.

#### *Pests other than fruit flies*

Fumigate with methyl bromide at normal atmospheric pressure at 24g/m<sup>3</sup> for 2.5 hours at 21°C or above. Most fruit varie-

ties at the mature green stage are not likely to be injured, but fruit rots develop faster after treatment as ripening is accelerated.

### **Propagating material**

#### *Budwood and plants*

Importations should be limited to small quantities under supervision of government services. Budwood should be permitted only with certification that it has been indexed and found free of sunblotch viroid. It should be dipped in a mixture of 0.1 per cent carbaryl, 0.1 per cent malathion (or diazinon) and 1.0 per cent white oil for 30 sec, dried, dusted with captan or thiram fungicide, and then grown in quarantine in the importing country. (Vegetative propagating material of avocado is sensitive to fumigation by methyl bromide).

Countries free of *P. cinnamomi* should not import plants with roots from coun-

tries where the pathogen is present. Even where *P. cinnamomi* is not of concern, rooted plants should not be imported unless there is no other means of satisfactorily introducing varieties; in which case the roots should be checked for soil. If present, roots should be washed under pressure and the soil collected and treated with formalin (1 part 40 per cent formaldehyde to 39 parts water) or disposed of in the sea. Rooted plants should be dipped and dusted as for budwood.

#### *Seed*

Seed should be certified free from sunblotch viroid. It should be inspected on arrival, and if infested with insects, fumigated with methyl bromide at 48g/m<sup>3</sup> for 2.5 hours at 21°C or above. Seed should be treated with hot water at 50°C for 20 min and then immediately cooled in cold water, if it cannot be guaranteed free from *P. cinnamomi*.

*This leaflet was prepared and published by the SPC Plant Protection Service, Private Mail Bag, Suva, Fiji.*

*This leaflet gives general guidance only; quarantine action is subject to the legislation and regulations of individual countries of the SPC region.*

*Leaflets in this series include:*

- |               |                |
|---------------|----------------|
| (1) Banana    | (9) Taro       |
| (2) Beans     | (10) Capsicum  |
| (3) Cabbage   | (11) Pawpaw    |
| (4) Citrus    | (12) Pineapple |
| (5) Cucurbits | (13) Kava      |
| (6) Orchids   | (14) Carrot    |
| (7) Peanuts   | (15) Mango     |
| (8) Tomato    | (16) Avocado   |

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