

Table 1 – Miscellaneous Host Fruits of Fruit Flies

A variety of entry criteria apply to such fruits. Those criteria appear after Table 1, which lists the fruits currently, rated as hosts of fruit flies of concern to South Australia:

Abiu (<i>Pouteria caimito</i>)	Lime (<i>Citrus latifolia</i>) - Tahitian Lime
Acerola (<i>Malpighia glabra</i>)	Lime (<i>Citrus reticulata</i> var. <i>austera</i>) -
Apple (<i>Malus domestica</i>)	Rangpur lime
Apricot (<i>Prunus armeniaca</i>)	Loganberry (<i>Rubus loganobaccus</i>)
Avocado (<i>Persea americana</i>)	Longan (<i>Euphoria longan</i>)
Babaco (<i>Carica pentagona</i>)	Loofah, Smooth (<i>Luffa cylindrica</i>)
Banana (<i>Musa acuminata</i>)	Loquat (<i>Eriobotrya japonica</i>)
Blackberry (<i>Rubus fruticosus</i>)	Lychee (<i>Litchii chinensis</i>)
Black Sapote (<i>Diospyros Ebenum</i>)	Mandarin (<i>Citrus reticulata</i>)
Blueberry (<i>Vaccinium corymbosum</i>)	Mango (<i>Mangifera indica</i>)
Brazil Cherry - see Grumichama	Mangosteen (<i>Garcinia mangostana</i>)
Breadfruit (<i>Artocarpus altilis</i>)	Mulberry (<i>Morus nigra</i>)
Caimito (<i>Chrysophyllum cainito</i>)	Nashi (<i>Pyrus pyrifolia</i> var. <i>culta</i>)
Cape Gooseberry (<i>Physalis peruviana</i>)	Nectarine (<i>Prunus persicae</i> var. <i>nectarina</i>)
Capsicum (<i>Capsicum annuum</i> var. <i>grossum</i>)	Olives (<i>Olea europaea</i>)
Carambola (<i>Averrhoa carambola</i>)	Orange (<i>Citrus aurantium</i>) (<i>Citrus sinensis</i>)
Cashew Apple (<i>Anacardium occidentale</i>)	Passionfruit (<i>Passiflora</i> spp.)
Casimiroa (<i>Casimiroa edulis</i>)	Papaw (<i>Carica papaya</i>)
Cherimoya (<i>Annona cherimolia</i>)	Peach (<i>Prunus persica</i>)
Cherry (<i>Prunus avium</i>)	Peacharine (<i>Prunus nucipersica</i>)
Chilli (<i>Capsicum annuum</i> var. <i>acuminatum</i>)	Pear (<i>Pyrus communis</i>)
Choko (<i>Sechium edule</i> Jacq. Sw.)	Pepino (<i>Solanum muricatum</i>)
Citron (<i>Citrus medica</i>)	Persimmon (<i>Diospyros kaki</i>)
Coffee berry (<i>Coffea</i> species)	Plum (<i>Prunus domestica</i>)
Custard Apple (<i>Annona squamosa</i>)	Plumcot (<i>Prunus domestica</i> x <i>Prunus armeniaca</i>)
Date (fresh) (<i>Phoenix dactylifera</i>)	Pomegranate (<i>Punica granatum</i>)
Dragon Fruit (<i>Hylocereus undatus</i>)	Prickly Pear (<i>Opuntia stricta</i> or <i>O. ficus indica</i>)
Durian (<i>Durio zibethinus</i>)	Pummelo (<i>Citrus grandis</i>)
Eggplant (<i>Solanum melongena</i>)	Quince (<i>Cydonia oblonga</i>)
Feijoa (<i>Feijoa sellowiana</i>)	Rambutan (<i>Nephelium lappaceum</i>)
Fig (<i>Ficus carica</i>)	Raspberry (<i>Rubus idaeus</i>)
Granadilla (<i>Passiflora quadrangularis</i>)	Rollinia (<i>Rollinia deliciosa</i>)
Grapefruit (<i>Citrus paradisi</i>)	Rose Apple (<i>Syzygium jambos</i>)
Grapes (<i>Vitis</i> species)	Santol (<i>Sandoricum indicum</i>)
Grumichama (<i>Eugenia braziliensis</i>)	Sapodilla (<i>Manilkara zapota</i>)
Guava (<i>Psidium</i> species)	Sapote
Jaboticaba (<i>Myrciaria cauliflora</i>)	Soursop (<i>Annona muricata</i>)
Jackfruit (<i>Artocarpus heterophyllus</i>)	Strawberry (<i>Fragaria ananassa</i>)
Jambu (<i>Syzygium cumini</i>)	Sweetsop (<i>Annona squamosa</i>)
Kiwifruit (<i>Actinidia deliciosa</i>)	Tamarillo (<i>Cyphomandra betacea</i>)
Kumquat (<i>Fortunella japonica</i>)	Tangelo (<i>Citrus reticulata</i> x <i>C. paradisi</i>)
Lemon <i>Citrus meyeri</i> (Also <i>Citrus limon</i> x <i>citrus chinese</i>)	Tomato (<i>Lycopersicon esculentum</i>)
Lime (<i>Citrus aurantiifolia</i>) - West Indian Lime	Wax jambu (<i>Eugenia jambos</i>)

Condition 9 - Area Free from Fruit Flies

Any host fruit appearing in Table 1 may enter South Australia if grown and packed in an area free from fruit flies.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate

Explanation:

Area free status is determined by a system of male fruit fly lure traps deployed on a 400 metre grid in urban areas and townships and a 1 kilometre grid throughout the horticultural production areas (acknowledging that extensive areas free from vegetation do not need to be trapped).

Traps are to be inspected weekly during the warmer months in southern Australia (November to May when outbreaks are most likely to occur) and fortnightly during winter (June to October) in southern Australia.

Area freedom will be lost following the detection of flies or maggots as specified in the Codes of Practice for the Management of Queensland fruit fly and Mediterranean fruit fly.

If area freedom cannot be verified, the host fruit must enter under the procedures outlined in Conditions 10 to 14 below or must not be brought into the State.

Condition 10 - Hard Green or Similar Condition

This provision recognises that certain fruits are susceptible to fruit fly attack when past a certain stage of maturity and/or their surface has been damaged. Fruits entering under this requirement must have been certified by a departmental inspector or by an authorised signatory operating under an approved Interstate Certification Assurance Arrangement at the time of packing.

This procedure is necessary to ensure that fruit is at a stage of maturity and / or free from damage to ensure that the risk of fruit fly attack is unlikely.

Details are:

- (1) **Avocados - Hass, Sharwill and Fuerte varieties (WA only - Mediterranean fruit fly)** must have been harvested in a hard condition and have been stored in secured conditions within 48 hours of harvest.
- (2) **Bananas** - Cavendish variety must be hard-green with unbroken skin at the time of arrival in South Australia; other varieties must be mature green with unbroken skin at the time of inspection and packaging.
- (3) **Black Sapote** must be green (skin free of any black colouring) with unbroken skin at the time of inspection and packaging.
- (4) **Durians** must be firm with unbroken skin at the time of inspection and packaging.

- (5) **Jackfruit** must be firm with unbroken skin at the time of inspection and packaging.
- (6) **Longans** must be firm with unbroken skin at the time of inspection and packaging.
- (7) **Lychees** must be firm with unbroken skin at the time of inspection and packaging.
- (8) **Mangosteens** must be firm with unbroken skin at the time of inspection and packaging.
- (9) **Passionfruit (purple types only)** must be unwrinkled with unbroken skin at the time inspection and packaging.
- (10) **Papaws (non-defective flowering type only)** must be hard **and** may show no more than 25% of colour over their surface at the time of inspection and packaging.
- (11) **Rambutans** must be firm with unbroken skin at the time of inspection and packaging.
- (12) **Tahitian limes** must be in a mature green condition (free of any yellow colouring) with unbroken skin at the time of inspection and packaging.

Note:

Unbroken Skin means the skin has no pre-harvest crack, puncture, pulled stem or other break that penetrates through to the flesh and has not healed with callus tissue.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

Condition 11 – Disinfestation by Cold Storage
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See *Explanations* below for details of measurement requirements.

Caution: Some fruits may be damaged by this treatment. A trial treatment is recommended unless the response of the fruit to this treatment is known.

(1) **QUEENSLAND FRUIT FLY**

Applicable fruits are:

Kiwifruit, citrus fruits, pome fruits, stone fruits, blueberries and any other fruits that are unaffected by the treatment.

These must have been held under one of the following ranges and duration in terms of centre core flesh temperature:

- (i) **0.0°C ± 0.5°C for at least 14 days or**
- (ii) **1.0°C to 3.0°C ± 0.5°C or at least 16 days (lemons 14 days)**

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

(2) MEDITERRANEAN FRUIT FLY

Applicable fruits are:

Kiwifruit, pome fruits and stone fruits, and other fruits including all citrus, which are not affected by these temperature/time regimes.

These must have been held under one of the following ranges and duration in terms of centre core flesh temperature:

- (i) **0.0°C ± 0.5°C for at least 14 days or**
- (ii) **1.0°C ± 0.5°C for at least 16 days (lemons at least 14 days) or**
- (iii) **2.0°C ± 0.5°C for at least 18 days (lemons at least 16 days) or**
- (iv) **3.0°C ± 0.5°C for at least 20 days (lemons at least 18 days)**

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

Explanations:

A minimum of three sensors/probes, two for centre core flesh and one for air temperature are to be used for the first 250 cubic metres of fruit or less. For each additional 250 cubic metres or part thereof, one additional centre core flesh sensor is to be used.

In all instances the cold storage chamber must be capable of sustaining the stated temperatures throughout the prescribed periods and records must be available to the supervising Department to ensure that the temperatures and times requirements have been met.

<p>Condition 12 - Disinfestation using Dimethoate or Fenthion for various fruits - Queensland fruit fly</p>
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The disinfestation treatment may be applied as a post-harvest dip or post-harvest flood spray. (See also *Explanations* below for additional details.)

(1) APPLICATION BY DIPPING

- (a) **Dimethoate: All applicable host fruits except for strawberries, defective flower type papaws, mangoes, custard apple and other *Annona* spp, and capsicums.**
- (b) **Fenthion: All applicable host fruits with inedible peel and fruiting vegetables (except for all citrus varieties, defective flower type papaws, mangoes, custard apple, other *Annona* spp and capsicums).**

The fruits must have been fully immersed for at least one minute in a solution containing dimethoate or fenthion at the rates specified below.

The level of dimethoate in the dip solution must have been maintained at 400 parts per million (ppm) active ingredient (400 mg/L) except for **stonefruits** (peaches, nectarines, plums, apricots and cherries), which are to be dipped in a solution containing 200 ppm

dimethoate.

The level of fenthion in the dip solution must have been maintained at 412.5 ppm (412.5 mg/L).

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

(2) APPLICATION BY FLOOD SPRAYING

- (a) Dimethoate: All applicable host fruits except for strawberries, defective flower type papaws, mangoes, custard apple and other *Annona* spp.**
- (b) Fenthion: All applicable host fruits with inedible peel and fruiting vegetables including undamaged capsicums (except for all citrus varieties, defective flower type papaws, mangoes, custard apple and other *Annona* spp)**

A dimethoate solution maintained at 400 ppm (400mg/L) **or** a fenthion solution maintained at 412.5 ppm (412.5 mg/L) and delivered by nozzle(s) at the rate of 16 litres per each square metre per minute and must have been sprayed onto each fruit, which provides complete coverage of the fruit for a minimum of 10 seconds, after which the fruit must remain wet for at least 60 seconds.

Stonefruits (peaches, nectarines, plums, apricots and cherries) are to be flood sprayed in a solution containing 200 ppm (200 mg/L) dimethoate in a high volume application of at least 32 litres per square metre per minute and must have been sprayed onto each fruit, which provides complete coverage of the fruit for a minimum of 12 seconds, after which the fruit must remain wet for at least 60 seconds.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

Explanations:

Dipping or spraying should be the last treatment before packing except where a non-recovery gloss coating (wax) is applied to citrus. This treatment must be applied not less than 60 seconds after treatment.

(3) ALTERNATIVE – CAPSICUMS ONLY

May be flood sprayed in a single layer with a dimethoate solution maintained at 400 ppm (400mg/L) in a high volume application of at least 9.2 litres per each square metre per minute and must have been sprayed onto each fruit, which provides complete coverage of the fruit for a minimum of 60 seconds.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

(4) MANGOES – SYSTEMS APPROACH – ICA 19

Mangoes are required to be subject to an approved ICA arrangement, which utilises a systems approach to provide an adequate level of security against Queensland fruit fly:

- (a) **Cultivar “Kensington Pride”** – approved post-harvest inspection and post-harvest treatment.
- (b) **All other Cultivars** – approved pre-harvest treatment, post-harvest inspection and post-harvest treatment.

Proof: Accompanied by a Plant Health Assurance Certificate

(5) AVOCADOS and MANGOES - ALTERNATIVE - LOW VOLUME NON RECIRCULATED FLOOD SPRAYING - FENTHION – ICA 03

AVOCADOS

The level of fenthion must be maintained at 412.5 ppm (412.5 mg/L) and applied in a **low volume non- recirculating system** at a rate of **0.6 litres / minute per square metre** of area being sprayed, which provides complete coverage of the fruit for a minimum of ten seconds, after which the fruit must remain wet for 60 seconds.

Non-recirculating spraying must be the last treatment before packing.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

MANGOES

The level of fenthion must be maintained at 412.5 ppm (412.5 mg/L) and applied in a **low volume non- recirculating system** at a rate of **1.2 litres / minute per square metre** of area being sprayed, which provides complete coverage of the fruit for a minimum of ten seconds, after which the fruit must remain wet for 60 seconds.

Non-recirculating spraying must be the last treatment before packing.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

(6) CUSTARD APPLES & OTHER ANNONA SPP – SYSTEMS APPROACH – ICA 18 PROCEDURE

Custard apples and other *Annona spp* are required to be subject to an approved ICA arrangement, which utilises a systems approach to provide an adequate level of security against Queensland fruit fly. This involves a combination of pre-harvest treatment, post-harvest inspection and post-harvest treatment.

Proof: Accompanied by a Plant Health Assurance Certificate

Condition 12A – Disinfestation using fenthion – Mediterranean fruit fly

Applicable fruits are **Tomatoes, Tamarillo, Capsicums, Kensington Pride Mangoes** and other produce approved by the Minister from time to time.

(1) APPLICATION BY DIPPING – Tomatoes, Tamarillo, Kensington Pride Mangoes

The fruits must have been fully immersed for at least one minute in a solution of fenthion.

- (a) Tomatoes **must have been dipped in a solution of fenthion maintained at 412.5 ppm (412.5 mg/L).**
- (b) Tamarillo **must have been dipped in a solution containing 500ppm (500 mg/L) fenthion** followed by washing 24 hours after the dip treatment.
- (c) Kensington Pride Mangoes only **must be dipped in a solution containing 412.5 ppm (412.5 mg/L) fenthion.**

Dipping should be the last treatment before packing.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

(2) APPLICATION BY FLOOD SPRAYING – Tomatoes, Capsicums (undamaged) and Kensington Pride mangoes

A fenthion solution maintained at 412.5 ppm (412.5 mg/L) and delivered by nozzle(s) at the rate of 16 litres per each square metre per minute and must have been sprayed onto each fruit, which provides complete coverage of the fruit for a minimum of 10 seconds.

At the cessation of spraying, fruit must have remained wet for at least 60 seconds.

Flood Spraying should be the last treatment before packing.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

<p><u>Condition 12B</u> - Pre harvest treatment and Inspection of Strawberry - Queensland Fruit Fly</p>
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For **strawberry** fruits, application of dimethoate to the plants at a concentration and frequency registered for field control of Queensland fruit fly as stated on the label or approved by Australian Pesticides and Veterinary Medicines Authority (APVMA).

Strawberries must be inspected during harvest to determine that any suspect fruit is free from live fruit fly infestation.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

Condition 12C - Heat Treatments – Hot Water / Vapour Heat – Queensland Fruit Fly

Caution: Some fruits may be damaged by this treatment. A trial treatment is recommended unless the response of fruits to this treatment is known.

- (a) **Mango fruits** can be **hot water treated** in a facility approved by the Department in the exporting State so that the **temperature of the flesh adjacent to the seed is held at a minimum of 46 °C for a period of 10 minutes.**
- (b) **Mango fruits** can be subjected to **vapour heat treatment** in a facility approved by the Department in the exporting State so that the **temperature of the flesh adjacent to the seed is at 46.5 °C for a minimum of 20 minutes or 47 °C for a minimum of 15 minutes.**
- (c) **Pawpaw fruits** may be treated in an approved **high temperature forced air** facility for a period of **not less than 3.5 hours and until the seed cavity temperature of the heaviest fruit reaches 47.2 °C.** Fruit must not be soft, overripe or be exhibiting damage or decay.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

Condition 12D – Pre-harvest treatment and Inspection of Stone Fruit – Queensland Fruit Fly –Systems Approach – ICA 21

Stone fruit (peach, nectarine, plum, apricot and cherry) are required to be subjected to an approved ICA Arrangement (ICA 21), which utilises a systems approach to provide an adequate level of security against Queensland fruit fly. This involves a specified combination of pre-harvest treatment and post harvest inspection.

Proof: Accompanied by a Plant Health Assurance Certificate

Condition 12E – Wine Grape – All Varieties – (Queensland Fruit Fly / Mediterranean Fruit Fly – Systems Approach)

Wine grapes – all varieties shall be subjected to a systems approach to provide an adequate level of security against Queensland fruit fly and Mediterranean fruit fly. This involves a combination of secure containerisation whilst in transport and immediate processing upon arrival at the designated winery.

- (1) All wine grape varieties which have originated from a fruit fly endemic area or from within a fruit fly suspension area must be certified stating their origin; **and**
- (2) The wine grapes must be dispatched to South Australia under secure containerisation.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

Explanation:

Secure containerisation means that the wine grapes have been containerised with covers applied or sealed in such a manner to prevent any spillage during transport to the designated winery.

For grapes that originate from a fruit fly endemic area or from within a fruit fly outbreak suspension area, the receiving winery must be both accredited as an importer and under the Import Verification Compliance Arrangements (IVCA), and have in place a system for the management of any spillage and waste generated during the crushing processes.

Condition 12F – Table Grapes - (Queensland Fruit Fly / Mediterranean Fruit Fly)

Table grapes from a fruit fly free area must be accompanied by appropriate certification.

Table grapes from fruit fly endemic areas or from within a current fruit fly suspension area (in accord with the national Codes of Practice for the Management of both Queensland fruit fly and Mediterranean fruit fly) must be disinfested by an approved method – see Conditions 11 – 13 of this Standard (cold treatment, post harvest treatment, approved systems approach, methyl bromide fumigation or irradiation).

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

Condition 13 - Disinfestation by Methyl Bromide Fumigation

Caution: Some fruits may be damaged by this treatment. A trial treatment is recommended unless the response of fruits to this treatment is known.

Fruit fly host material may be fumigated by a licensed fumigator at the following rates:

- (i) 10°C - 14.9°C @ 48 g/m³ for 2 hrs; or
- (ii) 15°C - 20.9°C @ 40 g/m³ for 2 hrs; or
- (iii) 21°C - 25.9°C @ 32 g/m³ for 2 hrs; or
- (iv) 26°C - 31.9°C @ 24 g/m³ for 2 hrs.

Packaging of fumigated fruit must allow for penetration and subsequent aeration of the methyl bromide.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

Condition 13A - Disinfestation by Irradiation

Applicable fruits – host fruits approved by Food Standards Australia New Zealand (FSANZ).

Applicable fruits to be treated by ionising radiation to achieve a minimum dose of 150 gray.

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

Condition 14 - Papaya Fruit Fly / Exotic Fruit Fly

In the event of declared outbreaks of Papaya and / or Exotic fruit fly, the following treatments are approved for PFF and EFF host produce:

(1) DIMETHOATE DIPPING

All applicable host fruits except for strawberries, defective flower type papaws, mangoes, custard apple and other *Annona* spp, and capsicums.

The fruit must be fully immersed for 60 seconds in a solution of dimethoate; **and** the level of dimethoate in the dip solution must have been maintained at 400 ppm (400 mg/L) **except for peaches, nectarines and plums, which are to be dipped in a solution containing 200ppm (200 mg/L) dimethoate.**

Pawpaws must be hard and have a yellow colour on less than 25% of their surface area at the time of treatment. **(Defective flower type pawpaws cannot be dipped and require fumigation treatment.)**

Proof: Accompanied by a Plant Health Certificate or a Plant Health Assurance Certificate.

(2) FENTHION DIPPING

All applicable host fruits with inedible peel and fruiting vegetables (except for all citrus varieties, strawberries, defective flower type papaws, mangoes, custard apple and other *Annona* spp, and capsicums).