



Department of Primary Industries

Procedure

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ICA-04

FUMIGATION WITH METHYL BROMIDE

NUMBER ICA-04

VERSION 7.2

AUTHORISED BY Manager, Plant Product Integrity & Standards

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REVISION HISTORY

VERSION	DATE	AMENDMENTS	
		SECTION	DETAILS
1.0	16 September 2001	All	New ICA Procedure.
2.0	22 December 2003	All	Pages 9, 26, 27, 28 and 29.
3.0	11 December 2012	All	Reformatting, updated reference to Workplace Health and Safety Act 2011, fumigation rates and produce temp < 32°C in section 6, Plant Health Assurance Certificate amended, removed treatment for Papaya Fruit Fly from section 7.9, add fumigation chamber loading rates to section 7.5.2, add other suitable gas monitoring devices to section 7.6.6.
4.0	26 June 2017	All	<i>Biosecurity Act 2015</i> changes, updated definitions, removed details for accreditation, auditing procedures, sanctions policy & charging, replaced the application form and PHAC, updated NSW DPI contact details.
4.1	4 June 2018	6, 7.2	Add minimum permissible pulp temperature for host fruit destined for WA, SA & Tas, requirement for impervious materials to be opened, cut or removed, Tas condition that impervious materials may remain intact if they contain perforations or pinholes. Remove reference to Inspector having to supervise the Gas Retention test. In 7.2.
4.2	8 November 2018	6, 7.5.2	Increase in minimum pulp temperature rates from 16°C to 17°C for all Queensland fruit fly host produce. Add requirement to include treatment temperature and duration on PHACs. Include details for perforations and pinholes.
5.0	9 October 2020	4, 5, 6, 7.4, 7.5, 7.6., 7.9, 7.10, 7.11, 7.12 Attachments 5 & 6	For Tas only, added definition for Authorised Inspection Person, fruit fly damage, stonefruit, responsibility for fruit fly inspection, requirements security, ambient temperature, core temperature verification and chamber load identification on PHAC, Updated Department definition. Added (f) unique identification reference under Treatment Record. Updated post treatment security. Added Attachments 5 and 6.
5.1	28 October 2020	6, 7.5	Addition of passionfruit for sampling and inspecting for Tasmania. And removal of requirement for mangoes, stonefruit and chillies to be fumigated in a separate chamber
6.0	3 June 2021	4,5,6,7.5,7.12	Added definitions for high risk produce (Tasmania) and high risk produce (South Australia) For South Australia only, added responsibility for fruit fly inspection, core temperature verification and total volume of load requirement on PHAC and fumigation treatment record.
7.0	30 August 2021	4, 5, 6, 7, 8, and Attachments 1, 3, 4, & 5	Updated to align with national protocol and rearranged the Requirements and Procedure into chronological order. Requirements changes include adding types of fumigation chamber, uniquely numbering fumigation chambers, pre-treatment for inspection of high risk produce and inspection rate, Multiple Procedure changes including adding 'Treatment commencement', 'Failed treatment', 'Storage

VERSION	DATE	AMENDMENTS	
		SECTION	DETAILS
			and secure packing', 'Transporting in secure conditions', and 'Pre-treatment fruit fly inspection record'. Attachment 1 updated web details, Attachment 3 added Pulp to min/max temperatures, columns for minimum produce temperature, and standard concentration details. Attachment 4 renamed 'Gas retention test certificate' to 'Chamber Test Certificate', changed 50% to 60%. Attachment 5 renamed 'Fruit fly present' column to 'QFF infestation'.
7.1	15 March 2023	6, 7.3	For Tas only, removed the requirement for pre-treatment inspection between 1 April and 30 September following a change in import requirements, effective 10 October 2022.
7.2	17 October 2023	4, 6, 7.14, 7.15	Updated "high risk produce" definitions for South Australia and Tasmania Addition of fumigation rates for Phylloxera to meet specific receiving jurisdictions' entry conditions Updates to labelling requirements for produce destined for Tasmania

Disclaimers

The information contained in this Procedure is based on knowledge and understanding at the time of writing (October 2023). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up-to-date and to check currency of the information with the appropriate officer of the Department or the user's independent adviser.

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1 PURPOSE

The purpose of this Procedure is to describe:

- (a) the principles of operation, design features and standards required for fumigation chambers and facilities; and
- (b) the responsibilities and actions of personnel;

that applies to the certification of methyl bromide fumigation of produce under an Interstate Certification Assurance (ICA) arrangement.

2 SCOPE

This Procedure covers all certification of methyl bromide fumigation by a Business operating under an ICA arrangement in New South Wales.

Pest: Queensland fruit fly, Phylloxera and other plant pests

Product: Fruit and fruiting vegetables, food producing plants and ornamentals

Location: Businesses operating in NSW where the requirements specified are a condition of entry of an interstate quarantine authority.

ALWAYS READ THE LABEL

Users of agricultural chemical products must always read the label and any Permit before using the product and strictly comply with the directions on the label and the conditions of the Permit. Users are not absolved from compliance with the directions of the label or the conditions of the Permit by reason of any statement made or omitted to be made in this Procedure.

Certification of **fruit fly host produce** under this Procedure may not be an accepted quarantine entry condition for all produce to all intrastate and interstate markets.

Some intrastate or interstate markets may require additional plant health certification for pests and diseases other than fruit fly as a condition of entry.

It is the responsibility of the Business consigning the produce to ensure compliance with all applicable quarantine requirements.

Information on intrastate and interstate quarantine requirements can be obtained by phoning 1800 084 881 or accessing <http://www.interstatequarantine.org.au/>.

3 REFERENCES

[Biosecurity Act 2015](#)

Further information – <https://www.dpi.nsw.gov.au/biosecurity/plant>

Policies – <https://www.dpi.nsw.gov.au/about-us/policies-procedures>

Accreditation of Biosecurity Certifiers

Biosecurity Audit Frequency

Work Instruction – <https://www.dpi.nsw.gov.au/biosecurity/plant>

WI-01 – ‘Guidelines for Completion of Plant Health Assurance Certificates’

4 DEFINITIONS

In this Procedure:

<i>Act</i>	means the Biosecurity Act 2015
<i>Authorised Person</i>	means an authorised officer under the Act or a person authorised under a law of another State or Territory that relates to plant biosecurity.
<i>Authorised Inspection Person</i>	means a person trained, assessed and found competent in the signs and symptoms of QFF infestation and who is authorised to conduct inspections on behalf of the Business by having their name, specimen signature and date of demonstrated competency on a register of Authorised Inspection Persons maintained by the Business.
<i>Authorised Signatory</i>	means a person whose name is notified to the Secretary as a person who can issue a biosecurity certificate on behalf of the Business.
<i>Business</i>	means the legal entity accredited as a biosecurity certifier under the Act.
<i>certified/certification</i>	means covered by a valid PHAC.
<i>Certification Assurance Arrangement</i>	means a CA Arrangement that enables a Business or a person authorised under a corresponding law of a State or Territory, to issue a Plant Health Assurance Certificate that meets certain plant health quarantine conditions for trade within the State or between the State and other States and Territories.
<i>chamber</i>	means a permanent or tarped enclosure made from gas-proof material specifically designed for the purpose of fumigation.
<i>consignment</i>	means a quantity of packed produce described on one PHAC by a single consignee.
<i>Department</i>	means the NSW Department of Primary Industries, Regional NSW
<i>facility</i>	means the location of the fumigation chamber or chambers covered by the ICA arrangement.
<i>fumigant</i>	means 1000 g/kg methyl bromide (CH ₃ Br) as active ingredient.
<i>fumigation</i>	means the treatment of produce with a fumigant.
<i>fumigator</i>	means a person with a current fumigation certificate of competency, to undertake fumigation pursuant to the <i>Work Health and Safety Act 2011</i> .
<i>fruit fly</i>	means Queensland fruit fly (<i>Bactrocera tryoni</i>), Lesser Queensland fruit fly (<i>Bactrocera neohumeralis</i>) and Northern Territory fruit fly (<i>Bactrocera aquilonis</i>).
<i>fruit fly damage</i>	means fruit fly sting marks, eggs or larvae.
<i>high risk produce</i>	means produce as defined by the receiving jurisdiction as requiring pre-fumigation inspection. Note: At the time of writing, Tasmania defines high risk produce as “mango, stonefruit (excluding cherries), and chillies. South Australia defines high risk produce as mango, stonefruit, chillies and citrus.
<i>load</i>	means the total number of packages covered by one fumigation treatment.

<i>lot</i>	means a discrete number of packages of one produce type (e.g. mangoes or rockmelons) from one source (e.g. one packer or one consignee).
<i>non-conformance</i>	means a failure to fulfil a specific requirement
<i>PHAC</i>	means a Plant Health Assurance Certificate that is issued in accordance with the requirements of a Certification Assurance Arrangement.
<i>Phylloxera</i>	means the insect <i>Oaktulosphaira vitifoliae</i> (Fitch)
<i>pre-treatment inspection</i>	means the process by which a representative sample is drawn and inspected from the chamber load prior to fumigation.
<i>Queensland fruit fly (QFF)</i>	means all life stages of the species <i>Bactrocera tryoni</i> (Froggat)
<i>QFF infestation</i>	means the presence of viable/live eggs or larvae of Queensland fruit fly.
<i>standard concentration</i>	means the fumigant concentration below which the fumigation will not be effective unless additional fumigant is added to the chamber to compensate.

	Start Point (g/m ³)		End of Exposure Period (g/m ³)
Initial Dose (g/m ³)	≥85% 15-30 min after end of vaporisation	≥75% 30 min to 1 hr after end of vaporisation	≥60% 2 hrs after Start Point
32	27.2	24	19.2
40	34	30	24
48	40.8	36	28.8
56	47.6	42	33.6

unit means a single whole piece of fruit.

5 RESPONSIBILITY

These position titles have been used to reflect the responsibilities of staff under the ICA arrangement. These positions may not be present in all Businesses, or different titles may be used for staff who carry out these responsibilities. In some Businesses one person may carry out the responsibilities of more than one position.

Certification Controller is responsible for:

- representing the Business during audits and other matters relevant to ICA accreditation;
- ensuring the Business has current accreditation for an Interstate Certification Assurance arrangement under this Operational Procedure;
- training staff in their responsibilities and duties under this Operational Procedure;
- ensuring the Business and its staff comply with their responsibilities under this Operational Procedure;
- ensuring that all fumigation of produce certified under the Businesses ICA arrangement is carried out in accordance with this Operational Procedure;
- ensuring all fumigations are performed by a licensed fumigator;

- ensuring the fumigation facility has been approved or deemed an 'as of right use' by the relevant Local Authority (as applicable);
- ensuring a Fumigation Dosage Chart is maintained for each fumigation chamber operated at the facility;
- ensuring each fumigation chamber operated at the facility is covered by a valid Chamber Test Certificate issued by a licensed fumigator within the last 6 months;
- ensuring thermometers used for measuring produce and chamber temperatures are identified and calibrated at least every 6 months; and
- if applicable, ensuring weighing scales are calibrated at least every 6 months.

Authorised Inspection Person is responsible for:

- prior to fumigation,
 - for consignments destined for South Australia and Tasmania, sampling and inspecting a minimum of 600 pieces of high risk produce for freedom from QFF infestation;
- marking all the boxes in the inspection lot to show that they have been inspected;
- taking corrective action following the identification of suspect QFF infestation in high risk produce; and
- maintaining records of packed produce inspection.

Fumigator is responsible for:

- maintaining the fumigation chamber and fumigation equipment;
- determining the chamber volume;
- maintaining calibration and fumigation records;
- maintaining thermometer identification and calibration records;
- maintaining inspection equipment for access by the Authorised Inspection Person to undertake pre-fumigation inspection of high risk produce;
- ensuring all high risk produce have been inspected for QFF infestation prior to treatment where required;
- determining the minimum produce temperature for each fumigation and ensuring the produce temperature and treatment chamber temperature remain within the correct temperature range during treatment;
- determining the rate and dosage of fumigant required for each fumigation;
- if applicable, maintaining weighing scale calibration records; and
- maintaining fumigation treatment records.

Authorised Dispatcher is responsible for:

- ensuring all packages covered by a PHAC issued by the Business are identified; and
- maintaining copies of all PHACs issued by the Business under the ICA arrangement.

Authorised Signatories are responsible for:

- ensuring, prior to signing and issuing a PHAC, that produce covered by the certificate has been prepared in accordance with the Businesses ICA arrangement and that the details on the certificate are true and correct in every particular.

6 REQUIREMENTS

The business must ensure that:

- (a) The fumigation facility holds a current fumigation licence and is a permanently constructed fumigation chamber or a semi-permanent fumigation chamber.
- (b) For **Tasmania and South Australia only** and for **high risk produce only**:
 - (i) a 600 unit pre-treatment inspection of each fruit type must be completed for each chamber load ensuring an even distribution of fruit is inspected proportionate across all varieties and growers and/or packers represented in the chamber load, or
 - (ii) where there are less than 600 units of any type of high-risk produce in a chamber load, all the high-risk produce of that type in the chamber load must be inspected; and
 - (iii) each unit must be found free of QFF infestation.
 - (iv) For **Tasmania only**, pre-treatment inspection is not required between 1 April and 30 September each year
- (c) Impervious materials (such as plastic bags/sleeves, stacked plastic punnets or waxed paper), are opened, cut or removed to allow adequate penetration of the fumigant unless the impervious materials contain:
 - (i) not less than four unobstructed perforations of 6 mm diameter per 100 cm²; or
 - (ii) five unobstructed perforations of 5 mm diameter per 100 cm²; or
 - (iii) numerous pinholes (at least six holes per square centimetre).
- (d) The produce temperature prior to fumigation:
 - (i) for Queensland fruit fly hosts - must be above 17°C and below 32°C taken from the flesh next to the seed (if seed present); or
 - (ii) for food producing plants and ornamentals – must be above 10°C and below 32°C taken adjacent to, or within the article being fumigated (for example, centre of carton).
- (e) For **Tasmania and South Australia only** and for Queensland fruit fly host produce, produce temperature must be verified as follows;
 - (i) produce temperature must be measured by placing the tip of the temperature probe into the centre of a piece of host produce located in the middle of a carton; and
 - (ii) at least three temperature readings must be taken from each bin or pallet or lot on each pallet;
 - (A) where the lot is on a pallet, at least three different cartons in a lot must be inspected, including:
 - 1. one sample taken from the top of the pallet; and
 - 2. one sample taken from the centre/inside/middle of the pallet; and
 - (B) where the lot is in a bin, at least three different samples readings must be taken from each bin, including:
 - 1. one sample taken from the top of the bin; and
 - 2. one sample taken from the centre/inside/middle of the bin; and
 - (iii) a further three readings must be taken for each commodity in the pallet, lot on a pallet or bin that is either a different variety or supplied by a different grower and/or packer.
- (f) For **Tasmania only**, businesses must uniquely number each fumigation chamber.
- (g) For **Tasmania only** and for **Queensland fruit fly host produce only**, ambient air temperature within the fumigation chamber must be monitored and maintained at the minimum temperature for the relevant dosage rate above, ensuring that:

- (i) ambient air temperature recording instruments are located in an area either behind the circulation fans or an area in which the air passing the sensor is returning to the fans (i.e. return air monitoring); and
 - (ii) temperature recordings are taken every 30 minutes during the fumigation.
- (h) Loading rates within the chamber must be:
- (i) for fruits and vegetables - not less than 30% nor more than 50% of the volume of the chamber when empty; or
 - (ii) for all other plants and plant products – not more than 50% of the volume of the chamber when empty.
- (i) Fumigation must be conducted with a product which is approved by the Australian Pesticides and Veterinary Medicines Authority (APVMA) for control of plant pests and contains 1000 g/kg methyl bromide as active constituent. Methyl bromide containing chloropicrin must not be used.

All methyl bromide fumigations must be carried out by a licensed fumigator.

Fumigation with methyl bromide must be conducted in an approved fumigation chamber for 2 hours at the following rates:

- (i) For all Queensland fruit fly hosts:

Produce Temp (°C)	Rate (g/m ³)
17-20.9	40
21-31.9	32

- (ii) For hosts of phylloxera

For South Australia only

Methyl Bromide (g/m ³)	Produce Temperature (°C)
32	21-31.9
40	17-20.9

For Tasmania only

Methyl Bromide (g/m ³)	Produce Temperature (°C)	Dosage at 30 minutes (≥75%)	Dosage at 2 hours (≥60%)
32	21 or greater	24g/m ³	19.2g/m ³
40	15.5 — 20.9	30g/m ³	24g/m ³
48	10 - 15.4	36g/m ³	28.8g/m ³

- (iii) For hosts of all other plant pests:

Produce Temp (°C)	Rate (g/m ³)
10-10.9	56
11-15.9	48
16-20.9	40
21-31.9	32

- (j) **For Tasmania and South Australia only** and for **Queensland fruit fly host produce** only, following treatment host produce must be stored at and transported from the facility in secure conditions which prevent infestation by QFF

NOTE: The core temperature prior to fumigation must not be below:

- (a) 17°C for fruit and fruiting vegetables - taken from the flesh next to the seed (if seed present) treated for Queensland fruit fly; or
- (b) 10°C for fruit and fruiting vegetables - taken from the flesh next to the seed (if seed present) treated for Mediterranean fruit fly; or
- (c) 10°C for grapes - taken from the centre of the fruit treated for Phylloxera; or
- (d) 10°C for food producing plants and ornamental plants - taken adjacent to, or within the article being fumigated (e.g. centre of carton).

If minimum temperature requirements are not met, the product must not be fumigated until it meets minimum required temperature.

NSW Department of Primary Industries and interstate quarantine authorities maintain the right to inspect, at any time, certified produce and to refuse to accept a certificate where produce is found not to conform to specified requirements.

Inadequate ventilation of produce after fumigation may lead to residues of methyl bromide above the MRL and leave produce open to seizure by relevant authorities at intrastate or interstate markets.

Do not use fumigated commodities for stock or human consumption or for fabrication into food for human or animal consumption within three days of completion and until the commodity has been adequately ventilated.

7 PROCEDURE

7.1 Fumigation facility requirements

The Business must maintain documentary evidence that the fumigation facility has current approval or has been deemed as an 'as of right use' by the relevant Local Authority (City or Shire Council).

Each chamber operated at the facility for methyl bromide fumigation of produce under this Operational Procedure must:

- (a) be a permanently constructed fumigation chamber or a semi-permanent fumigation chamber made from gas-proof material designed specifically for the purpose of fumigation; and
- (b) be covered by a current and valid Chamber Test Certificate issued by a licensed fumigator within the last six months; and
- (c) include temperature measurement and recording equipment if required to measure the ambient air temperature during treatment; and
- (d) include appropriate internal heating equipment; and
- (e) include fans to adequately mix the fumigant throughout the chamber.

Stack fumigation under impervious gas sheets (tarpaulins) is not permitted under this Operational Procedure.

7.1.1 Fumigation chamber and fumigation equipment maintenance

The Fumigator must carry out regular checks of the fumigation chamber and any fumigation equipment such as halide lamps, gas monitoring devices and gas sampling tubes to ensure they continue to operate effectively and remain free from malfunction, damage or excessive wear.

7.2 Chamber testing

All chambers used for fumigation under this Interstate Certification Assurance arrangement must be covered by a valid Chamber Test Certificate issued by a licensed fumigator.

Operational chambers must be tested at least every six months, or as required by an inspector authorised by the WorkCover Authority of NSW or an Authorised Person.

Non-permanent fumigation chambers, i.e. a tent, must undergo a gas retention test, and permanent chambers must undergo either gas retention testing or pressure decay testing.

Chamber Test Certificates for each chamber are to be obtained immediately following successful testing for each chamber by a licensed fumigator in accordance with the required testing method.

7.2.1 Gas Retention testing

- (a) After preparing the chamber in accordance with the requirements of this Procedure, gas concentrations must be measured and recorded 20 minutes after the start of the fumigation and at two hours after the start of the fumigation prior to venting.
- (b) All monitoring points are to be measured to determine the concentration of fumigant. All monitoring points must equilibrate within $\pm 5\%$ of each other at the 20 minute monitoring where more than one monitoring point is in use.
- (c) Where monitoring points are not equilibrated within $\pm 5\%$ of each other at the 20 minute monitoring, the fumigation will be deemed to have failed and the fumigator must vent off all fumigant, ensure gas freedom and then inspect the chamber for the possible cause.
- (d) A minimum of 60% of the original fumigant concentration is required to be retained at the final monitoring (after two hours). If the required final concentration is not reached then the fumigation will be deemed to have failed and the Fumigator shall vent off all fumigant, ensure gas freedom and then inspect the chamber for the possible cause.
- (e) A Chamber Test Certificate may be issued for that chamber immediately following at least one successful fumigation retention test for that chamber.

It is recommended that newly constructed chambers be tested for leakage using a coloured smoke generator prior to gas retention testing using methyl bromide.

7.2.2 Pressure Decay testing

Chamber Test Certificates must be issued following testing by a licenced fumigator in accordance with the following:

- (a) pressure inside the closed chamber must be raised by 250 Pa using high-pressure compressed air supplied from a compressor or gas cylinder;
- (b) allow the pressure to decay to 200 Pa; and
- (c) start measuring the time (in seconds) when it reaches 200 Pa; and
- (d) stop measuring the time (in seconds) when it reaches 100 Pa; and
- (e) record the pressure decay time (in seconds).

A minimum of 10 seconds must elapse for the chamber to pass the pressure decay test. At least one successful pressure decay test for each chamber must be undertaken before a Chamber Test Certificate may be issued for that chamber. The licenced fumigator that is conducting the test may require additional pressure decay testing where considered necessary.

7.2.3 Chamber Test Certificate

The Chamber Test Certificate (see example at Attachment 4) must record:

- (a) the name and Interstate Produce (IP) number of the Business that operates the fumigation chamber;
- (b) the facility address;
- (c) the identification of the chamber to which the certificate applies;
- (d) the date of the test;
- (e) the measurements of the chamber;
- (f) the chamber volume;
- (g) the volume of any external ducting;
- (h) the total chamber volume in cubic metres;
- (i) for testing under the retention test method:
 - (i) the fumigation rate (g/m^3);
 - (ii) the time of vaporisation;
 - (iii) the quantity of methyl bromide in grams (g) added to the chamber to achieve the concentration at the time of the test(s);
 - (iv) the readings for each monitoring point for each test at 20 minutes after vaporisation is complete;
 - (v) the readings for the each monitoring point for each test at the end of the test (at two hours after vaporisation is complete);
 - (vi) the time venting commenced;
 - (vii) the percentage of gas retained for each test at the end of the test;
- (j) for testing under the **pressure decay method**, the time in seconds it takes for the pressure to decay from 200 Pa to 100 Pa; and
- (k) the licence number, printed name and signature of the licensed fumigator who performed the test(s).

7.3 Pre-treatment inspection – Tasmania and South Australia only and high risk produce only

Where high risk produce destined for South Australia or Tasmania is being treated for QFF, a pre-treatment inspection must be completed by an Authorised Inspection Person. Each unit must be inspected and found free of QFF infestation.

For **Tasmania only**, pre-treatment inspection is not required between 1 April and 30 September each year

The inspection must be carried out as close as practical and not more than 48 hours prior to fumigation.

7.3.1 Register of Authorised Inspection Persons

A register of Authorised Inspection Persons must be maintained. The register must contain the following minimum information for each Authorised Inspection Person:

- (a) Authorised Inspection Person
- (b) specimen signature
- (c) date of demonstrated competency

Authorised Inspection Persons must be assessed at least annually to demonstrate currency of competency in the detection and recognition of QFF infestation.

7.3.2 *Inspection procedure for Queensland fruit fly*

When pre-treatment inspection is required the inspection must be conducted per chamber load for each fruit type.

Inspection must be conducted by a packed product inspection following assembly of a chamber load. The pre-treatment inspection must be undertaken by an Authorised Inspection Person.

7.3.3 *Inspection rate*

When pre-treatment inspection is required, the inspection must be completed as follows:

- (a) inspect a random representative selection of 600 units obtained from a minimum of three cartons;
- (b) ensure that the selection represents an even distribution across all varieties and produce suppliers (growers/packers) in the chamber load (see examples).

Example 1: If a chamber load contains three varieties of mango (from the same mango grower) and 10 varieties of stonefruit (from the same stonefruit grower), then 200 units are to be inspected from each variety of mango and 60 units from each variety of stonefruit.

Example 2: If a chamber load contains five varieties of stonefruit from 10 growers, then 60 units of stonefruit from each grower must be inspected, making sure that samples are drawn in a way that ensures a proportional sub-sample from each variety is inspected.

Where there are less than 600 pieces of a fruit type in a chamber load, all that fruit type in the chamber load must be inspected. Additionally, where there are not enough pieces to inspect from one lot, the balance will be made up from other types of the same fruit .

Example: Where a chamber load comprises 10 inspection lots of mangoes, 60 pieces must be inspected from each lot. Where one inspection lot of mangoes in the chamber load comprises only 18 pieces, the additional 42 pieces must be inspected from across the nine other inspection lots of mangoes.

7.3.4 *Examination of sample*

Each piece in the sample must receive 100% inspection of the surface area. Particular attention must be paid to cracks, splits, bruises, rots and other blemishes. Special attention must be given to any 'sting marks'. (See Attachment 6 - Inspection for Queensland Fruit Fly information sheet.)

If any fruit fly damage is found the affected unit must be carefully cut and examined with proper inspection equipment.

7.3.5 *Inspection records*

The business must maintain records of all fruit fly inspections. Inspection records (Attachment 5) must include –

- (a) date and time of inspection;
- (b) produce type;
- (c) grower/packer name for each inspection lot;
- (d) number of packages sampled;
- (e) number of units sampled in each inspection lot;
- (f) the inspection results including freedom or presence of QFF infestation.
- (g) comments on the inspection, including any actions taken resulting from suspected detection of QFF; and
- (h) name and signature of Authorised Inspection Person.

7.3.6 *Inspection facilities and equipment*

The Certification Controller must maintain the following inspection facilities and equipment –

- (a) an inspection bench or table in an area protected from adverse weather conditions which is constructed of stable, rigid and durable material i.e. steel, timber or plastic that is of a reasonable size and height which is painted in a light colour or covered in a durable light coloured material placed in a well-lit and ventilated area on a flat sealed and durable surface i.e. concrete;
- (b) a hand lens, microscope or other device that provides at least X10 magnification for the observation of suspect QFF; and
- (c) a pocket knife or similar item to further investigate for the presence of fruit fly.

7.3.7 *Failed inspection procedure (following the detection of QFF infestation)*

The Authorised Inspection Person must immediately advise the Certification Controller of any suspect QFF identified during the inspection.

If suspect QFF are detected during inspection all host produce from that particular grower/packer must be rejected for certification for that treatment day.

Where a new lot is substituted from a different grower/packer, the same original proportional inspection as that conducted on the original inspection lot must be conducted on the substituted produce.

Samples of suspect QFF can be submitted to the Department if the business wishes to proceed with formal identification. Immediately on detection the Authorised Inspection Person must take a sample of the suspect QFF with a portion of the fruit in which it was detected and place into a watertight and sealable specimen bottle.

The specimen bottle must be labelled with the:

- (a) name of the Authorised Inspection Person taking the sample;
- (b) date of inspection and sample taken;
- (c) Interstate Produce number (IP No.) of the accredited business inspecting the produce;
- (d) name and address of the grower or packer or IP No. from which the produce that the sample was taken from originated; and
- (e) type of produce and quantity of produce from which the sample was taken.

The Authorised Inspection Person must seal the specimen bottle and place into a sealable plastic bag with a completed Insect Identification Request form (Attachment 7). Forward the sample by secured means (for example, registered post or courier) within 24 hours to:

Via Australia Post:

Block 8 Entomology
NSW Department of Primary Industries
Elizabeth Macarthur Agricultural Institute
Bag 4008, Narellan, NSW 2567

If delivering via courier:

Block 8 Entomology
NSW Department of Primary Industries
Elizabeth Macarthur Agricultural Institute
Woodbridge Rd,
Menangle, NSW, 2568

P: 1800 675 623

E: laboratory.services@dpi.nsw.gov.au

A fillable sample submission Insect Identification request form is available at:
<https://www.dpi.nsw.gov.au/about-us/services/laboratory-services/sample-submission>

If the suspect QFF is subsequently confirmed not to be QFF, all rejected product may be reconsidered for certification provided all requirements of this Procedure have been met.

7.3.8 Storage and identification procedure

The business must identify each lot which has passed inspection in such a way to be clear that the inspection lot has been 'inspected and found free of QFF infestation'.

Each inspection lot which has passed inspection must be segregated from all other fruit fly host produce to prevent mixing with non-conforming produce and produce that has not been inspected.

7.4 Impervious packaging

Produce packaged or covered with impervious materials (such as plastic bags/sleeves, stacked plastic punnets or waxed paper) must be opened, cut or removed to allow adequate penetration of the fumigant unless impervious materials contain:

- (a) not less than four unobstructed perforations of 6 mm diameter per 100 mm x 100 mm of surface area; or
- (b) not less than five unobstructed perforations of 5 mm diameter per 100 mm x 100 mm of surface area; or
- (c) not less than six pinholes per 10 mm x 10 mm surface area.

7.5 Calculation of produce temperature

Immediately prior to the commencement of fumigation, the Fumigator must determine the minimum core temperature of each lot of produce to be fumigated.

7.5.1 Equipment

Thermometers used for measuring produce core temperature must be capable of reading in graduations of 0.1°C.

7.5.2 Calibration of thermometers

Thermometers used for measuring produce core temperature must have been calibrated within the previous six months and be accurate to within $\pm 0.5^\circ\text{C}$.

Calibration may be undertaken using the ice-point check method, by checking against a calibrated reference platinum resistance thermometer, or by a recognised testing authority.

The Business must maintain a thermometer calibration record that includes the following information:

- (a) the date of calibration;
- (b) the identification of the thermometer calibrated;
- (c) the temperature reading(s) and the correction if any to the thermometer reading to an accuracy of at least $\pm 0.1^\circ\text{C}$; and
- (d) the name of the officer or recognised testing authority responsible for conducting the calibration check.

Ice - Point Check Calibration

Thermometers should be washed with distilled or de-ionised water and stored for several hours at 0°C before the calibration check.

A slurry mixture of distilled or de-ionised water and shaved ice made from distilled water is prepared in an insulated vessel. Drain any excess free water and then fully immerse each thermometer to above the mercury column. Lift the thermometer until the mercury is just visible and read the indicated temperature. Repeat this procedure until there is no change in the reading and then record the indicated temperature.

The correction for the thermometer will be the deviation of the reading from 0°C.

If the indicated temperature is outside the range 0°C ± 0.5°C the thermometer is unsuitable for use under this Procedure.

Whilst it may be possible to adjust electronic thermometers, inaccurate glass thermometers shall be replaced and appropriate records made.

7.5.3 Produce temperature measurement

7.5.3.1 Fruits and vegetables – other than QFF host produce for Tasmania and South Australia

At least three temperature readings must be taken from each lot of fruit or vegetables in the load as follows:

- (a) where the lot is on a pallet or bin, one of the readings must be taken from the centre and one from the outer part of the pallet or bin.
- (b) where the lot is unpalletised, every 20th package must be sampled with one inner and one outer fruit or vegetable being sampled.

7.5.3.2 Fruit and vegetables – QFF host produce for Tasmania and South Australia only

Core temperatures for Queensland fruit fly host produce must be verified as follows:

- (a) the temperature must be measured by placing the tip of the temperature probe into the centre of a piece of fruit located in the middle of a carton;
- (b) at least three temperature readings must be taken from each bin or pallet as follows:
 - (i) where the lot is on a pallet, the reading must be taken from three different cartons including one from the top of the pallet and one from the centre/inside/middle of the pallet.
 - (ii) Where the lot is in a bin, one of the readings must be taken from the top of the bin and one from the centre/middle/inside of the bin.
- (c) A further three readings must be taken for each commodity that is a different fruit variety of supplied by a different grower or packer.

7.5.3.3 Live plants and plant products – all destinations

A minimum of three temperature readings must be taken adjacent to or within the article being fumigated - for example in the centre of the carton.

NOTE: The core temperature prior to fumigation must not be below:

- (a) 17°C for fruit and fruiting vegetables - taken from the flesh next to the seed (if seed present) treated for Queensland fruit fly; or
- (b) 10°C for fruit and fruiting vegetables - taken from the flesh next to the seed (if seed present) treated for Mediterranean fruit fly; or
- (c) 10°C for grapes - taken from the centre of the fruit treated for Phylloxera; or
- (d) 10°C for food producing plants and ornamental plants - taken adjacent to, or within the article being fumigated (e.g. centre of carton).

If minimum temperature requirements are not met, the product must not be fumigated until it meets minimum required temperature.

7.5.4 Produce temperature records

The Fumigator must record each temperature reading and the maximum and minimum produce temperatures of the load on the Fumigation Treatment Record (Attachment 3).

7.6 Chamber identification

For Tasmania only, businesses must uniquely number each fumigation chamber.

7.7 Ambient air temperature and chamber heating – Tasmania only

The ambient air temperature within the fumigation chamber must be maintained at the minimum temperature specified in section 6 for the relevant dosage to be applied. If required, each chamber must be equipped with appropriate internal heating equipment to ensure the chamber is maintained at the minimum temperature required during fumigation treatment.

Temperature monitoring devices must be checked on a regular basis to ensure they continue to operate effectively.

The fumigator must ensure that:

- (a) ambient air temperature sensing instruments in the chamber are located in a position that does not receive direct airflow from the circulation fans and heating element. The sensor must be located in an area either behind the circulation fans or an area in which the air passing the sensor is returning to the fans (i.e. return air monitoring); and
- (b) ambient air temperature recordings are taken every 30 minutes during the fumigation.

7.7.1 Ambient air temperature sensing and recording equipment

The combined sensing and data recording systems must be accurate to within 0.5°C of the true temperature in the range of 10°C to 17°C and must be able to be read in increments of 0.1°C or less.

7.7.2 Ambient air temperature sensors

Ambient air temperature sensors must be uniquely identified e.g. a tag attached to the sensor or on the adjacent wall. Each sensor must be matched to a specific data recorder or uniquely identifiable in a computer database.

A plan indicating the location and identity of each sensor must be kept with the data recording instrument.

7.7.3 Ambient air temperature recording equipment

Output of recording instruments must be accurate to within +/-0.1°C of the true temperature in the range of 10°C to 17°C in the normal operating environment. The instrument must be capable of repeatability in the range of 10°C to 17°C.

7.7.4 Calibration of ambient air temperature sensing and recording equipment

The ambient air temperature sensors and recording systems must be calibrated/serviced at least annually as per the manufacturer's instructions. Temperature calibration must be conducted at the freezing point of water (0°C). At calibration, each sensor must be uniquely identified and matched with the corresponding data recorder.

Calibration is to be undertaken by the fumigator or by a recognised testing authority.

7.8 Preparing, loading and sealing the chamber

7.8.1 Preparing the chamber

The Fumigator must, prior to the chamber being loaded:

- (a) check the chamber for damage and possible leak sites;
- (b) repair any damage (e.g. damaged door seals or holes or tears in chamber walls); and
- (c) check chamber circulation and ventilation systems are operating correctly and ensure all vents are closed and sealed.

7.8.2 Loading the chamber

The Fumigator must ensure that an adequate distance is maintained between each package, pallet or bulk bin and the sides and top of the chamber to allow the fumigant to circulate around and into the target of the fumigation. A 5 cm space must be left between each package, pallet load or bulk bin.

The business must ensure that all packaging is opened or otherwise arranged as follows to allow the fumigant to readily circulate around and into the target of the fumigation:

- (a) products that are tightly packed into cartons in plastic sleeves (for example, cut flowers) must be loosened within boxes to ensure adequate gas penetration during fumigation; and
- (b) polythene type liners or non-perforated liners must be opened at the top; and
- (c) if open ends of plastic sleeves are packed together in the middle of the carton, the cartons must be re-packed with the open ends being placed towards the sides of the cartons; and
- (d) cartons without ventilation holes or with flowers in plastic sleeves obscuring the holes must be stacked with the tops open or with holes punctured in the sides.

Wrapped products must be in a single layer so that the perforations are not blocked by the wrapping overlapping itself.

Chamber loadings must be recorded as a percentage of the chamber volume for each fumigation.

Loading rates within the chamber must be:

- (a) not less than 30% nor more than 50% of the volume of the chamber when empty for fruits and vegetables; and
- (b) not more than 50% of the volume of the chamber when empty for all other plants and plant products; and
- (c) produce may be fumigated either unpacked, in bulk bins or following packing. The Fumigator shall ensure that any produce which is packaged or covered with impervious materials such as plastic bags/sleeves or waxed paper are opened, cut or removed to allow adequate penetration of the gas unless the impervious materials contain:
 - (i) not less than four unobstructed perforations of 6 mm diameter per 100 cm²; or
 - (ii) five unobstructed perforations of 5 mm diameter per 100 cm²; or
 - (iii) numerous pinholes (at least six holes per square centimetre).

Where the addition of the chamber load does not meet the minimum required treatment chamber loading volume, the fumigator must use dunnage to make up the additional required volume.

7.8.3 Placement of gas supply line(s)

The gas supply line(s) must be strategically placed within the chamber to effectively introduce and allow dispersal of the gas. As the fumigant is more than three times heavier than air, the gas should be introduced directly into the airstream of the circulation fan. Precautions must be taken to prevent any liquid fumigant coming in contact with produce being fumigated. A piece of impermeable sheeting (plastic or rubberised canvas) or a tray may be used.

Adequate fan circulation must be provided to circulate the fumigant.

7.8.4 Placement of gas sampling lines

When gas concentrations are to be monitored during fumigations, gas sampling lines must be positioned within the chamber for each fumigation. Sampling lines must be crushproof (for example 6 mm internal diameter hydraulic hose is effective) and must be positioned as follows:

- (a) for chambers less than 5 m³, one gas sampling line located in the centre of the stack where possible within the centre carton/package; and
- (b) for chambers 5 m³ or greater, three sampling lines located at the top back, centre, and base front of the stack where possible within the top carton/package at one end of the enclosure and the centre carton/package in the middle of the enclosure and the bottom carton/package at the opposite end of the enclosure from the top sampling tube.

7.8.5 Sealing the chamber

Once all of the produce has been placed in to the chamber, the Fumigator must ensure the chamber is gas tight by closing all vents and access points and checking all possible leak sites such as doors, gaskets and joints.

After the chamber has been sealed all circulation fan(s) must be turned on.

7.9 Fumigation

7.9.1 Calculation of fumigation chamber volume

The volume of the space to be fumigated is the volume of the total space enclosed for fumigation. It is to be calculated using a measuring tape or other suitable device to determine length, width and height and is to be expressed in cubic metres (m³).

Where an enclosed chamber is used for fumigation, the volume of any gas circulation equipment external to the chamber which is not sealed from the chamber during fumigation must also be included in calculation of the chamber volume.

The following calculation may be used to determine the volume of the chamber in cubic metres (m³):

$$\text{(Chamber height (m) x chamber length (m) x chamber width (m)) + external ducting volume (m}^3\text{)} \\ = \text{total chamber volume (m}^3\text{)}$$

For example:

$$\text{(Chamber height (2.5m) x Chamber length (3m) x Chamber width (3m)) = Chamber volume}$$

$$2.5 \times 3 \times 3 = 22.5 \text{ m}^3$$

$$+ \text{ External ducting volume } 0.5 \text{ m}^3 \text{ (if applicable) = Total chamber volume}$$

$$22.5 \text{ m}^3 + 0.5 \text{ m}^3 = 23.0 \text{ m}^3$$

Details of chamber volume and fumigant dosage rates must be prominently displayed in the vicinity of the chamber. (see Attachment 2)

7.9.2 Calculation of fumigant dosage

The fumigant dosage rate is specified in **6. Requirements**.

The dosage rate applied to fumigation must be determined by the temperature of the coldest produce from any lot to be fumigated in the chamber load.

Treatment for **QFF** must not commence if the temperature of the product is below 17°C or is 32°C or above.

Treatment for **Phylloxera** must not commence if the temperature of the product is below 10 °C.

Treatment for hosts of all **other plant pests** must not commence if the temperature of the product is below 10°C or is 32°C or above.

Determine the amount of methyl bromide required in grams (g) using the following formula:

$$\text{chamber volume} \times \text{dosage rate} = \text{g methyl bromide}$$

For example:

$$22.5\text{m}^3 \times 32\text{g/m}^3 = 720\text{g methyl bromide}$$

The fumigator must maintain records of the total amount of methyl bromide applied for each fumigation on the Fumigation Treatment Record (see example at Attachment 3).

7.9.3 *Fumigation Dosage Chart*

The Business must maintain a Fumigation Dosage Chart (see example at Attachment 2) in close proximity to each chamber used by the Business for fumigation under this Procedure.

The chart must provide the following details:

- (a) the Business's name and Interstate Produce (IP) number;
- (b) the identification of the chamber to which the chart applies;
- (c) the total chamber volume in cubic metres;
- (d) the quantity of fumigant required to be added to the chamber to achieve a concentration of 32, 40, 48 and 56 g/m³; and
- (e) the printed name and signature of the licensed fumigator responsible for the preparation of the chart and the date of preparation.

7.9.4 *Application of fumigant*

7.9.4.1 Sealed system

The Fumigator measures out the required amount of fumigant into the measuring cylinder. After the required amount of fumigant has been decanted and checked the fumigant is introduced into the chamber via the volatiliser.

7.9.4.2 Loss of weight system

The fumigator measures out the required amount of fumigant by the loss of weight in the dispensing cylinder.

To operate this method, the dispensing cylinder is placed onto scales to allow the weight of the cylinder to be determined before application of the fumigant.

The Fumigator must tare off the weight of the required amount of fumigant on the dispensing cylinder and open the valve to apply the required amount until the cylinder is at the tared weight.

7.9.5 *Calibration of weighing scales*

Scales used for the Loss of Weight System must be calibrated using a known weight at least every six months.

The Business must maintain results of weighing scale calibration checks.

Weighing scale calibration records must record the following information:

- (a) the date of calibration;
- (b) the identification of the scales calibrated;
- (c) confirmation that the equipment is accurate to within ± 1 percent of the minimum dosage (g) of methyl bromide used for the chamber; and
- (d) the officer responsible for conducting the calibration check.

7.9.6 *Vaporiser/Volatiliser*

Although methyl bromide has a boiling point of 3.6°C and will vaporise when released at temperatures above 4.0°C, freezing may occur as the gas is released from the delivery cylinder. For this reason a vaporiser or volatiliser must be used to introduce the methyl bromide as a hot gas.

The heat source for the vaporiser must be capable of heating the water in the vaporiser to at least 65°C and maintaining the temperature at or above this while the methyl bromide is being applied to the enclosure.

A suitable device has part of the delivery tube of copper, coiled and submerged in hot water.

7.9.7 *Mixing of fumigant*

To ensure adequate mixing of the fumigant, fans must be used to disperse the gas throughout the chamber and enhance the penetration of the fumigant. Once the gas is evenly distributed it maintains that condition unless an outside event such as excessive leakage occurs.

It is suggested that an axial fan capable of providing 60 room changes of volume per hour be used for 15 minutes after the introduction of the gas. Low velocity/low volume fans may be used for longer periods.

The use of high velocity/high volume fans for periods longer than 15 minutes may lead to the fumigant being forced from the chamber.

Fumigation commences once all the fumigant has been introduced into the chamber and vaporised (the time of vaporisation).

Effective mixing of the methyl bromide may be determined by monitoring gas concentrations at all monitoring points 20 minutes after the introduction of the gas. All monitoring points must equilibrate within $\pm 5\%$ of each other (where more than one sampling point is used), otherwise the fumigation is deemed to have failed.

7.9.8 *Treatment commencement*

The fumigation treatment period starts when:

- (a) all concentration readings are equal to or above the standard concentration; and
- (b) equilibrium has been established.

Equilibrium is achieved when the highest concentration reading is within 15% of the lowest concentration reading.

The formula for calculating equilibrium is:

$$\frac{\text{Highest reading} - \text{Lowest reading}}{\text{Lowest reading}} \times 100 = \text{Equilibrium \%}$$

If the result of this calculation is more than 15%, equilibrium has not been achieved and the fans must be turned on again to further circulate the fumigant. Additional readings must then be taken until equilibrium has been achieved or the concentration falls below the standard concentration. Once initial equilibrium has been achieved it is not required at any other time.

If additional fumigant needs to be added before the start point has been reached, the amount must be calculated by subtracting the lowest concentration reading from the initial dose rate and multiplying that by the volume of the enclosure.

The formula for this is:

$$(\text{Initial Dose Rate} - \text{Lowest Concentration Reading}) \times \text{Volume}$$

If more fumigant is added to the enclosure before start time is achieved, the time the injection of additional fumigant is completed becomes the new injection completion time for determining the required starting concentration.

All initial concentration readings and the time they were taken must be recorded. This includes any readings taken prior to achieving the required starting concentration.

7.9.9 *Testing for leaks*

Once the fumigation has commenced, the fumigator must test the chamber for leaks using a suitable gas monitoring device such as a TIF or Riken. Sites checked must include:

- doors sealing points;
- external ducting; and
- exit points for supply lines and gas sampling lines.

Any leaks detected must be repaired immediately. If leaks are detected that cannot be repaired during the treatment, the fumigation must be aborted and the chamber repaired before further use.

7.9.10 Monitoring fumigant concentration

Effective fumigation is dependent on maintaining a satisfactory level of fumigant within the chamber during the fumigation. Fumigant concentration readings must be taken at the start and end of fumigation for all fumigation treatments.

The fumigant concentration must not fall below 60% of the required concentration for the duration of the treatment.

'Topping-up' of fumigant is prohibited once treatment has begun.

7.9.11 Failed treatment

Where monitoring indicates that the required concentration will not be maintained the Fumigator must vent off all fumigant, ensure gas freedom and then inspect the chamber for the possible cause.

Where the fumigation has failed, it is unsuitable for further treatment with methyl bromide. The consignment must be sent for an alternative treatment or to a non-sensitive market.

7.10 Completion of fumigation

7.10.1 Venting

After 2 hours of treatment the chamber must be ventilated by running the exhaust system to extract all of the remaining gas and ensure that the concentration of methyl bromide is below 5 ppm before produce is released from the chamber.

The Fumigator should check fumigant concentrations before releasing the produce by drawing an air sample from the chamber into a colorimetric tube before releasing the produce. Air samples must be taken near the floor of the chamber in the vicinity of the exhaust duct. This can be accomplished by installing a metal tube in the chamber to transport the sample from the floor to an opening in the chamber wall.

The concentration of methyl bromide in the chamber must be below the Exposure Standard of 5 ppm or less before the product can be released. If the concentration is greater than 5 ppm then forced venting should be resumed and further measurements of concentration taken.

Inadequate aeration of produce poses grave risks to the health of workers involved in unpacking, transport and marketing of fumigated fruit.

7.10.2 Unloading the chamber

Unloading of the chamber may commence after the fumigator has released the produce. The ventilation system is to be kept running during this process.

7.10.3 Aeration of produce

Treated produce must be given sufficient time to air after treatment to allow adequate dispersal of the fumigant out of the produce and ensure that the Exposure Standard of 5 ppm of methyl bromide and any applicable maximum residue limits are not exceeded.

7.10.4 Identification and control of treated and untreated produce

The Business must have adequate procedures in place which prevent mixing of treated and untreated produce at the facility.

Examples of acceptable methods of identifying the treatment status of treated and untreated produce after fumigation include:

- (a) locating untreated produce in a clearly identified and separate area to treated produce and maintaining separation until dispatch; or
- (b) marking each package of treated produce in a manner that clearly identifies the produce as conforming to the requirements specified under this Operational Procedure.

Other methods may be used provided they clearly identify and segregate treated and untreated produce.

7.11 Treatment records

The Fumigator must record each fumigation using a Fumigation Treatment Record (see example at Attachment 3) that includes the following details.

- (a) the date of fumigation;
- (b) the packer's identification;
- (c) the type of produce treated;
- (d) the quantity of produce treated;
- (e) the volume of the total load being treated, including anything in the chamber contributing to the chamber load (**for South Australia only**);
- (f) all temperature measurements taken prior to fumigation;
- (g) the unique identification reference for the treatment chamber (**for Tasmania only**);
- (h) the fumigation dosage rate;
- (i) the total quantity in grams of fumigant released in the fumigation;
- (j) the commencement time of the fumigation (the time vaporisation is completed);
- (k) the concentration reading and time at the start point
- (l) the concentration reading and time at the end point
- (m) the completion time of the fumigation (the time venting commenced); and
- (n) the Fumigator's certificate of competency number, name and signature.

7.12 Storage and secure packing

All produce that has been successfully treated with methyl bromide must be stored under secure conditions and segregated from any untreated product until dispatched from the facility.

7.13 Post treatment security (South Australia and Tasmania only and only for QFF host produce)

Treated fruit may be allowed to air adequately prior to securing the produce against reinfestation. Treated fruit is to be held for the minimum practical period after fumigation and airing before it must be stored at and transported from the facility in secure conditions which prevents infestation by QFF.

Any treated fruit which remains unpacked at the end of the day must be held in secure conditions until packed.

7.14 Transporting in secure conditions

Certified fruit must be transported from the facility in secure conditions that prevent infestation by QFF. Secure conditions include:

- (a) unvented packages;
- (b) vented packages with vents secured with gauze/mesh with a maximum aperture of 1.6 mm;
- (c) fully enclosed under tarpaulins, hessian, shade cloth, mesh or other covering which provides a maximum aperture of 1.6 mm;
- (d) shrink wrapped and sealed as a palletised unit;
- (e) fully enclosed or screened buildings, cold rooms, vehicles or other facilities free from gaps or other entry points greater than 1.6 mm.

Fruit consigned to Tasmania must be transported in full container lots sealed prior to transport or as lesser container lots in accordance with the requirements of (a), (b) or (d) above.

Where consignments are transported to Tasmania as full container lots, the seal number must be included in the 'Brand Name or identifying marks' section of the PHAC covering the consignment.

Where consignments are transported in vented packages that are sealed as a palletised unit in accordance with (d) above, the business must secure the top layer of the pallet by applying a row of tape over the shrink wrap and have applied to the tape in waterproof ink the signature of an Authorised Signatory, the number of the PHAC covering the consignment and the date.

7.15 Dispatch

7.15.1 Package identification

The Authorised Dispatcher must ensure that, prior to issuing a PHAC, each package intended for certification under this Procedure is marked in indelible and legible characters of at least 5 mm with:

- (a) the Interstate Produce (IP) number of the Business that operates the approved facility in which the produce was treated;
- (b) the words "Meets ICA-04";
- (c) the date (or date code) on which the produce was treated.

Packages may be marked prior to fumigation. Any packages containing produce that has not been prepared in accordance with the requirements of this Procedure must not be marked as stated above.

7.15.2 Plant Health Assurance Certificates

The Authorised Dispatcher must ensure a PHAC (Attachment 7) is completed and signed by an Authorised Signatory prior to the consignment being dispatched.

Assurance Certificates must be completed, issued and distributed in accordance with the work instruction *WI-01 Guidelines for the completion of Plant Health Assurance Certificates*.

Assurance Certificates must include:

- (a) in the 'Accredited Business that Prepared the Produce' section, the name and address of the Accredited Business that treated the produce; and
- (b) in the 'Grower' section, the name and address of the property on which the produce was grown. Where the consignment contains produce from a number of growers the word "VARIOUS" must be used; and
- (c) in the 'Consignment Details' section,
 - (i) the number and type of packages in the consignment; and
 - (ii) in the 'Produce Type' column, a description of the produce; and
- (d) in the 'Treatment Details' section the Treatment Date, Concentration, Duration and Temperature
- (e) in the 'Additional Certification' section the statement "Meets ICA-04".

The Business must not issue a PHAC for produce owned by another Business. An individual PHAC must be issued to cover each consignment to avoid splitting of consignments.

For Tasmania only, the Plant Health Assurance Certificate must clearly indicate the chamber room number for each lot in the consignment (all fruit fly host produce):

- (a) where the whole consignment has been fumigated in the one chamber room, the words 'Chamber Room XX' can be written in the 'Additional certification/Codes' section, where XX references the unique identification reference for the treatment chamber; and
- (b) where the consignment has been fumigated in multiple chamber rooms, a unique identification reference must be written next to each lot certified; and
- (c) where the same chamber room has been used for multiple fumigation treatments on the same day, the unique identification reference for the treatment chamber, and the time of fumigation must be written next to each lot certified.

For **South Australia only**, the Plant Health Assurance Certificate must clearly indicate the total load of produce being treated in the chamber (including anything else in the chamber contributing to the total load) in cubic metres (m³).

Books of pre-printed PHACs are available from ICA Records Management, Department of Primary Industries, phone (02) 6552 3000.

Upon suspension, cancellation or withdrawal of accreditation, the PHAC book must be immediately returned to the Department.

7.15.3 PHAC distribution

The **original** (yellow copy) must accompany the consignment.

The **duplicate** (white copy) must be retained by the accredited Business.

8 RECORDS AND DOCUMENT CONTROL

8.1 ICA system records

The Business must maintain the following records, or similar which record the same information:

- (a) Pre-treatment fruit fly inspection record
- (b) Fumigation Dosage Chart for each chamber;
- (c) Chamber Test Certificate for each chamber;
- (d) if applicable, thermometer calibration records;
- (e) if applicable, scale calibration records;
- (f) Fumigation Treatment Record; and
- (g) Register of Authorised Inspection Persons; and
- (h) a copy of each PHAC issued by the Business.

Records must be retained for at least 4 years from completion.

Records shall be made available on request to an Authorised Person.

8.2 ICA system documentation

The Business must maintain the following documentation:

- (a) a current copy of the *ICA Procedure*; and
- (b) a current *Certificate of Accreditation*.

Documentation must be made available on request to an Authorised Person.

9 ATTACHMENTS

Attachment 1	Application for Accreditation as a Biosecurity Certifier
Attachment 2	Fumigation Dosage Chart
Attachment 3	Fumigation Treatment Record
Attachment 4	Chamber Test Certificate
Attachment 5	Inspection record
Attachment 6	Inspection for Queensland Fruit Fly information sheet
Attachment 7	Insect Identification request form
Attachment 8	Plant Health Assurance Certificate

Application for accreditation as a Biosecurity Certifier

A business seeking to become accredited or renew accreditation for an ICA or CA arrangement must complete and lodge an application for accreditation using the prescribed form and paying the application fee.

The application form can be accessed at the NSW DPI Biosecurity forms web page:

<https://www.dpi.nsw.gov.au/biosecurity/managing-biosecurity/forms> under the heading **Applications**

Alternatively, contact ICA Records Management:

Phone: 02 6552 3000

Fax: 02 6552 7239

Email: bfs.admin@dpi.nsw.gov.au

Fumigation Dosage Chart

Business Name	
Facility Address	
Interstate Produce No.	N _____
Chamber Identification	
Total Chamber Volume	m ³

Dosage Chart

Concentration (g/m ³)	Quantity of Methyl Bromide Grams (g)
32	
40	
48	
56	

Prepared by: _____ / /
Printed Name
Signature
Date

Fumigation Treatment Record

Owner of Fumigation Facility:							Interstate Produce No.:		N			
Date of Fumigation:		/ /		Chamber ID:				Chamber Volume:		m ³		
Temperature Readings (°C):							Fumigation Rate:					
Temperature Range (°C):		Maximum Pulp Temperature °C			Minimum Pulp Temperature °C			Amount of Fumigant Used:		g		
Grower/Packer Name	Number of Packages	Product Type (eg Banana)	Type of Packages (Cartons, Bins etc.)	Minimum Produce temp (°C)	Time Vaporisation Completed	Standard concentration (g/m ³) and start point (time)	Standard concentration (g/m ³) and start point (time)	Time Venting Commenced	Chamber Loading (% of produce)	Total volume of load (m ³) (if applicable)		
Comments:												

Fumigator's Name _____ Signature _____ Certificate of competency No: _____

Chamber Test Certificate

Operator of Fumigation Chamber:						Interstate Produce No.:		N	
Facility Address:						Chamber Identification:			
						Date of Test:		/ /	
Chamber Dimensions (internal):		length	m	width	m	height	m	Chamber Volume:	m ³
Pressure Decay test		Time taken for pressure to decay from 200 Pa to 100 Pa					seconds	External Ducting Volume	m ³
Certificate of Competency No.:					Expiry Date:		/ /		Total Chamber Volume: m ³
Test Number	Fumigation Rate (g/m ³)	Quantity of Methyl Bromide added (g)	Time Vaporisation Completed	Gas Concentration at Monitoring Point(s) after 20 minutes		Gas Concentration at Monitoring Point(s) after 2 hours		Time Venting Commenced	Percentage of Methyl Bromide Retained after 2 Hours

The fumigation chamber described above has been tested in accordance with requirements of NSW Department of Primary Industries Operational Procedure *Fumigating with Methyl Bromide* [ICA-04] and has been shown to achieve at least 60% retention of methyl bromide gas after a 2 hour fumigation period.

Fumigator's Name

Signature

/ /

Date

Inspector's Name

Signature

/ /

Date

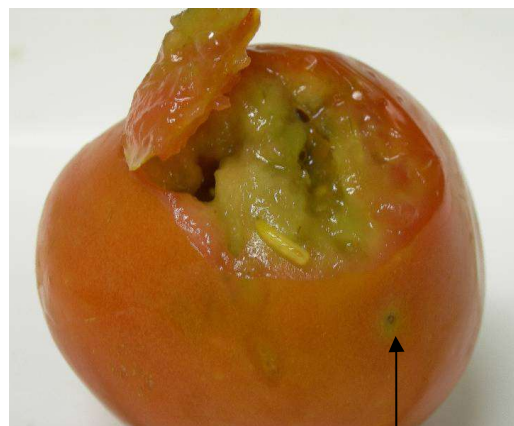
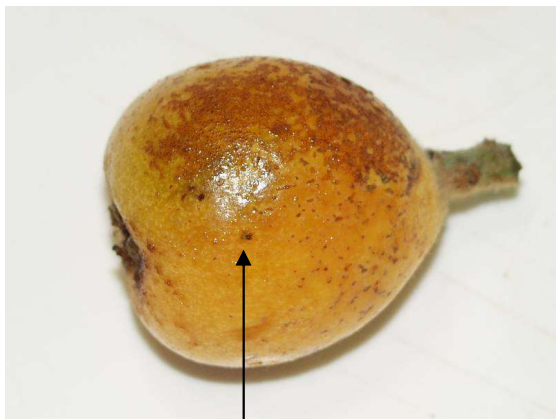
Inspection Record

Date	Time	Produce type	Grower/packer name (for each inspection lot)	No. of packages sampled	No. of units sampled (for each inspection lot)	QFF infestation		Details	Authorised Inspection Person	
						Yes	No		Printed name	Signature
...../...../.....										
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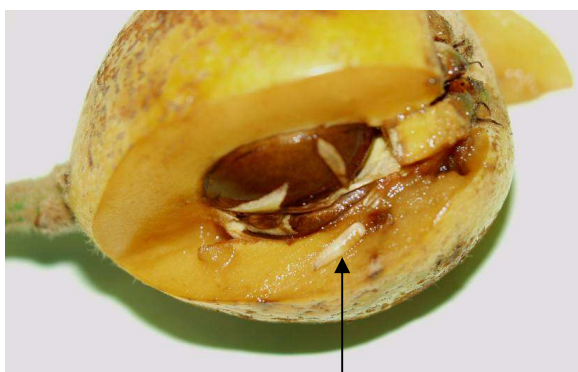
Inspection for Queensland Fruit Fly information sheet

(Images courtesy of Department of Environment and Primary Industries, Victoria)

Larvae and sting marks



Sting marks



Larvae

Sample submission Insect identification request fillable form:

<https://www.dpi.nsw.gov.au/about-us/services/laboratory-services/sample-submission>



Department of
Primary Industries

Insect identification request

Office use only

Use this form to request an insect identification or assessment by the Biosecurity Collections. This form is to be completed by the person requesting the service. Call 02 6391 3988 for advice on fees and sample packaging instructions.

Your details

First name		Last name	
Business name			
Postal address			
Email address			
Telephone		Mobile	
Are you a Local Land Services Officer?	☐ Yes ☐ No		

Property owner details

(If different to above)

First name		Last name	
Business name			
Postal address			
Email address			
Telephone		Mobile	

Sample details

Date collected													
Where e.g. 1 Brown St, Brown 2222, under log													
What is the problem													
Host (plant, animal, other)													
Rate of damage to host	☐ Low ☐ Medium ☐ High												
GPS coordinates													
PIC Property Identification Code	N												

Service options

Check one box only

I would like to know the identification of the insect	☐ Fees apply (call 02 6391 3988)
---	---

or

I would like to know if this is a new pest to Australia or NSW (no identification provided)	☐ Free service
---	---------------------------------------

Declaration

I declare that I am willing to accept the charges for the insect identification service

Name			
Signature		Date	

Submitting the form

→ Mail with the sample to Biosecurity Collections, Orange Agricultural Institute, 1447 Forest Road, Orange NSW 2800

Privacy notice: Information collected will not be given to any other third party except where required by law. All information provided will be held by the DPI Biosecurity and Food Safety branch of NSW Department of Primary Industries and will be managed in accordance with provisions under the Privacy and Personal Information Protection Act 1998.

Office use only			
SMW Submitter Code		New customer?	☐ Yes
SAP ByDesign Customer ID		Date	
Billing Account Code		Initial	



Department of Primary Industries

Certificate Number

Business Specific Information*

Dispatch Date: / / Ref No:

Arrival Date: / / PO No:

* These items display business specific information entered at the discretion of the consignor. They do not represent any part of the certifying conditions of the produce.

Plant Health Assurance Certificate

A biosecurity certificate issued under Part 13 of the *NSW Biosecurity Act 2015*

All accreditation details must be completed. Please print clearly and initial any alterations.

Consignment Details

Consignor

Name

Address

State

Postcode

Consignee

Name

Address

State

Postcode

Reconsigned to: (if applicable)

Splitting consignments, preparing composite lots or reconsigning whole consignments

Name

Address

State

Postcode

Certification Details

IP Number

Facility
Number

Procedure

N

Accredited Business that prepared produce

Name

Address

State

Postcode

Grower(s) (If more than one grower – attach list)

Name

Address

State

Postcode

	Number of Packages	Type of Packages (e.g. trays, cartons)	Type of Produce	Brand Name or identifying marks (as marked on packages)	Date Code (as marked on packages)	Authorisation for reconsignment
1						
2						
3						
4						

Treatment Details

Treatment
Date

Treatment

Chemical (Active Ingredient), Concentration, Duration, Temperature

1	/ /	
2	/ /	
3	/ /	
4	/ /	

Additional Certification/Codes:

This certificate is valid for 21 days from date of certification

Declaration

I am a person authorised under the *NSW Biosecurity Act 2015* to issue this biosecurity certificate and I hereby certify that the details shown above are true and correct and the procedure(s) listed above have been completed.

Full name

Signature

Date

Note: A person who provides false or misleading information on a biosecurity certificate is guilty of an offence under the Act. Such action could result in a penalty infringement notice or prosecution. The maximum penalty for an individual is \$1,100,000, and the maximum penalty for a corporation is \$2,200,000. This information is collected by the collecting agency identified in this form in relation to its functions under the Biosecurity Act 2015. This agency/s and the NSW Department of Industry may use and disclose this information as reasonably necessary for the purpose of performing biosecurity risk functions under, or reasonably contemplated by, the Biosecurity Act 2015.