FUMIGATION WITH METHYL BROMIDE

REVISION REGISTER

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5	07/11/2018	Section 6: amended in accordance with the change of entry requirement for produce consigned to Western Australia and South Australia.
6	22/11/2018	Section 6: amended in accordance with the change of entry requirement for produce consigned to Tasmania.
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Plant Biosecurity & Product Integrity

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TABLE OF CONTENTS

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.

The above applies to the certification of methyl bromide fumigation treatments of product under an Interstate Certification Assurance (ICA) arrangement.

The Interstate Quarantine Authorities maintain the right to inspect certified product at any time and to refuse to accept a certificate where product is found not to conform to specified requirements.

Some product may be damaged by chemical treatments. Businesses applying chemical treatments should check with experienced persons such as Departmental Officers for any available information relating to the intended treatment. Initial testing of small quantities of product is recommended before applying the treatment to the certification lots.

The Business must use products in accordance with the instructions included on the product approved label and this Procedure, and follow any first aid, safety, protection, storage and disposal directions on the product label. Following the required treatments in this Procedure does not absolve the business from the responsibility of ensuring that treated product does not contain a pesticide residue above the Maximum Residue Level (MRL).

2. SCOPE

This procedure covers all certification of methyl bromide fumigation by an Accredited Certifier operating under an ICA arrangement in Queensland.

This procedure covers the requirements for fruit fly and other plant pests where the requirements in section 6. Requirement are a specified condition of entry of an interstate quarantine authority.

This procedure does not abrogate or override the responsibility of licensed fumigators to comply with the legislative requirements as prescribed in the *Health (Drugs and Poisons) Regulation 1996* and *Work Place Health and Safety Act 1995*.

Certification of methyl bromide fumigation under this Operational Procedure may not be an accepted quarantine entry condition for all product to all intrastate or interstate markets.

Some intrastate or interstate markets may require additional quarantine certification as a condition of entry.

It is the responsibility of the Accredited Certifier consigning the product to ensure compliance with all applicable quarantine requirements.

Information on interstate quarantine requirements can be obtained from the plant quarantine service in the destination state or territory.

3. REFERENCES

WI-02	*Guidelines for Completion of Plant Health Assurance Certificates.*
WI-12	*Conducting an Inspection of High-Risk Product for Fruit Fly.*

4. DEFINITIONS

Accredit	means to accredit persons to give a Biosecurity Certificates in accordance with Section 415 of the *Biosecurity Act 2014.*
Accredited Certifier	means a person who holds accreditation under chapter 15 of the *Biosecurity Act 2014* to give biosecurity certificates.
Accrediting Authority	means the Department of Agriculture and Fisheries Queensland (DAF Queensland).
Agvet Code	means the *Agricultural and Veterinary Chemicals Code Act 1994*.
Application for Accreditation	Application for accreditation of an accredited certifier for an Interstate Certification Assurance (ICA) arrangement [CAF-47].
APVMA	means the Australian Pesticide and Veterinary Medicines Authority.
Assurance Certificate	means a *Plant Health Assurance Certificate* [FDU 384].
Authorised Inspection Person (AIP)	means a person trained and deemed competent in the detection and recognition of fruit fly and who is authorised to conduct inspections on behalf of an accredited business.
Authorised Signatory	means a person whose name and specimen signature is included as an Authorised Signatory on the business's application for accreditation.
banana fruit fly	means all stages of the species *Bactrocera musae*.
business	means the legal entity responsible for the operation of the facility and ICA arrangement detailed on the Business's Application for Accreditation.

Certification Assurance	means a voluntary arrangement between Queensland Department of Agriculture and Fisheries and a Accredited Certifier that demonstrates effective in-house quality management and provides assurance through documented procedures and records that product meets specified requirements.
certified/certification	means covered by a valid *Plant Health Assurance Certificate* [CAF-16].
chamber	means a permanent or semi-permanent enclosure made from gas-proof material specifically designed for the purpose of fumigation.
chamber load	means all packages covered by one fumigation treatment.
consignment	means a quantity of packed product described on one PHAC by a single consignee.
colorimetric tubes	Draeger/Kitagawa stain or detector tubes for measuring fumigant concentrations.
facility	means the location where products are inspected and/or treated under the Interstate Certification Assurance arrangement.
fruit fly	means Queensland fruit fly and banana fruit fly.
fruit fly infestation	means the presence of viable/live eggs or larvae of Queensland and/or Mediterranean fruit fly.
fumigant	means 1000g/kg methyl bromide (CH_3Br).
fumigation	means the treatment of product with a fumigant.
fumigator	means a person licensed by Queensland Department of Health (QDH) to undertake fumigation pursuant to the *Health (Poisons-Fumigation) Regulations 1973*.
High-risk product	means product as defined by the receiving jurisdiction as requiring pre-fumigation inspection.
ICA	means Interstate Certification Assurance.
Interstate Certification Assurance	means a system of Certification Assurance developed to meet the requirements of State and Territory governments for the certification of product for interstate and intrastate quarantine purposes.
Load	means the total number of packages covered by one fumigation treatment.
Lot	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).
Mediterranean fruit fly (MFF)	means all life stages of the species *Ceratitis capitata* (Wiedemann).

Other plant pests means plant pests other than Mediterranean fruit fly and Queensland fruit fly for which there is a specified condition of entry, such as silver leaf whitefly (*Bemisia tabaci*), thrips (all species of the *Thysanoptera* Order) and tomato potato psyllid (*Bactericera cockerelli*)

pre-treatment inspection means the process by which a representative sample is drawn and inspected from the chamber load prior to fumigation.

produce means plants and plant products and includes members, alive or dead, of the plant kingdom and any material of plant origin.

Queensland fruit fly (QFF) means all stages of the species *Bactrocera tryoni* (Froggatt) and related species *B. aquilonis* and *B. neohumeralis.*

Standard concentration means the fumigant concentration below which the fumigation will not be effective unless additional fumigation is added to the chamber to compensate.

	Start Point (g/m3)		End of Exposure Period(g/m3)
Initial Dose (g/m3)	≥85% 15 - 30 min after end of vaporisation	≥75% 30 min to 1 hr after end of vaporisation	≥60% 2 hrs after Start Poin
32	27.2	24	19.2
40	34	30	24
48	40.8	36	28.8
56	47.6	42	33.6

stone fruit means peach, nectarine, plum, apricot and hybrids of peach, nectarine, plum and apricot, but excludes cherries.

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.

The **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 product certified under the Business's ICA arrangement is carried out in accordance with this Operational Procedure;
- ensuring all fumigations are performed by a licensed fumigator (refer 6);
- ensuring the fumigation facility has been approved or deemed an as of right use by the relevant Local Authority (as applicable) (refer 7.6);
- ensuring a Fumigation Dosage Chart is maintained for each fumigation chamber operated at the facility (refer 7.8.5);
- ensuring each fumigation chamber operated at the facility is covered by a valid Gas Retention Test Certificate issued by a licensed fumigator within the last six months (refer 7.7.1);
- ensuring thermometers used for measuring product temperatures are identified and calibrated at least every 6 months (refer 7.4.3); and
- if applicable, ensuring weighing scales are calibrated at least every 6 months (refer 7.8.8).

The **Fumigator** is responsible for -

- maintaining the fumigation chamber and fumigation equipment (refer 7.8.13);
- determining the chamber volume (refer 7.6.1);
- maintaining thermometer identification and calibration records (refer 7.4.3);
- determining the minimum produce temperature for each fumigation (refer 7.4);
- determining the chamber loading for each fumigation (refer 7.8.3);
- determining the rate and dosage of fumigant required for each fumigation (refer 7.8.4);
- if applicable, maintaining weighing scale calibration records (refer 7.8.8); and
- maintaining fumigation treatment records (refer 7.10).

Authorised Inspection Persons are responsible for -

- maintaining inspection facilities and equipment (refer 7.2.5);
- a pre-treatment inspection for fruit fly for each lot containing high-risk product (refer 7.2.1);
- conducting a packed product inspection following assembly of a chamber load prior to treatment (refer 7.2.2);
- inspecting 600 units for each high-risk product in a chamber load (i.e., 600 mangoes and 600 stone fruit for a given chamber load) for the presence of fruit fly prior to certification under this Operational Procedure (refer 7.2.3);
- maintaining fruit fly inspection records (refer 7.2.4);
- identifying and segregating packages following detection of fruit fly (refer 7.2.6);
- immediately advising the Certification Controller of any detection of fruit fly (refer 7.2.7).

The **Authorised Dispatcher** is responsible for -

- ensuring all packages covered by an Assurance Certificate issue by the Business are identified (refer 7.12.1);
- maintaining copies of all Assurance Certificates issued by the Business under the ICA arrangement (refer 7.12.2).

Authorised Signatories are responsible for -

- ensuring, prior to signing and issuing an Assurance Certificate, that product covered by the certificate has been prepared in accordance with the Business's ICA arrangement and that the details on the certificate are true and correct in every particular (refer 7.12.2).

6. REQUIREMENT

This operational procedure describes the critical features of an ICA system to meet the quarantine entry requirements:

- Pre-fumigation inspection of high-risk product for Queensland and Mediterranean fruit fly; and
- Fumigation with methyl bromide.

Pre-Treatment Inspection (High-Risk Product)

Where high-risk products are being treated for Queensland and/or Mediterranean fruit fly, a 600-unit pre-treatment inspection must be completed by an Authorised Inspection Person. Each unit must be inspected and found free of live Queensland or Mediterranean fruit fly.

Separate 600-unit inspections must be completed for each high-risk product in a chamber load (i.e., 600 mangoes and 600 stone fruit).

Where there are less than 600 units of any type of high-risk product in a chamber load, all the high-risk product of that type in the chamber load must be inspected.

Chamber Identification

Businesses must uniquely number each fumigation chamber.

Fumigation with methyl bromide in an approved fumigation chamber for two hours at one of the following rates –

Fumigation for Queensland fruit fly-

Methyl Bromide (g/m^3)	Flesh Temperature (degrees Celsius)
32	21- 31.9
40	17 – 20.9

Fumigation for Mediterranean fruit fly and other plant pests

Methyl Bromide (g/m^3)	Produce Temperature (^oC)
32	21 - 31.9
40	16 - 20.9
48	11 - 15.9
56	10 – 10.9

The produce temperature prior to fumigation must not be below -

- 17°C for fruit and fruiting vegetables - taken from the flesh next to the seed (if seed present) treated for Queensland Fruit Fly; or
- 10°C for fruit and fruiting vegetables - taken from the flesh next to the seed (if seed present) treated for Mediterranean Fruit Fly; or
- 10°C for all other plants and plant products – taken adjacent to, or within the article being fumigated (e.g., centre of carton).

100% methyl bromide must be used for fumigating fruit and fruiting vegetables, food producing plants and ornamentals. The use of fumigants containing chloropicrin does not have Australian Pesticides and Veterinary Medicines Authority approval for the fumigation of these commodities. Chloropicrin is phytotoxic and is likely to cause damage to any living plant material.

Fruit must be fumigated at flesh temperatures above 10°C and below 32°C.

- **Fruit and fruiting vegetables** – taken from the flesh next to the seed (if seed present); or
- **Food producing plants and ornamentals** – taken from the ambient temperature of the fumigation chamber

Loading rates within the chamber must be –

(a) **for fruits and vegetables** - not less than 30% and not more than 50% of the volume of the chamber when empty;

(b) **for all other plants and plant products** – not more than 50% of the volume of the chamber when empty.

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

One hundred percent control of fruit fly eggs and larvae in treated fruit cannot be guaranteed with these treatments. Accredited businesses should not treat or certify fruit that is known to be infested with fruit fly under the ICA arrangement.

The Queensland Department of Agriculture and Fisheries and interstate quarantine authorities maintain the right to inspect at any time certified product and to refuse to accept a certificate where product is found not to conform to specified requirements.

Some product may be damaged by chemical treatments. Businesses applying chemical treatments should check with experienced persons such as departmental officers for any available information. Testing of small quantities is recommended.

The Accredited Certifier must use product registered under the Agvet Code in accordance with the instructions included on the product approved label or an applicable APMVA permit, and follow any first aid, safety, protection, storage and disposal directions on the product label or permit. Treatment facilities must comply with the requirements of the local government, environmental and workplace health and safety authorities.

Following the required treatments in this procedure does not absolve the business from the responsibility of ensuring that treated product does not contain a pesticide residue above the Maximum Residue Level (MRL).

Inadequate ventilation of product 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.

Packaging

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, or be designed in such a way to allow fumigant penetration (as detailed in 7.3).

Post treatment security

Where required by the importing jurisdiction, following treatment, fruit must be stored at and transported from the facility in secure conditions which prevent infestation by fruit fly.

7. PROCEDURE

7.1 Accreditation

7.1.1 Application for Accreditation

An Accredited Certifier seeking accreditation for an Interstate Certification Assurance arrangement must make application for accreditation by lodging the form Application for Accreditation of an Accredited Certifier for an Interstate Certification Assurance (ICA) Arrangement [CAF-47] (refer Attachment 1) at least 10 working days prior to the intended date of commencement of operation under the ICA arrangement.

This application may be lodged online at:-

https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/certification-moving-plants/accreditation; or;

As outlined on the first page of the application form.

7.1.2 Audit Process

Initial Audit

Prior to an Accredited Certifier becoming accredited an initial audit of the Accredited Certifier is carried out to verify the ICA system is implemented and capable of operating in accordance with the requirements of the Operational Procedure, and the system is effective in ensuring compliance with the specified requirements of the ICA arrangement.

On completion of a successful initial audit accreditation is granted to cover the current season, up to a maximum of twelve months from the date of initial accreditation and a Certificate of Accreditation is issued (refer 7.1.3 Certificate of Accreditation).

Compliance Audits

Compliance audits are conducted to verify that the ICA system continues to operate in accordance with the requirements of the Operational Procedure.

Compliance audits are, wherever practical, conducted when the ICA system is operating.

A compliance audit is conducted within four weeks of the initial accreditation or 12 weeks of the annual renewal of accreditation under the ICA arrangement.

An additional compliance audit is conducted between six and nine months after the date of accreditation for an ICA arrangement that operates for more than six months of the year.

Random audits are conducted on a selected number of number of ICA arrangements each year. Random audits may take the form of a full compliance audit, or audits of limited scope to sample treatment mixtures, certified product, ICA system records or ICA system documentation.

Unscheduled compliance audits may be conducted at any time to investigate reported or suspected nonconformances.

Re-Accreditation

Accredited Certifiers are required to re-apply for accreditation each year the Accredited Certifier seeks to operate under the ICA arrangement. Accredited Certifiers seeking re-accreditation must lodge a renewal application prior to accreditation lapsing, or if accreditation has lapsed, prior to commencing further certification of product under the ICA arrangement.

A compliance audit is conducted within twelve weeks of the date of re-accreditation for a Business applying for annual re-accreditation.

7.1.3 Certificate of Accreditation

An Accredited Certifier will receive a *Certificate of Accreditation for an Interstate Certification Assurance Arrangement* detailing the scope of the arrangement including –

- the facility location;
- the Operational Procedure;
- any restrictions on the accreditation such as –
  - type of product,
  - chemical covered; and
- the period of accreditation.

The Accredited Certifier must maintain a current Certificate of Accreditation and make this available on request by an Inspector.

A Accredited Certifier may not commence or continue certification of product under the ICA arrangement unless it is in possession of a valid and current Certificate of Accreditation for the facility, procedure, product type and chemical covered by the Assurance Certificate.

7.2 High-Risk Product Inspection

7.2.1 Authorised Inspection Persons

Prior to treatment all high-risk product shall be inspected by an Authorised Inspection Person. One or more Authorised Inspection Person shall be trained in the detection and recognition of fruit fly. Authorised Inspection Persons must be assessed as competent in the detection and recognition of fruit fly at least annually.

The Certification Controller shall maintain an individual Certificate of Attainment for each Authorised Inspection Persons within the Accredited Business.

A register of Authorised Inspection Persons must be maintained by the Certification Controller (refer Attachment 3). Only persons currently on the register shall carry out fruit fly inspections.

The register must contain the following minimum information for each Authorised Inspection Person -

- Name of Authorised Inspection Person;
- Specimen signature; and
- Date of training/assessment.

7.2.2 Inspection Procedure for QFF and MFF

All inspections of high-risk product shall be carried out by an Authorised Inspection Person in accordance with ICA Work Instruction *Conducting an Inspection of High-Risk Product for Fruit Fly* [ICA-WI-12].

A pre-treatment inspection for fruit fly must occur for each lot containing high-risk product.

Inspection for fruit fly must be carried out as close as practical and not more than 48 hours prior to the time of treatment.

High-risk product must be inspected by conducting a packed product inspection following assembly of a chamber load prior to treatment. The pre-treatment inspection must be undertaken by an Authorised Inspection Person.

7.2.3 Inspection Rate

A separate representative 600-unit inspection must be completed for each high-risk product in a chamber load (i.e., 600 mangoes and 600 stone fruit for a given chamber load).

7.2.4 Inspection Records

The Authorised Inspection Person must maintain records of all fruit fly inspections. Inspection records must include –

- date and time of inspection;
- product type;
- grower/packer name for each inspection lot;
- number of packages sampled;
- number of units sampled in each inspection lot;
- the inspection results including freedom or presence of live fruit fly;
- comments on the inspection, including any actions taken resulting from suspected detection of fruit fly; and
- name and signature of Authorised Inspection Person.

Inspection records shall be in the form of a *Fruit Fly Inspection Record* (refer Attachment 4) or records which capture the same information.

7.2.5 Inspection Facilities and Equipment

The Authorised Inspection Person shall 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;
- painted in a light colour or covered in a durable light coloured material; and
- 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 10 X magnification for the observation of fruit fly;

(c) a white coloured tray i.e., plastic photograph tray or other surface for dislodging suspect thrips onto for further inspection;

(d) reference illustrations and photographs for identification of fruit fly;

(e) sealable plastic bags for collecting specimens of infested product;

(f) sealable specimen bottles for suspect fruit fly;

(g) labels to uniquely number specimen bottles when multiple specimens are collected;

(h) a fine paint brush for collecting samples of suspect tfruit fly;

(i) preservative material i.e., methylated spirits or 70% ethanol for preserving samples for identification; and

(j) a pocket knife or similar item for cutting produce to further investigate for the presence of thrips.

The Authorised Inspection Person shall carry out regular checks of the inspection facilities and equipment to ensure it continues to operate effectively and remains free from damage or excessive wear.

7.2.6 Segregation of Product

The Authorised Inspection Person shall identify by signage and maintain an area within the facility for –

- segregating and isolating product which has ‘passed’ inspection from all other fruit fly host products; and
- segregating and isolating product which has ‘failed’ inspection, either due to suspect or confirmed presence of fruit fly, from all other fruit fly host products.

Product that has failed inspection due to suspect fruit fly, and that is awaiting sample results, must be segregated from all other product until the sample result has been returned to the Accredited Certifer.

Examples of acceptable methods of identifying the status of product include -

(a) locating fruit fly host product (including produce that is awaiting sample results or has failed inspection) in a clearly identified and segregated area to product that has passed inspection; and

(b) marking each package of inspected and 'passed' product in a manner that clearly identifies the product as conforming to the requirements specified under this Operational Procedure.

7.2.7 Failed Inspection Procedure (following the detection of suspect QFF or MFF)

Product that has failed inspection due to the suspected presence of fruit fly and is intended to be sent to a fruit fly restricted market must be segregated and isolated from all other fruit fly host product until it is confirmed that fruit fly are not present.

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

If suspect fruit fly are detected during inspection, all high-risk product from that particular grower/packer must be rejected for certification until the suspect fruit fly are properly identified.

If an identification of the suspect fruit fly is unable to be obtained, all host product from that particular grower/packer must be rejected for certification under this procedure for that treatment day.

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

If Queensland or Mediterranean fruit fly is confirmed, all product from that particular grower/packer must be rejected for certification under the Operational Procedure for that treatment day.

Where a new inspection 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 product.

7.2.8 Pest Identification

Where the Certification Controller still wishes to treat the product under the procedure, samples of suspect fruit fly must be taken by an Authorised Inspection Person immediately on detection. The Authorised Inspection Person must place a sample of the suspect fruit fly with a portion of the fruit in which it was detected into a watertight and sealable specimen bottle.

The specimen bottle must be labelled with -

- The name of the Authorised Inspection Person taking the sample;
- date of inspection and sample taken;
- the Interstate Produce (IP No.) number of the accredited business inspecting the product;

- the name and address of the grower or packer or Interstate Produce number (IP No.) from which the product that the sample was taken from originated; and
- the type of product and quantity of produce from which the sample was taken.

The Authorised Inspection Person must seal the specimen bottle into a sealable plastic bag then forward the sample by secured means (e.g., registered post or courier) to a qualified entomologist that is approved by the Accrediting Authority within 24 hours of detection.

Where suspected fruit fly is identified by an entomologist, the Certification Controller of the accredited business must obtain written notification from the entomologist.

7.2.10 Storage and Identification Procedure

The business must identify each inspection lot of high-risk product which has passed inspection. Each inspection lot which has passed inspection is to be marked in such as a way to be clear that the inspection lot has been 'inspected and found free of Queensland and/or Mediterranean fruit fly'.

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

7.3 Impervious Packaging

Prior to fumigation the Fumigator 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:

- Products that are tightly packed into cartons in plastic sleeves (e.g., cut flowers) must be loosened within boxes to ensure adequate gas penetration during fumigation;
- Polythene type liners or non-perforated liners must be opened at the top;
- 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 be placed towards the sides of the cartons;
- 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.

Product 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:

- not less than four unobstructed perforations of 6mm diameter per 100mm x 100mm of surface area; or
- not less than five unobstructed perforations of 5mm diameter per 100mm

x 100mm of surface area; or

- not less than 6 pinholes per 10 mm x 10 mm surface area.

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

7.4 Produce Temperature Probing

Immediately prior to the commencement of a fumigation, the Fumigator shall determine the minimum flesh temperature of each load of product to be fumigated.

The temperature prior to fumigation must not be below:

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

The core temperature for fruits and fruiting vegetables must be verified by placing the tip of the temperature probe into the centre of a piece of fruit located in the middle of a carton. Separate temperature measurements must be taken from each inspection lot in the chamber load as described below. If minimum temperature requirements are not met, the product must be rejected for fumigation and until it meets minimum required temperature. This may be achieved through heating the produce until sampling confirms that the produce meets the requirements specified above.

(a) For fruit and fruiting vegetables:

At least three temperature readings must be taken from each bin or pallet or lot on each pallet. Separate temperature measurements must be taken from <u>each lot</u> of fruit or vegetables in the load as described below:

1) Where the lot is on a pallet, at least three different cartons in a lot must be inspected, including samples taken from:
   - One from the top of the pallet;
   - One from the centre/inside/middle of the pallet; and
2) Where the lot is in a bin, at least three different samples readings must be taken from each bin, including samples taken from:
   - One from the top of the pallet;
   - One from the centre/inside/middle of the pallet; and
3) In addition to three readings specified above, a further three readings must be taken for each commodity in the pallet, lot on a pallet or bin that is either a different fruit variety or supplied by a different grower and/or packer.

(b) For other plants and plant products:

- Temperature readings must be taken adjacent to, or within the article being fumigated (e.g., centre of carton).

7.4.1 Produce Temerature Records

The Fumigator shall record each temperature reading and the maximum and minimum produce temperatures of the load on the *Fumigation Treatment Record* (refer Attachment 7).

7.4.2 Temperature Probing Equipment

Probe thermometers used for measuring produce pulp temperature may be of the bimetallic, glass (mercury or alcohol) or digital type and shall be uniquely identified for calibration purposes.

Thermometers capable of reading in graduations of 0.1ºC shall be used.

7.4.3 Calibration of Thermometers

Thermometers used for measuring produce pulp temperatures must have been calibrated within the previous six months and must be accurate to within +/- 0.5ºC.

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 Certification Controller must maintain results of thermometer calibration checks (refer Attachment 8) or similar record.

Thermometer calibration records must record the following information -

- the date of calibration;
- the identification of the thermometer calibrated;
- the temperature reading(s) and the correction if any to the thermometer reading to an accuracy of at least +/- 0.1 ºC; and
- the name of the officer or recognised testing authority responsible for conducting the calibration checks.

Ice - Point Check Calibration

Thermometers should be washed with distilled or de-ionised water and stored for several hours at 0º 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 0º C.

If the indicated temperature is outside the range 0º C ± 0.5º 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 Loading and Preparing the Chamber

The minimum and maximum loading volume within the chamber must be –

- for fruits and vegetables - not less than 30% not more than 50% of the volume of the chamber when empty;
- for all other plants and plant products – not more than 50% of the volume of the chamber when empty.

The Fumigator must ensure that an adequate distance is maintained between each package, within the chamber to allow circulation of the fumigant and so that it can penetrate easily into boxes, bags or other types of packaging. A minimum space of 100 mm must be maintained between the top, sides and bottom of produce to the walls, ceiling and floor.

Each chamber must be pre-heated to not less than the minimum required temperature prior to produce being loaded into the chamber for fumigation. Any chamber which fails to meet the minimum temperature requirement must not be used for fumigation.

7.6 Fumigation Facility

The Certification Controller shall 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 treatment under the procedure must –

- be a permanently constructed fumigation chamber or a semi-permanent fumigation chamber made from gas-proof material designed specifically for the purpose of fumigation;

- be covered by a current and valid Gas Retention Test Certificate issued by a licensed fumigator within the last six months (refer 7.7.1 and Attachment 9 *Gas Retention Test Certificat*e);
- include appropriate internal heating equipment (7.6.4);
- include temperature measurement and recording equipment to measure the ambient air temperature during treatment (7.6.5); and
- include fans to adequately mix the fumigant throughout the chamber (7.8.9).

7.6.1 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 (m^3).

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 (m^3) -

(chamber height (m) x chamber length (m) x chamber width (m)) + external ducting volume (m^3) = total chamber volume (m^3)

For example-

Chamber Height	=	2.5 metres
Chamber Length	=	3 metres
Chamber Width	=	3 metres
Chamber Volume	=	2.5 x 3 x 3 = 22.5 m^3
External Ducting Volume	=	0.5 m^3 *(if applicable)*
Total Chamber Volume	=	22.5 m^3 + 0.5 m^3 = 23.0 m^3

Details of chamber volume in cubic meters, and fumigant dosage rates shall be prominently displayed in the vicinity of the chamber (refer 7.8.5 and Attachment 6 *Fumigation Dosage Chart*).

The volume of each chamber load must be recorded on the *Fumigation Treatment Record (*refer 7.10 and Attachment 7).

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

7.6.2 Placement of Gas Supply Line(s)

The gas supply line(s) shall be strategically placed within the chamber to effectively introduce and allow dispersal of the fumigant. 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 (refer 7.8.9 Mixing of Fumigant).

7.6.3 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-

- for chambers less than 5 m^3 one gas sampling line shall be located in the centre of the stack where possible within the centre carton/package; or
- for chambers 5 m^3 or greater three sampling lines shall be used and 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.

7.6.4 Ambient Air Temperature and Chamber Heating

The ambient air temperature within the fumigation chamber must be maintained at the minimum temperature specified in section 6 *Requirement* above for the relevant dosage to be applied. 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 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
- take ambient air temperature recordings every thirty minutes during the fumigation.

7.6.5 Ambient Air Temperature Sensing and Recording Equipment

Ambient air temperature sensing and recording systems must have an overall variance of not more than +/-0.5°C in the range of 10°C to 17°C. The sensor and recording system must have a resolution of not more than 0.1°C.

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

7.6.6 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.

7.6.7 Ambient 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.

7.6.8 Calibration of Ambient Air Temperature Sensing and Recording Equipment

The Fumigator must ensure ambient air temperature sensors and recording systems are 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.

7.7 Chamber Testing

All chambers used for methyl bromide fumigation must be tested not less than at six monthly intervals. Non-permanent fumigation chambers i.e., tent must undergo a gas retention test, permanent chambers must undergo either gas retention test or Pressure Decay Testing. Each chamber that passes the test must be covered by a valid *Chamber Test Certificate* issued by a licensed fumigator.

7.7.1 Gas Retention Testing

All chambers used for methyl bromide fumigation must be covered by a valid Gas Retention Test Certificate (refer Attachment 9) or similar record issued by a licensed fumigator.

Operational chambers must be tested at least every six months, or as required by an licensed fumigator.

Gas Retention Test Certificates must be issued following testing under the supervision of an Authorised Inspector or licensed fumigator in accordance with the following -

- After preparing the chamber in accordance with the requirements of this procedure, gas concentrations must be measured and recorded twenty (20) minutes after the start of the fumigation and at two (2) hours after the start of the fumigation prior to venting.
- A measurement must be taken at all monitoring points to determine the concentration of fumigant. All measurements must be within ±5% of each other at the twenty (20) minute monitoring where more than one monitoring point is in use (refer 7.6.3 Placement of Gas Sampling Lines).
- Where measurements are not within ±5% of each other at the twenty (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.
- 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 must vent off all fumigant, ensure gas freedom and then inspect the chamber for the possible cause.
- At least one successful fumigation retention test for a chamber must be undertaken before a Gas Retention Test Certificate may be issued for that chamber. The Authorised Inspector or licenced fumigator supervising the test may require additional fumigation retention testing if this is considered necessary.
- 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.

7.7.2 Pressure Decay Testing (permanent or fixed chamber)

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

- Pressure inside the closed chamber must be raised by 250 Pa using high-pressure compressed air supplied from a compressor or gas cylinder;
- Allow the pressure to decay to 200 Pa; and
- Start measuring the time (in seconds) when it reaches 200 Pa; and
- Stop measuring the time (in seconds) when it reaches 100 Pa; and

- 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.

7.7.3 Chamber Test Certificate

The *Chamber Test Certificate* must record –

- the name and Interstate Produce (IP) number of the Business that operates the fumigation chamber;
- the facility address;
- the identification of the chamber or impervious tarpaulins to which the certificate applies;
- the date of the test;
- the measurements of the chamber;
- the chamber volume;
- the volume of any external ducting;
- the total chamber volume in cubic metres;
- for testing under the retention test method:
  - the fumigation rate (g/m^3);
  - the time of vaporisation;
  - the quantity of methyl bromide in grams (g) added to the chamber to achieve the concentration at the time of the test(s);
  - the readings for each monitoring point for each test at 20 minutes after vaporisation is complete;
  - the readings for each monitoring point for each test at the end of the test (at two hours after vaporisation is complete);
  - the time venting commenced;
  - the percentage of gas retained for each test at the end of the test;
- 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
- the licence number, printed name and signature of the licensed fumigator who performed the test(s).

7.8 Fumigation Treatment

7.8.1 Sealing the Chamber

Once all the produce has been placed into the chamber, the Fumigator shall 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 the Fumigator turns on all circulation fan(s).

7.8.2 Preparing the Chamber

The Fumigator shall check the chamber for damage and possible leak sites prior to the chamber being loaded.

Any damage (e.g., damaged door seals or holes or tears in chamber walls) shall be made good prior to loading.

The Fumigator shall check chamber circulation and ventilation systems are operating correctly and ensure all vents are closed and sealed prior to the chamber being loaded.

7.8.3 Loading the Chamber

The Fumigator shall ensure that an adequate distance is maintained between each package, pallet or bulk bin and the sides and top of the chamber to allow circulation of the fumigant. A five centimeter space shall be left between each package, pallet load or bulk bin in the chamber with a minimum space of ten centimeter between the top and sides of produce to the walls and ceiling.

The Fumigator shall calculate loading rates within the chamber to ensure specified loading rates are not exceeded for the commodity or commodities being fumigated.

Chamber loadings shall be recorded as a percentage of the chamber volume for each fumigation (refer 7.10 Treatment Records).

Loading rates within the chamber must be –

(a) **for fruits and vegetables** - not less than 30% not more than 50% of the volume of the chamber when empty;

(b) **for all other plants and plant products** – not more than 50% of the volume of the chamber when empty.

Produce may be fumigated either unpacked, in bulk bins or following packing.

The Fumigator shall ensure that any product which is packaged or covered with impervious materials such as plastic bags or waxed paper are opened, cut or removed to allow adequate penetration of the gas.

***Note:- To meet the Australian Fumigation Accreditation Scheme (AFAS) perforation requirements for fumigation using impervious materials must contain not less than four (4) perforation of 6mm diameter/100cm^2 (10 cm x 10 cm square) or five (5) perforations of 5mm diameter/100 cm^2. Plastic wraps containing numerous pinholes (at least 6 holes/cm^2, frequently used for transporation of fruit and vegetables are also acceptable*).**

7.8.4 Calculation of Fumigant Dosage

The fumigant dosage rate is specified in 6. Requirement. The dosage rate varies by 8g/m^3 for the incremental change in temperature from a minimum of 10°C to 32°C in accordance with the Table.

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

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

Treatment for **Mediterranean fruit fly** or **other 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 –

Chamber volume x dosage rate = g methyl bromide

For example –

22.5m^3 x 32g/m^3 = 720gms methyl bromide

The Fumigator shall maintain records of the total amount of methyl bromide applied for each fumigation on the *Fumigation Treatment Record* (refer Attachment 7).

7.8.5 Fumigation Dosage Chart

The Certification Controller shall maintain a *Fumigation Dosage Chart* (refer Attachment 6) or similar record in close proximity to the chamber for each chamber used for fumigation under this Operational Procedure.

The chart shall provide the following details –

(a) the Accredited Certifier'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 (refer 7.6.1 Calculation of Fumigation Chamber Volume);

(d) the quantity of methyl bromide in grams (g) required to be added to the chamber to achieve a concentration of 32, 40, 48 and 56g/m^3 (refer 7.8.4 Calculation of Fumigant Dosage); and

(e) the printed name and signature of the licensed fumigator responsible for the preparation of the chart and the date of preparation.

7.8.6 Application of Fumigant

Sealed System

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

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.

7.8.7 Vaporiser/Volatiliser

Although methyl bromide has a boiling point of 3.6ºC and will vaporise when released at temperatures above 4.0ºC, 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 into the treatment chamber 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.

7.8.8 Calibration of Weighing Scales

Scales used for the Loss of Weight System must be calibrated using a known weight at least every 6 months.

The Certification Controller shall maintain results of weighing equipment calibration checks (refer Attachment 10).

Weighing scale calibration records must record the following information –

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

7.8.9 Mixing of Fumigant and Treatment Commencement

To ensure adequate mixing of the fumigant, fans must be used to disperse the gas throughout the chamber and thereby 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 (refer 7.8.11 Monitoring Fumigant Concentration). All monitoring points must equilibrate (equilibrium) within ± 5% of each other (where more than one sampling point is used), otherwise the fumigation is deemed to have failed. (Equilibrium calculation - Highest – Lowest) / Lowest x 100 =%)***

The fumigation treatment period will start when -

- all concentration readings are equal to or above the standard concentration; and
- 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 -

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

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 -

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

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 start time concentration.

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

7.8.10 Testing for Leaks

Once the fumigation has commenced, the Fumigator shall test the chamber for leaks using TIF or Riken leak detectors or other suitable gas monitoring device. Sites checked shall include -

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

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

7.8.11 Monitoring Fumigant Concentration

The business must maintain 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.

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

When the cause has been rectified the produce must be re-gassed at the specified rate prior to certification. However there may be a risk of excessive residue of fumigant in the produce, depending on the amount absorbed by the produce in the initial treatment.

7.8.12 Failed Treatment

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

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

7.8.13 Fumigation Chamber and Fumigation Equipment Maintenance

The Fumigator shall 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.

7.9 Completion of Fumigtion

7.9.1 Venting the Chamber

After two hours of treatment the chamber shall 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 chamber. 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 5ppm or less before the produce can be released. If the concentration is greater than 5ppm 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.

7.9.2 Unloading the Chamber

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

7.9.3 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 Standards of 5ppm of methyl bromide and any applicable maximum residue limits are not exceeded.

7.9.4 Identification and Control of Treated and Untreated Produce

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

The Certification Controller shall ensure procedures are in place which prevent mixing of treated and untreated product at the facility.

Examples of acceptable methods of identifying the treatment status of treated and untreated product after fumigation include -

(a) locating untreated product in a clearly identified and separate area to treated product and maintaining separation until dispatch; or

(b) marking each package of treated product in a manner that clearly identifies the product as conforming to the requirements specified under this Operational Procedure (refer 7.12.1 Package Identification).

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

7.10 Treatment Records

The Fumigator must record each fumigation using a *Fumigation Treatment Record* (refer Attachment 7) or records which capture the same information.

Treatment records must identify -

- the date of fumigation;
- the grower's/packer's identification;
- the type of produce treated;
- the quantity of produce treated;
- all temperature measurements taken prior to fumigation;
- the fumigation dosage rate;
- the total quantity in grams of fumigant released in the fumigation;
- the chamber loading expressed as a percentage of the chamber volume;
- the commencement time of the fumigation (the time vaporisation is completed);
- the completion time of the fumigation (the time venting commenced); and
- the Fumigator's QDH licence number, name and signature.

7.11 Post Treatment Security

Where post-treatment security is a condition of entry, treated fruit may be allowed to air adequately prior to securing the product against infestation. Treated fruit shall be held for the minimum practical period after fumigation and airing before it must be secured against reinfestation.

If required by receiving jurisdictions –

- Any fruit which is stored outside the treatment facility after treatment and prior to dispatch must be held under secure conditions.
- Any treated fruit which remains unpacked at the end of the day must be held in secure conditions until packed.
- Completed pallets shall be held for the minimum practical period before placing in secure conditions.

- Certified fruit must be transported from the facility in secure conditions which prevent infestation by fruit fly.

Secure conditions include-

(a) unvented packages;

(b) vented packages with the 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) shrinkwrapped and sealed as a palletised unit;

(e) fully enclosed or screened buildings, coldrooms, 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 Assurance Certificate covering the consignment (refer Attachment 2).

Where consignments are transported in vented packages that are sealed as a palletised unit in accordance with (d) above, the Accredited Certifier must secure the top layer of the pallet by applying a continuous band of tape over the shrinkwrap and have applied to the tape in waterproof ink the signature of an Authorised Signatory, the number of the Plant Health Assurance Certificate covering the consignment and the date.

7.12 Dispatch

7.12.1 Package Identification

The Authorised Dispatcher shall ensure that each package of certified produce is marked in indelible and legible characters of at least 5mm, with -

- the Interstate Produce number of the Accredited Certifier that operates the approved facility in which the produce was treated; and
- the words “MEETS ICA-04”; and
- the date (or date code) on which the produce was treated;

prior to the issuance of an Assurance Certificate by the Accredited Certifier under this Operational Procedure.

For entry into specified states (Tasmania) the acceptance may be available in lieu of the individual package markings for a secure palletised unit that is shrinkwrapped and has secured the top layer of the pallet by applying a row of tape over the shrinkwrap. Applied to the tape in waterproof ink shall be the signature of the Authorised Signatory and the number of the Plant Health Assurance Certificate covering the consignment and the date of issue of the consignment.

Packages may be marked prior to fumigation, however any packages containing product that has not been treated in accordance with the requirements of this Operational Procedure shall not leave the fumigation facility if marked as stated above.

7.12.2 Assurance Certificates

The Authorised Dispatcher shall ensure an Assurance Certificate is completed and signed by an Authorised Signatory of the Accredited Certifier prior to dispatch of the consignment from the facility to a market requiring certification of fumigation with methyl bromide.

Assurance Certificates shall be in the form of a *Plant Health Assurance Certificate* [CAF 16]. A completed example is shown as Attachment 2.

Individual Assurance Certificates shall be issued to cover each consignment (i.e., a discrete quantity of produce transported to a single consignee at one time) to avoid splitting of consignments.

Plant Health Assurance Certificates shall be completed, issued to cover each consignment (i.e., a discrete quantity of produce transported to a single consignee at one time) to avoid splitting of consignments.

The Plant Health Assurance Certificates must state fumigation date, concentration, duration and temperature.

Assurance Certificates shall be completed, issued and distributed in accordance with the Work Instruction *Guidelines for Completion of Plant Health Assurance Certificates* [WI-02].

7.12.3 Assurance Certifcat Distribution

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

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

7.13 ICA System Records

The Accredited Certifier shall maintain the following records-

(a) If applicable, thermometer calibration records (refer 7.4.3);

(b) Gas Retention Test Certificate for each chamber (refer 7.7.1);

(c) Fumigation Dosage Chart for each chamber (refer 7.8.5);

(d) if applicable, scale calibration records (refer 7.8.8)

(e) Fumigation Treatment Record (refer 7.10); and

(f) a copy of each *Plant Health Assurance Certificate* [CAF-16] issued by the Accredited Certifier (refer 7.12.2).

ICA system records shall be retained for a period of at least 12 months from completion, or until the next compliance audit of the ICA arrangement, whichever is the later.

An Accredited Certifier must hold a minimum of 12 months ICA system records at the time of any compliance audit. If the compliance audit is conducted more than 12 months from the last compliance audit, the Accredited Certifier must maintain all records completed since the previous compliance audit.

ICA system records shall be made available on request by an Inspector.

7.14 ICA System Documentation

The Accredited Certifier shall maintain the following documentation-

(a) a copy of the Business's current Application for Accreditation (refer Attachment 1);

(b) a current copy of this Operational Procedure;

(c) a current *Certificate of Accreditation for an Interstate Certification Assurance (ICA) Arrangement;*

(d) a current copy of the *Work Instruction Guidelines for Completion of Plant Health Assurance Certificates [ICA-WI-02];* and

(e) a current copy of the *Work Instruction Conducting an Inspection of High-Risk Product for Fruit Fly [ICA-WI-12].*

ICA system documentation shall be made available on request by an Inspector.

8. ATTACHMENTS

Attachment 1	Application for Accreditation of a Business for an Interstate Certification Assurance (ICA) Arrangement	**CAF-47 (BLANK)**
Attachment 2	Plant Health Assurance Certificate	**CAF-16 (COMPLETED EXAMPLE)**
Attachment 3	Register of Authorised Inspection Persons	**CAF-89 (BLANK)**
Attachment 4	Pre-Treatment Fruit Fly Inspection Record	**CAF-151 (BLANK & COMPLETED EXAMPLE)**
Attachment 5	Fruit Fly Sample Submission Form	**CAF-121 (BLANK & COMPLETED EXAMPLE)**
Attachment 6	Fumigation Dosage Chart	**CAF-127 (BLANK)**
Attachment 7	Fumigation Treatment Record	**CAF-125 (BLANK)**
Attachment 8	Thermometer Calibration Test Record	**CAF-181 (BLANK)**
Attachment 9	Gas Retention Test Certificate	**CAF-126 (BLANK)**
Attachment 10	Weighing Equipment Calibration Record	**CAF-135 (BLANK)**

Queensland Government

Department of Agriculture and Fisheries

Application for accreditation of an accredited certifier for an Interstate Certification Assurance (ICA) arrangement

Pursuant to section 420 of the *Biosecurity Act 2014*

OFFICE USE ONLY
DATE RECEIVED:
PHIS NUMBER:
DATE APPROVED OR REFUSED:
FURTHER INFORMATION REQUEST DATE:
DATE FURTHER INFORMATION RECEIVED:
PAYMENT PROCESSED DATE:
PAYMENT AMOUNT RECEIVED:
RECEIPT NUMBER:

Important information for applicants

This form is to be used to apply as an accredited certifier for an Interstate Certification Assurance (ICA) arrangement.

Information requested will enable your application to be processed as prescribed by the *Biosecurity Act 2014*. Your application must be assessed and granted by the chief executive before you can proceed with the proposed activity.

Before lodging this application you should be familiar with the requirements of the *Biosecurity Act 2014* available on the Office of the Queensland Parliamentary Counsel website www.legislation.qld.gov.au.

How to complete form for a new application

- Must complete entire form.

How to complete form for an amendment or renewal

- Update any areas that require amendments;
- Must complete part A section 1, part B sections 2-4 and part C.

How to submit this form

- In person to:

  Any Department of Agriculture and Fisheries regional office; or

- Via post to:

  Department of Agriculture and Fisheries
  PO Box 5083
  Nambour Qld 4560

Prescribed fee

- For the current fees visit www.daf.qld.gov.au/biosecurity-fees
- Fees are applicable until the end of the financial year.
- The prescribed fee must be paid at the time the application is submitted for it to be processed.

Term of accreditation

The term of this accreditation shall be one (1) year unless sooner cancelled or suspended from the date of your application being approved.

Notification

The applicant will be notified of the outcome within thirty (30) days of receipt of the application. The applicant will be notified by post to the applicant's postal address.

The application is deemed to have been received when the District Co-ordinator (Certification and Accreditation Services) in your district is in receipt of an accurate and complete application and payment of the prescribed fee has been received, processed and cleared.

Contact us

For more information please contact the District Co-ordinator (Certification and Accreditation Services), Plant Biosecurity & Product Integrity, Biosecurity Queensland, Department of Agriculture and Fisheries in your district or the Department of Agriculture and Fisheries Customer Service Centre on 13 25 23.

Type of application *(select one only)*

☐ New application ☐ Amendment ☐ Renewal

Part A – Accredited certifier application

1. Applicant details

Please supply ACN or ARBN *(if applicable)*

Please supply Interstate Produce Number (IPN) *(if known)*

Q

Applicant is: *(select one only)*

☐ an individual ☐ a partnership ☐ an incorporated company ☐ a co-operative association

☐ other *(please specify)*

If applicant is an individual, please complete the following *Supply full legal name including first name, surname and any other name/s.*

First name

Last name

Other name/s

If applicant is a partnership, please complete the following *Supply the full legal name of each partner in their normal order.*

First name

Last name

First name

Last name

First name

Last name

If applicant is an incorporated company, co-operative association or other type of legal entity, please complete the following *Supply the full legal name.*

Trading name/s of the applicant *Supply any business names or brand names used by the applicant on packages of certified items.*

2. Address details

Street address

Suburb/Town/Locality

Country

State

Postcode

Postal address *(if different to street address)*

Suburb/Town/Locality

Country

State

Postcode

3. Contact details

Phone

Fax *(if applicable)*

Mobile *(if applicable)*

E-mail address

Preferred method of contact

☐ Any ☐ E-mail ☐ Phone ☐ Mail

ATTACHMENT 1

Queensland Government

Plant Health Assurance Certificate

Pursuant to Sections 412 and 413 of the Biosecurity Act 2014

(Means a biosecurity certificate issued in accordance with Chapter 13 of the *Biosecurity Act 2014*.)

Certificate Number: 9999999

Consignment Details (Please print)

Consignor	Consignee
Name Joe's Strawberries Pty Ltd	Name F & V Wholesalers Pty Ltd
Address Plantation Road	Address 123 Produce Market
Atherton Qld 4883	Poorooka SA 3000

Reconsigned To (Splitting consignments or reconsigning whole consignments)	Method of Transport (Provide details where known)
Name	☒ Road — Truck/Trailer Registration
Address	☐ Rail — Consignment
	☐ Air — Airline/Flight no.
	☐ Sea — Vessel Name & Voyage no.

Certification Details (Please print)

Accredited Certifier Carrier of Biosecurity Matter	Grower or Packer
Name AB Fumigators	Name Joe's Strawberries Pty Ltd
Address Industrial Road	Address Plantation Road
Atherton Qld 4883	Atherton Qld 4883

IP No. of Acc. Certifier	Brand Name or Identifying Marks (as marked on packages)	Date Code (as marked on packages)
Q 9999	Joe's Strawberries Pty Ltd	17/09/2021

Facility No.	Procedure Code	Expiry Date	Facility No.	Procedure Code	Expiry Date
01	ICA-04	01/12/21			/ /

Number of Packages	Type of Packages (e.g. trays, cartons)	Type of Carrier of Biosecurity Matter	Authorisation for Split Consignment
2000	Crates	Strawberries	

Date	Treatment	Chemical (Active Ingredient)	Concentration	Duration and Temperature
/ /	☐ Dipping	Dimethoate	400ppm	☐ One min. ☐ 10 sec. then wet for 60 sec.
/ /	☐ Flood Spraying	Dimethoate	400ppm	10 seconds then wet for 60 seconds
17/09/2021	☒ Fumigation	Methyl Bromide	32 g/m³	Two hours @ 21 °C
/ /	☐ Grown and packed on a property free from red imported fire ant			
/ /	☐ Sourced from a property located more than 5km from a known infestation of red imported fire ant			
/ /	☐ Mature green condition at packing			
/ /	☐ Bananas in a hard green condition with unbroken skin			
/ /	☐ Inspected and found free of melon thrips			

Additional Certification

Meets ICA-04

Declaration

I, an Authorised Signatory of the accredited certifier that prepared the Carrier of Biosecurity Matter described above, hereby declare that the Carrier of Biosecurity Matter have been prepared in the accredited certifier's approved facilities in accordance with the accreditation(s) granted to the accredited certifier under the *Biosecurity Act 2014* and that the details shown above are true and correct in every particular.

Authorised Signatory's Name (Please print)	Signature	Date
Arthur John Signatory	A J Signatory	17/09/2021

Yellow copy: Consignment copy (original) White copy: Accredited Certifier's copy (duplicate copy)

CAF-16(02/19) V4

ATTACHMENT 2

REGISTER OF AUTHORISED INSPECTION PERSONS

Accredited Business Name			IP Number	Q				
Date of Training	Authorised Inspection Person		Authorisation by Certification Controller					
	Printed Name	Signature	Printed Name	Signature				

Note: Place a line through any entry for any person who is no longer approved to carry out fruit fly inspections under the Business's Interstate Certification Assurance arrangement.

ATTACHMENT 3

PRE-TREATMENT FRUIT FLY INSPECTION RECORD

Queensland Government

Date of Inspection:	Package Identification:
Place of Inspection:	IP Number:
Name of Authorised Inspection Person:	Name & Address of Grower and or Packer (if multiple, list in comments/findings column)
Inspection Rate ☐ 600 Unit ☐ > 600 Unit – All High-Risk Product Inspected	Produce Type (if multiple, list in comments/findings column)
Notes:	Total Number of Packages in Lot (list separately if multiple commodities)

Package No.	Number of Units	Total Number of Units	Comments/Findings
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Pass		Fail		Signature of Authorised Inspection Person:

Actions resulting from a suspected detection of fruit fly

ATTACHMENT 4

PRE-TREATMENT FRUIT FLY INSPECTION RECORD

Queensland Government

Date of Inspection: *19 June 2019*	Package Identification: *A Smith (mangoes) and B Brown (nectarines)*
Place of Inspection: *Fresh Market wholesalers, Brisbane*	IP Number: *Q9999*
Name of Authorised Inspection Person: *A Inspector*	Name & Address of Grower and or Packer (if multiple, list in comments/findings column) *Refer below*
Inspection Rate ☑ 600 Unit ☐ > 600 Unit – All High-Risk Product Inspected	Produce Type (if multiple, list in comments/findings column) *Refer below*
Notes:	Total Number of Packages in Lot (list separately if multiple commodities) *200 (144 mangoes and 56 nectarines)*

Package No.	Number of Units	Total Number of Units	Comments/Findings
1	24	24	Able Smith, 123 Grower Road, Bowen, 4805
2	24	48	✓
3	24	72	✓
4	24	96	✓
5	24	120	Rots, cut three fruit, nothing found
6	24	148	✓
7	24	172	✓
8	24	196	✓
9	24	220	✓
10	24	244	✓
11	24	268	✓
12	24	292	✓
13	24	316	✓
14	24	340	✓
15	24	364	✓
16	24	388	✓
17	24	412	✓
18	22	432	✓
19	54	486	Bob Brown, 999 Green Road, Kingaroy, 4610
20	56	542	✓
21	58	600	✓

Pass	✓	Fail		Signature of Authorised Inspection Person: Alan Inspector

Actions resulting from a suspected detection of fruit fly

Not Applicable

CAF-151 (06/19)

ATTACHMENT 4

FRUIT FLY SAMPLE SUBMISSION FORM

Name of business submitting sample:

IP Number: Q

Postal address for response:

Telephone number: ( )

Facsimile number: ( )

Mobile number:

Name of person who collected sample:

Time and date collected: : AM PM / /

Street address of property where specimen collected:

Maturity of Sample:

☐ Eggs ☐ Larvae ☐ Adults ☐ Other (specify)

.....

Level of Infestation: .....

☐ High (>10) ☐ Medium (5-10) ☐ Low (<5)

.....

Street address of Source Block:.....

Source Block IP Number: Q

Source Block Reference Code or Number (as per Property Plan): .....

.....

Printed Name | Signature | Date / /

OFFICE USE ONLY

Sample number: Time and date received: : AM PM / /

Identification:

.....

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.....

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Identified by:

Printed Name | Signature | Date / /

Business advised by:

☐ Post ☐ Facsimile Time and date sent: : AM PM / /

Printed Name | Signature | Date / /

CAF121 (10/17)

ATTACHMENT 5

FRUIT FLY SAMPLE SUBMISSION FORM

Name of business submitting sample: Bob's Wholesale Produce

IP Number: Q 9 9 9 9

Postal address for response: PO Box 123, Markets Road, Brisbane 4107

Telephone number: (07) 1234 5678

Facsimile number: (07) 1234 5678

Mobile number: 0424 234 567

Name of person who collected sample: A Inspector

Time and date collected: 16:00 AM PM 23/07/19

Street address of property where specimen collected: 39 Markets Road, Brisbane

Maturity of Sample:

☐ Eggs ☑ Larvae ☐ Adults ☐ Other (specify)

.....

Level of Infestation: .....

☐ High (>10) ☐ Medium (5-10) ☑ Low (<5)

.....

Street address of Source Block: Not known

Source Block IP Number: Q

Source Block Reference Code or Number (as per Property Plan): .....

.....

Printed Name	Signature	Date
A Inspector	A Inspector	23/04/19

OFFICE USE ONLY

Sample number: Time and date received: : AM PM / /

Identification:

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.....

.....

Identified by:

Printed Name	Signature	Date
		/ /

Business advised by:

☐ Post ☐ Facsimile Time and date sent: : AM PM / /

Printed Name	Signature	Date
		/ /

CAF121 (10/17)

ATTACHMENT 5

FUMIGATION DOSAGE CHART

Business Name: _____

Facility Address _____

_____

Interstate Produce No. Q _____

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.:	Q
Date of Fumigation:	/ /	Chamber ID:		Chamber Volume:	m^3
Fumigator's Name:				QDH Licence No:	
Temperature Readings (ºC):				Fumigation Rate:	
Temperature Range (ºC):	Maximum Temperature ºC	Minimum Temperature ºC		Amount of Fumigant Used:	

Grower/Packer Name	Number of Packages	Product Type (eg Banana)	Type of Packages (Cartons, Bins etc.)	Time Vaporisation Completed	Time Venting Commenced	Chamber Loading (%)	ID Code *(If applicable)*

Comments:

THERMOMETER CALIBRATION TEST RECORD

Date of Test	Equipment Type	Temperature Reading(s)			Adjustment	Name of Testing Officer	Signature	Comments
		Test 1	Test 2	Test 3				
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NOTES

Thermometers used for measuring produce pulp temperatures must have been calibrated within the previous six months and must be accurate to within +/- 0.5ºC.

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 balance must be calibrated using the manufacturer's instructions for the equipment.

GAS RETENTION TEST CERTIFICATE

Operator of Fumigation Chamber:					Interstate Produce No.:	Q
Facility Address:					Chamber Identification:	
					Date of Test:	/ /
Chamber Dimensions (internal):	length m	width m	height m		Chamber Volume:	m^3
Fumigator's Printed Name:					External Ducting (if applicable):	m^3
Fumigator's QDH License 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 the Queensland Department of Agriculture and Fisheries' 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

_____ _____ / /

CAF 126 (10/21)

ATTACHMENT 9

WEIGHING EQUIPMENT CALIBRATION RECORD

Date of Test	Equipment Type	Calibration Results			Adjustment	Name of Testing Officer	Signature	Comments
		Test 1	Test 2	Test 3				
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NOTES

Scales and other measuring equipment used to calculate quantities of solid chemical concentrations shall be calibrated annually.
The balance must be calibrated using the manufacturer's instructions for the equipment.
The balance must be verified as consistently accurate to within ± 1% of the total load range.
A maximum error margin of 10g applies.