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# Gazette

## Agricultural and veterinary chemicals

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**Australian Pesticides and  
Veterinary Medicines Authority**

The *Agricultural and Veterinary Chemical Code Act 1994* (the Act) commenced on 15 March 1995. The Agricultural and Veterinary Chemicals Code (the Agvet Code) scheduled to the Act requires notices to be published in the *Gazette* containing details of the registration of agricultural and veterinary chemical products and other approvals granted by the Australian Pesticides and Veterinary Medicines Authority. The Agvet Code and related legislation also requires certain other notices to be published in the *Gazette*. A reference to Agvet Codes in this publication is a reference to the Agvet Code in each state and territory jurisdiction.

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## **General information**

The APVMA Gazette is published fortnightly and contains details of the registration of agricultural and veterinary chemicals products and other approvals granted by the APVMA, notices as required by the Agricultural and Veterinary Chemicals Code (the Agvet Code) and related legislation and a range of regulatory material issued by the APVMA.

Pursuant to section 8J(1) of the Agvet Code, the APVMA has decided that it is unnecessary to publish details of applications made for the purpose of notifying minor variations to registration details. The APVMA will however report notifications activity in quarterly statistical reports.

## **Distribution and subscription**

The APVMA Gazette is published in electronic format only and is available from the [APVMA website](#).

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## **APVMA contacts**

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For enquiries on APVMA Gazette content, please refer to the individual APVMA contacts listed under each notice.

## **Privacy**

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## Notice under section 34AB of the Agricultural and Veterinary Chemicals Code: Malathion reconsideration – proposed decisions on reconsideration

- 1) The Australian Pesticides and Veterinary Medicines Authority (APVMA) is proposing to make regulatory decisions in relation to the reconsideration of malathion active constituent approvals, product registrations, and label approvals being conducted under Part 2, Division 4 of the Agricultural and Veterinary Chemicals Code scheduled to the *Agricultural and Veterinary Chemicals Code Act 1994* (Agvet Code).
- 2) This notice relates to malathion active constituent approvals, product registrations, and label approvals listed in Attachment A of this notice.
- 3) The APVMA proposes to:
  - a. vary the relevant particulars of the malathion active constituent approvals, under section 34A(1) of the Agvet Code (as set out in paragraphs 14 and 18 of the draft statement of reasons in Attachment B and as reflected in the Sample label in Attachment C) to allow affirmation under section 34(1)(a) of the Agvet Code)
  - b. vary the relevant particulars of the product registrations under section 34A(1) of the Agvet Code (as set out in paragraphs 26, 27, 33 and 54 of the draft statement of reasons in Attachment B, and as reflected in the Sample label(s) in Attachment C) to allow affirmation under section 34(1) (b) of the Agvet Code
  - c. vary the relevant particulars of the label approvals under section 34A(1) of the Agvet Code (as set out in paragraphs 46 and 69 of the draft statement of reasons in Attachment B and as reflected in the Sample label(s) in Attachment C), to allow affirmation under section 34(1) of the Agvet Code.
- 4) The APVMA proposes to determine under section 81(3)(c) that section 81(3) of the Agvet Code will apply to the earlier approved labels (that is, the labels in Attachment A before variation), to allow supply of products bearing those earlier approved labels for a period of 2 years from the date of the final regulatory decision.

### Statement of reasons for the proposed regulatory decision

- 5) The Draft Statement of Reasons for the proposed regulatory decisions is provided at Attachment B of this notice.

### Written submissions are invited

- 6) The APVMA invites written submissions on the proposed regulatory decision and the Draft Statement of Reasons attached to this notice (Attachment B). All submissions will be considered by the APVMA prior to finalisation of the reconsideration and publication of the final regulatory decisions.

### Preparing your submission

- 7) When making your submission:
  - clearly identify the issue and clearly state your point of view
  - give reasons for your comments, supporting them, if possible, with relevant scientific information and indicating the source of the information you have used.
- 8) Please structure your comments in a numbered form, referring each point to the relevant section in the Draft Statement of Reasons or the [Malathion Review Technical Report](#).
- 9) Electronic submissions to the APVMA are preferred.

10) When making a submission please include:

- contact name
- company or group name (if relevant)
- postal address
- email address
- the date you made the submission.

Please note: Submissions will be published on the APVMA website unless you have asked for the submission to remain confidential (see [public submission coversheet](#)).

- Please lodge your submission with a public submission coversheet, which provides options for how your submission will be published.
- Note that all APVMA documents are subject to the access provisions of the *Freedom of Information Act 1982* and may be required to be released under that Act should a request for access be made.
- Note that all submissions received are subject to legislative requirements, including the *Freedom of Information Act 1982*, the *Privacy Act 1988* and the Agvet Code. In providing your submission to the APVMA, you agree to the APVMA publicly disclosing your submission in whole or summary form. The APVMA confirms that if your submission includes confidential commercial information or protected information as defined in the Agvet Code, such information shall be subject to the relevant provisions of the Agvet Code including relevant limitations on use and disclosure by the APVMA.

11) The closing date for submissions is 23 February 2023.

12) Submissions or requests for further information can be sent to:

Chemical Review  
Australian Pesticides and Veterinary Medicines Authority  
GPO BOX 3262  
Sydney NSW 2001

**Telephone:** +61 2 6770 2400

**Email:** [chemicalreview@apvma.gov.au](mailto:chemicalreview@apvma.gov.au)

### **Attachments:**

Attachment A: Active constituent approval(s), product registration(s) and approved label(s) placed under reconsideration.

Attachment B: Draft Statement of Reasons

Attachment C: Malathion Sample Labels

## Attachment A: Active constituent approval(s), product registration(s) and approved label(s) placed under reconsideration

Approval or registration number	Name	Label approval number(s) associated with the registered product
<b>Active constituents</b>		
44350	Maldison	N/A
46160	Maldison	N/A
87713	Malathion	N/A
<b>Agricultural chemical products</b>		
42035	David Grays Malathion Garden Spray	42035/100756, 42035/1098
42727	Q Fly Wick	42727/1207
48992	HY-MAL Insecticide	48992/62947, 48992/58652, 48992/0207, 48992/0801, 48992/0300, 48992/01
49539	Fyfanon ULV Insecticide	49539/100187, 49539/1006, 49539/01
50110	David Grays Malathion Grain Dust Insecticide	50110/1008, 50110/1097
50589	Searles Fruit Fly Wick Attractant and Insecticide	50589/1002, 50589/0798
51150	Fyfanon 440 EW Insecticide	51150/132266
58968	David Grays Malathion and White Oil Insecticide	58968/0605
62194	Fyfanon 1000 EC Insecticide	62194/1008
62242	David Grays Fruit Fly Garden Spray	62242/100758, 62242/1107
63032	Eco-Lure Male Qld Fruit Fly Wick	63032/1108
69529	Fyfanon Premium Insecticide	69529/61039
60832	ZP Mouse Zinc Phosphide Bait	60832/54449, 60832/0210
60890	ZP Rat Zinc Phosphide Bait	60890/111240, 60890/39286
66869	Genfarm Zinc Phosphide Mouse Bait	66869/55942, 66869/54578
<b>Veterinary chemical products</b>		
33021	Pharmaceutical Maldison 50 Insecticide	33021/134768, 33021/133564, 33021/0210, 33021/0901
37201	Inca Malaban Wash Concentrate	37201/0501, 37201/3216
42267	David Grays Poultry Dust	42267/0103
54285	Bob Martin Since 1892 Flea & Tick Control for Dogs, Cats & Aviaries Malawash	54285/55598, 54285/0801
63456	Saint Bernard Petcare Maldison Wash Insecticide	63456/62940, 63456/45708

## Attachment B: Draft Statement of Reasons

- 1) The APVMA has reconsidered the chemistry, toxicology, worker and bystander exposure, residues and trade and environmental aspects of the active constituent malathion, product registrations containing malathion and associated label approvals under Part 2, Division 4 of the Agricultural and Veterinary Chemicals Code scheduled to the *Agricultural and Veterinary Chemicals Code Act 1994* (Agvet Code) to determine whether the approved active constituents and registered products meet the safety criteria (see section 5A of the Agvet Code), efficacy criteria (see section 5B of the Agvet Code), trade criteria (see section 5C of the Agvet Code) and the Agricultural and Veterinary Chemicals Code (Conditions of Approval or Registration) Order 2021. The APVMA has also considered whether the approved labels meet the labelling criteria (see section 5D of the Agvet code).
- 2) The APVMA proposes to:
  - a. vary the relevant particulars of the malathion active constituent approvals under section 34A(1) of the Agvet Code listed in Attachment A (as set out in paragraphs 14 and 18 of the draft statement of reasons in Attachment B and as reflected in the Sample label in Attachment C) to allow affirmation under section 34(1)(a) of the Agvet Code; and,
  - b. vary the relevant particulars of the product registrations under section 34A(1) of the Agvet Code (as set out in paragraphs 26, 27, 33 and 54 of this draft statement of reasons and as reflected in the Sample labels in Attachment C) to allow affirmation under section 34(1)(b) of the Agvet Code and,
  - c. vary the relevant particulars of the label approvals under section 34A(1) of the Agvet Code (as set out in the paragraphs 46 and 69 of this draft statement of reasons and as reflected in the Sample labels in Attachment C) to allow affirmation under section 34(1) of the Agvet Code.
- 3) The APVMA proposes to determine under section 81(3)(c) that section 81(3) of the Agvet Code will apply to the earlier approved labels (that is, the labels in Attachment A before variation), allowing supply of products bearing those earlier approved labels for a period of 2 years from the date of the final regulatory decision.
- 4) The reasons for the proposed decisions are set out below as outlined in the table of contents.

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## Legislative framework

5) The following sections of the Agvet Code, Agvet Code Regulations and legislative instruments were relevant to the reconsideration of malathion.

a. Agvet Code

**Table 1: Sections of the Agvet Code relevant to the reconsideration of malathion**

Section	Provision
5A	Definition of meets the safety criteria
5B	Definition of meets the efficacy criteria
5C	Definition of meets the trade criteria
5D	Definition of meets the labelling criteria
19	How approval of active constituent takes place
20	How registration of chemical product takes place
21	How approval of label takes place
23	Conditions of approval or registration
31	The APVMA may reconsider an approval or registration
33	The APVMA may require information, reports, results or samples
34	The APVMA must affirm the approval or registration only if it is satisfied the active, product and label meet certain criteria. The APVMA must have regard to certain information and submissions in deciding if it is satisfied that the active, product and label meet those criteria
34A	The APVMA must vary the relevant particulars or conditions of the approval or registration if they can be varied in such a way as to allow the approval or registration to be affirmed
34AA	If the APVMA does not affirm the approval or registration, it must suspend or cancel the approval or registration
34AB	The APVMA must give notice of what it proposes to do before it varies the relevant particulars or conditions under section 34A or suspends or cancels the approval or registration under section 34AA
81	Supply of registered chemical products with unapproved label



b. Agvet Regulations

**Table 2: Sections of the Agvet Regulations relevant to the reconsideration of malathion**

Regulation	Provision
8AA	Safety criteria – active constituents
8AB	Safety criteria – chemical products
8AD	Trade criteria
8AE	Labelling criteria
15	Particulars of approved active constituents to be recorded
16	Particulars of registered chemical products to be recorded
17	Particulars for label
17C	Conditions of approval or registration – active constituents and chemical products
18	Conditions of registration of chemical products – containers

c. Agricultural and Veterinary Chemical Code (Efficacy Criteria) Determination 2014

d. Agricultural and Veterinary Chemicals Code (Conditions of Approval or Registration) Order 2021

**Information on which the decision is based**

- 6) The reasons for the APVMA's proposed decision are based on the following information:
- a. The relevant provisions of the Agvet Code, in particular those set out above.
  - b. Information provided in response to notices issued under section 32(1) of the Agvet Code
  - c. Information provided in response to notices issued under section 33 of the Agvet Code
  - d. Information provided in response to notices issued under section 34P of the Agvet Code
  - e. Information submitted under section 161 of the Agvet Code
  - f. Submissions received in response to a notice published in the Gazette on 4 March 2003
  - g. Other information as detailed in the Malathion Review Technical Report.
  - h. APVMA records for approval of relevant active constituents and registration records of the relevant products.

**Scope of the reconsideration of malathion**

- 7) The reconsideration of malathion was initiated on the basis that information available showed that the APVMA might not be able to maintain its satisfaction that the continued approvals of the active constituent malathion and registration of products containing malathion based on the current use patterns:
- a. would not be an undue hazard to the safety of people exposed to malathion products during their handling;
  - b. would not be likely to have an effect that is harmful to human beings.
- 8) The reconsideration is also to consider whether product labels contain adequate instructions and warning statements for safe use of the products.

- 9) The following aspects of the active constituent approvals, product registrations and label approvals were specifically included in the reconsideration of malathion:
- a. Chemistry, including:
    - i. chemical stability of approved malathion active constituents and registered products.
  - b. Toxicology, including:
    - i. toxicology of active constituents and products containing Malathion, including impurities specified in the APVMA Standard for Malathion active constituent.
  - c. Work Health and Safety, including:
    - i. possible risks to workers health associated with short and intermediate term occupational exposure to products containing malathion
    - ii. potential for hazards to worker safety.
  - d. The adequacy of instructions and warnings on malathion product labels.

## **Material findings of fact and reasons for the proposed decisions**

### **Active constituents**

- 10) Section 34(1) of the Agvet Code provides that the APVMA must affirm the approval of an active constituent if and only if it is satisfied that the constituent:
- a. meets the safety criteria
  - b. complies with any requirement prescribed by the Agvet Code Regs.

### **Consideration of whether the active constituents meet the safety criteria:**

- 11) Section 5A(1) of the Agvet Code provides that an active constituent meets the safety criteria if use of the active constituent, in accordance with any instructions approved or to be approved by the APVMA for the constituent:
- a. is not, or would not be, an undue hazard to the safety of people exposed to it during its handling or people using anything containing its residues (section 5A(1)(a))
  - b. is not, or would not be, likely to have an effect that is harmful to human beings (section 5A(1)(b))
  - c. is not, or would not be, likely to have an unintended effect that is harmful to animals, plants or things or to the environment (section 5A(1)(c)).
- 12) In determining whether the active constituents meet the safety criteria as described in section 5A(1)(a) to (c)), the APVMA has considered the information listed in paragraph 6 above against the statutory criteria set out in section 5A(2)(a) and has determined as follows:
- a. Section 5A(2)(a)(i) – the toxicity of the constituent and its residues, including metabolites and degradation products in relation to relevant organisms and ecosystems, including human beings.
    - i. In considering the toxicity of the constituent and its residues, the APVMA has had regard to acute, short term, chronic, reproduction, developmental, genotoxicity, carcinogenicity, immunotoxicity and neurotoxicity studies and the impact of the impurities of toxicological concern to determine whether there is sufficient toxicological information to assess the role of the active in the overall toxicity of agricultural and veterinary chemical products which are detailed in the Malathion Review Technical Report.

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- ii. The APVMA is satisfied that there is sufficient information to assess the role of the toxicity of the active constituent in both agricultural and veterinary products. Details of the assessment are provided in the Malathion Review Technical report.
  - iii. The APVMA is satisfied that the scheduling for malathion in the Standard for the Uniform Scheduling of Medicines and Poisons remains appropriate.
  - iv. The APVMA has confirmed the acute and chronic dietary exposure to malathion calculated using the National Estimated Dietary Intake calculation, after variation of the uses of malathion chemical products as proposed in paragraph 23 below, are acceptable. As detailed in the Malathion Review Technical Report, the acceptable daily intake (ADI) for malathion will remain at 0.02 mg/kg bw/d as a safe level of exposure for long term dietary exposure. The ADI is the level of intake of a chemical that can be ingested daily over an entire lifetime without appreciable risk to health. The ADI incorporates a 100-fold uncertainty factor to account for inter- and intra-species variation in sensitivity.
  - v. The APVMA has proposed that the acute reference dose (ARfD) for malathion will remain at 1.5 mg/kg bw/d as a safe level of exposure for short term dietary exposure as detailed in the Malathion Review Technical Report. The ARfD is the estimate of the amount of a substance in food or drinking water, expressed on a milligram per kilogram body weight basis, that can be ingested over a short period of time, usually one meal or one day, without appreciable health risk to the consumer on the basis of all known facts at the time of the evaluation.
  - vi. The exposure assessment detailed in the Malathion Review Technical Report has identified acceptable levels of exposure for occupational exposure to malathion, applying a margin of exposure of 100 to a no observed adverse effect level of 50 mg/kg bw/day.
- b. Section 5A(2)(a)(ii) - the method by which the constituent is manufactured
    - i. The APVMA remains satisfied of the methods of manufacture for each approved source of active, no concerns were identified regarding the methods of manufacture for each approved source of active constituent.
  - c. Section 5A(2)(a)(iii) - the extent to which the constituent will contain impurities.
    - i. The APVMA is not satisfied that the current standard for malathion adequately addresses all impurities which may be present in the malathion active constituents as detailed in the Malathion Review Technical Report. Specifically, the standard for malathion active constituent does not include the acceptable levels of impurities for:
      - O,O,S-trimethylphosphorodithioate (MeOOSPS) (CAS no. 2953-29-9)
      - O,O,O-trimethylphosphorothioate (MeOOOPS) (CAS no. 152-18-1).
  - d. Section 5A(2)(a)(iv) – whether an analysis of the chemical composition of the constituent has been carried out and, if so, the results of the analysis.
    - i. Batch analyses and Declaration of Composition (specification) for each source of active constituent were submitted and assessed by the APVMA as part of the original approval application for the active constituents.
    - ii. Under this reconsideration, the APVMA has had regard to recent batch analyses, Declaration of Compositions and stability data for approved active constituents and remains satisfied of the chemical compositions of each active constituent and is satisfied that the current approved active constituents will meet the proposed standard.
  - e. Section 5A(2)(a)(v) - any conditions to which its approval is subject.
    - i. Section 23(1)(a) of the Agvet Code provides that the approval of an active constituent is subject to the conditions prescribed by the regulations. Regulation 17C of the Agricultural and Veterinary Chemicals Code Regulations 1995 (the Agvet Regulations) prescribes the following conditions to which the approval of an active constituent is subject to:

- The active constituent must be manufactured in accordance with the composition and purity entered for that source of active constituent in the Record in accordance with section 15(1)(d) of the Agvet Regulations.
  - The active constituent must be manufactured by the manufacturer whose name is entered for the active constituent in the Record in accordance with section 15(1)(e) of the Agvet Regulations.
  - The active constituent must be manufactured at the site of manufacture entered for the active constituent in the Record in accordance with paragraph 15(1)(f) of the Agvet Regulations.
  - The identifying information for the holder of the approval and the nominated agent (if any), of the active constituent must be the identifying information for the holder and nominated agent (if any) entered for the active constituent in the Record.
- ii. In determining whether the active constituents meet the safety criteria, the APVMA has had regard to the following conditions previously imposed by the APVMA in accordance with section 23(1)(b) of the Agvet Code referred to as the Agricultural Active Constituents Quality Assurance Requirements.
- Agricultural Active Constituents must meet Quality Assurance Requirements
- i. A person must not Supply the Active Constituent, or cause it to be supplied, unless the Active Constituent:
- a. complies with the APVMA Standard for the Active Constituent; and
  - b. was manufactured at a site of manufacture listed in the Record of Approved Active Constituents.
- ii. A person must at the time of Supply of a Batch of the Active Constituent to another person also supply details of the Batch Number of the Active Constituent to the person to whom the active constituent was supplied.
- iii. For the purposes of these conditions a constituent complies with the APVMA Standard if the constituent, when measured using a validated analytical method:
- a. does not contain less than the minimum purity and/or content of the constituent as set out in the APVMA Standard; and
  - b. does not contain more than the maximum level of any impurity as set out in the APVMA Standard

### **Definitions and interpretation**

In these conditions the following words have the following meanings:

'APVMA Standard' means the standard determined by the APVMA to which a constituent must comply and which is published on the APVMA website;

'Batch' means a defined quantity of material produced in a single series of operations;

'Batch Number' means that a distinctive combination of numbers and/or letters that specifically identifies a Batch and from which the production history can be determined;

'Supply' has the same meaning as given to it in Section 3 of the Agvet Codes and includes the doing of those things through, or pursuant to an arrangement with another person.

- iii. In determining whether the active constituents meet the safety criteria, the APVMA has also had regard to conditions imposed on active constituents by the Agricultural and Veterinary Chemicals Code (Conditions of Approval or Registration) Order 2021.

- iv. The APVMA is not satisfied that the current conditions remain appropriate. In particular, the conditions referred to as the 'Active constituent Quality Assurance Requirements' which refers to the "APVMA Standard" and indicates that this is published on the APVMA Website. The APVMA Standard has been replaced by the legislative instrument Agricultural and Veterinary Chemicals Code (Agricultural Active Constituents) Standards 2022.
- f. Section 5A(2)(a)(vi) - any relevant particulars that are entered into the Record for malathion.
  - i. The particulars on the record for each approved source of the active Malathion have been reviewed including: the common name, the IUPAC name, the composition and purity of the active, the name of the manufacturer, the address of each site at which the active constituent is manufactured, the holder of the approval and the date of entry of these particulars.
  - ii. The APVMA is not satisfied that the current record will reflect the outcomes of this reconsideration. As the Australian pesticides common name "maldison" is not used outside Australia, nor is it used for Australian therapeutic goods, a proposed outcome of this reconsideration is to vary the name of the active in the record to malathion, the common name specified in ISO 1750-1981.
  - iii. The APVMA is not satisfied that the current record includes the levels of additional impurities which will be included in the standard as an outcome of this reconsideration.
- g. Section 5A(2)(a)(via) – whether the constituent conforms, or would conform, to any standard made for the constituent under section 6E to the extent that the standard relates to matters covered by subsection 5A(1).
  - i. The APVMA proposes to amend the standard for malathion under section 6E as outlined in the Malathion Review Technical Report.
  - ii. The APVMA is satisfied that currently approved active constituents will meet the amended standard.
- h. Section 5A(2)(a)(vii) – any matters prescribed by the regulations.
  - i. Agvet Code Reg 8AA - the APVMA is satisfied that the methods of analysis of the chemical composition of the active constituent used to determine the purity of the active constituent are appropriate for each source of the active constituent.

**Consideration of whether the active constituents can be varied in such a way as to meet the safety criteria:**

- 13) Section 34A (1) provides that if the APVMA is not satisfied under section 34(1) but is satisfied that the relevant particulars or conditions of the approval can be varied in such a way as to allow the registration to be affirmed, the APVMA must vary the relevant particulars or conditions.
- 14) The APVMA determined that the approvals can be varied in such a way as to meet the safety criteria as follows:
  - a. To address concerns raised under section 5A(2)(a)(iii) the APVMA proposes to vary the Agricultural and Veterinary Chemicals Code (Agricultural Active Constituents) Standards 2022 to provide for the entry for malathion to include the maximum acceptable levels of O,O,S-trimethylphosphorodithioate (MeOOSPS) and O,O,O-trimethylphosphorothioate (MeOOOPS) and to amend the maximum acceptable level of isomalathion
  - b. To address section 5A(2)(a)(v) which requires the APVMA to have regard to any conditions to which its approval is subject, the APVMA proposes to vary the conditions referred to as the 'Active Constituent Quality Assurance Requirements' so as to substitute the reference to the "APVMA standard" to refer to the "Agricultural and Veterinary Chemicals Code (Agricultural Active Constituents) Standards 2022" (Active Constituent Standard 2022) as follows:
    - A person must not Supply the Active Constituent, or cause it to be supplied, unless the Active Constituent:
      - a. complies with the Agricultural and Veterinary Chemicals Code (Agricultural Active Constituents) Standards 2022 (Active Constituent Standard 2022); and

- b. was manufactured at a site of manufacture listed in the Record of Approved Active Constituents.
- A person must at the time of Supply of a Batch of the Active Constituent to another person also supply details of the Batch Number of the Active Constituent to the person to whom the active constituent was supplied.
- A constituent complies with the Active Constituent Standard 2022; if the constituent, when measured using a validated analytical method:
  - c. does not contain less than the minimum purity and/or content of the constituent as set out in the Active Constituent Standard 2022; and
  - d. does not contain more than the maximum level of any impurity as set out in the Active Constituent Standard 2022.

### **Definitions and interpretation**

In these conditions the following words have the following meanings:

'Batch' means a defined quantity of material produced in a single series of operations;

'Batch Number' means that a distinctive combination of numbers and/or letters that specifically identifies a Batch and from which the production history can be determined;

'Supply' has the same meaning as given to it in section 3 of the Agvet Code.

- a. To address section 5A(2)(a)(vi) in relation to any relevant particulars that would be entered in the Record for the constituent:
- ii. in accordance with the proposed variation to the common name in the Agricultural and Veterinary Chemicals Code (Agricultural Active Constituents) Standards 2022 from maldison to malathion, the APVMA proposes that the name of the approved active constituents in the Record be varied to be malathion to harmonise with the common name specified in ISO 1750-1981; and
- iii. the APVMA proposes that the Record for each active constituent approval be varied to include the maximum level of the impurities of O,O,S-trimethylphosphorodithioate (MeOOSPS) and O,O,O-trimethylphosphorothioate (MeOOOPS) and the amended maximum level for isomalathion.

### **Conclusion on whether the active constituents can be varied to meet the safety criteria**

- 15) Having regard to the matters in section 5A(2)(a), the APVMA is satisfied that use of malathion as an active constituent in agricultural and veterinary chemical products if varied as outlined in paragraph 14 above, would not be:
- a. an undue hazard to the safety of people exposed to it during its handling or people using anything containing its residues: section 5A(1)(a))
  - b. likely to have an effect that is harmful to human beings: section 5A(1)(b))
  - c. likely to have an unintended effect that is harmful to animals, plants or things or to the environment: section 5A(1)(c).

### **Consideration of whether the active constituents meet the prescribed regulations**

- 16) Regulation 15 prescribes the particulars of active constituents which must be recorded in the Record:

- a. On the basis that the name of the active is to change from maldison to malathion and the current standard is to be varied to include additional impurities, the APVMA is not satisfied that the current entries in the record will remain correct.
  - b. As the standard for malathion is to be updated to include additional impurities the APVMA is not satisfied that the current Record includes all of the required details for the composition of the active.
- 17) In accordance with section 23(1) of the Agvet Code, the conditions of approval for active constituents are:
- a. those detailed in regulation 17C(1); and
  - b. the conditions imposed by the APVMA under section 23 (1)(b) of the Agvet Code as outlined in paragraph 14 above.

**Consideration of whether the active constituents can be varied in such a way to meet the prescribed regulations**

- 18) The particulars to be recorded for an active constituent are listed under regulation 15. Based on the information provided, the APVMA is not satisfied that the current entries in the Record are correct but they can be varied as part of this reconsideration as follows:
- a. The Record can be updated to replace references to maldison with 'malathion' to harmonise with common name specified in ISO 1750-1981.
  - b. The Record can be updated to include details of the composition and purity of the active including the maximum levels of the impurities of O,O,S-trimethylphosphorodithioate (MeOOSPS) and O,O,O-trimethylphosphorothioate (MeOOOPS), and the amended maximum level of isomalathion.

**Conclusion of consideration of active constituents**

- 19) Section 34A(1) of the Agvet Code provides that if the APVMA is not satisfied that the active constituent currently meets the safety criteria, but satisfied that the relevant particular or conditions of the approval can be varied in such a way as to allow the approval, the APVMA must vary the relevant particulars or conditions.
- 20) The APVMA is satisfied that the active constituent can be varied to meet the safety criteria as follows:
- a. Amend the Record to replace the Australian pesticides common name for maldison with malathion to harmonise with the common name specified in ISO 1750-1981
  - b. Amend the standard for malathion to include maximum acceptable levels of O,O,S-trimethylphosphorodithioate (MeOOSPS) and O,O,O-trimethylphosphorothioate (MeOOOPS), impurities of toxicological concern identified in the Malathion Review Technical Report, as well as the amended maximum level for isomalathion, another impurity of toxicological concern.
  - c. Confirm that current malathion approvals comply with the amended standard for malathion.
  - d. Update the Record for approved malathion active constituents to reflect the changes to the name of the active constituent and changes in the standard.

## Agricultural chemical products

- 21) Section 34(1) (b) and (d) of the Agvet Code provides that the APVMA must affirm the registration for a chemical product if, and only if it is satisfied that:
- a. the product meets the safety criteria (section 5A)
  - b. the efficacy criteria (section 5B)
  - c. the trade criteria (section 5C)
  - d. complies with any requirement prescribed by the regulations

### Consideration of whether the registered agricultural chemical products meet the safety criteria:

- 22) Section 5A(1) of the Agvet Code provides that a chemical product meets the safety criteria if use of the product, in accordance with any instructions approved or to be approved by the APVMA for the constituent or product or contained in an established standard:
- a. is not, or would not be, an undue hazard to the safety of people exposed to it during its handling or people using anything containing its residues (section 5A(1)(a))
  - b. is not, or would not be, likely to have an effect that is harmful to human beings (section 5A(1)(b))
  - c. is not, or would not be, likely to have an unintended effect that is harmful to animals, plants or things or to the environment (section 5A(1)(c)).
- 23) In determining whether the chemical products meet the various aspects of the safety criteria (sections 5A(1)(a) to (c)), the APVMA has considered the information outlined in paragraph 6 and had regard to the criteria set out in section 5A(3)(a) as follows:
- a. Section 5A(3)(a)(i) - the toxicity of the product and its residues, including metabolites and degradation products, in relation to relevant organisms and ecosystems, including human beings:
    - i. Based on the current product registration records and the approval records for the active constituents, the APVMA is not satisfied that the records will be correct when the name of the active constituent is varied from maldison to malathion.
    - ii. Based on the assessment of the toxicity of malathion in studies of acute, short-term, chronic, reproductive, developmental (including antiandrogenic), genotoxic, immunotoxic and neurotoxic effects, which are detailed in the Malathion Review Technical Report:
      - the APVMA is not satisfied that current safety directions applied to malathion products are sufficient to prevent unintended effects harmful to human beings.
      - the APVMA is not satisfied current re-entry periods applied to malathion products are sufficient to prevent unintended effects harmful to human beings.
      - the APVMA is not satisfied current instructions for the application of malathion products in all situations are sufficient to prevent unintended effects harmful to human beings.
      - the APVMA is not satisfied that application of malathion products by backpack ULV or backpack foggers can be supported due to unacceptable exposure risk to applicators as outlined in the Malathion Review Technical Report.
    - iii. Based on the assessment of studies of the absorption, distribution, metabolism and excretion of malathion in mammals as detailed in the Malathion Review Technical Report.



- The ADI remains at 0.02 mg/kg bw/day on the basis of a no observed adverse effect level of 2 mg/kg bw/day based on a 2-year oral repeat dose study in rats and application of an uncertainty factor of 100 to account for intra- and inter-species differences.
  - The ARfD remains at 1.5 mg/kg bw/day, on the basis of a no observed effect level of 15 mg/kg bw/day based on a single oral (capsule) ascending dose human study.
  - The APVMA is not satisfied to the extent residues of malathion or its degradation products are expected to remain on all the treated crops, as outlined in the Malathion Review Technical Report.
  - the APVMA is not satisfied that harvest withholding periods are not required for broadacre crops as outlined in the Malathion Review Technical Report
  - the APVMA is not satisfied that Table 4 of the Australian MRL standard includes entries to address current uses in animal feed including pastures, forage crops, orange pulp and grape pomace as outlined in the Malathion Review Technical Report.
- iv. Based on the findings in the Malathion Review Technical Report and existing product registration records, on the fate of the active in the environment and its toxicity to off target species.
- The APVMA is not satisfied that the current protection statements are adequate to prevent unintended effects harmful to plants or animals or things or the environment.
  - The APVMA is not satisfied that the products can be safely applied to aquatic areas for control of mosquito larvae.
  - The APVMA is not satisfied that the current labels include appropriate no-spray buffer zones for spray applications, to protect natural aquatic areas, pollinators, livestock and human health as outlined in the Malathion Review Technical Report.
  - The APVMA is not satisfied that application of malathion by ultra-low volume by aircraft can be supported for following application rates as no-spray buffer zones are not able to be established to protect natural aquatic areas, pollinators, livestock and human health at the following rates as outlined in the Malathion Review Technical Report
    - 1000 g/L of malathion at rates equal to or greater than 625 mL/ha. Use patterns which are not supported at a rate equal to or greater than 625 g ac/ha when applied by ultra-low volume by aircraft include peas only.
    - 1150 g/L of malathion at rates equal to or greater than 550 mL/ha. Use patterns which are not supported at a rate equal to or greater than 632.5 g ac/ha when applied by ultra-low volume by aircraft include peas only.
    - 1169 g/L of malathion at rates equal to or greater than 550 mL/ha. Use patterns which are not supported at a rate equal to or greater than 642.95 g ac/ha when applied by ultra-low volume by aircraft include linseed, peaches, maize, peas, cereal crops, maize, pastures, pasture seed crops, rice and sorghum.
- v. Based on a history of use of the product and that no reports of crop damage from the use of malathion products have been received by the Adverse Experience Reporting Program of the APVMA supports that the product is efficacious and safe to target crops as detailed in the Malathion Review Technical Report.
- b. Section 5A(3)(a)(ii) – the relevant poison classification of the product under the law in force in this jurisdiction.
- i. Malathion is listed in Schedule 5 of the Standard for the Uniform Scheduling of Medicines and Poisons for preparations containing 1% or less of malathion except: for human therapeutic use; or in dust preparations containing 2% or less of malathion.

- ii. Malathion is listed in Schedule 6 of the Standard for the Uniform Scheduling of Medicines and Poisons for preparations containing MALATHION except: when included in Schedule 5; for human therapeutic use; or in dust preparations containing 2% or less of malathion.
  - iii. The APVMA is satisfied that the current scheduling remains appropriate.
  - iv. Where malathion is included in products as an excipient at less than 2 percent of malathion and the product is not a dust preparation (e.g. mouse baits), the malathion is a scheduled excipient (Schedule 5) and must be listed on the product label as a scheduled excipient.
- c. Section 5A(3)(a)(iii) – how the product is formulated.
- i. In considering how the products are formulated, the APVMA has had regard to the existing registration records. Agricultural products containing malathion are formulated as:
    - 1169 g/ L of malathion as an ultra-low volume liquid
    - 1150 g/L of malathion as an emulsifiable concentrate
    - 1000 g/L of malathion as an emulsifiable concentrate
    - 500 g/L of malathion as an emulsifiable concentrate
    - 100 g/L of malathion as an emulsifiable concentrate
    - 420 g/L of malathion as an oil-in-water emulsion
    - 320g/L of malathion as an oil-in-water emulsion
    - 20 g/Kg of malathion as a dustable powder
    - 205 g/Kg of malathion as vapour releasing product
    - 306 g/Kg of malathion as vapour releasing product and
    - 0.11 g/Kg of malathion as a bait (ready to use).
  - ii. The APVMA has considered the toxicological profile of the impurities in current formulations of agricultural chemical products containing malathion. As there is potential for the formation of impurities in the product the APVMA is not satisfied all batches of formulated product will not exceed acceptable levels of toxicological impurities.
- d. Section 5A(3)(a)(iv) – the composition and form of the constituents of the product.
- i. In considering the composition and form of the constituents of the product, the APVMA has had regard to the existing registration records for the excipients and Declarations of Composition submitted by the relevant holders for the approved active constituents.
  - ii. The APVMA is satisfied that the composition and form of constituents in the products remain appropriate.
- e. Section 5A(3)(a)(v) – any conditions to which its registration is, or would be, subject.
- i. In accordance with section 23(1)(a), the products are currently subject to the prescribed conditions of registration which are detailed in table items 1, 2, 5, 6 and 7 under regulation 17C(2) of the Agvet Regulations. In accordance with regulation 17C(3), items 3 and 4 do not apply to agricultural chemical products as prescribed under regulation 59A.
  - ii. Products are also subject to the conditions of registration prescribed under 23(1)(a), and detailed under the Agricultural and Veterinary Chemicals Code (Conditions of Approval or Registration) Order 2021:
    - The chemical product must not be supplied if the manufacture of the chemical product contravenes, or fails to comply with, any manufacturing law of the country, or part of the country, in which it is manufactured.

- The holder of the registration must, on written request by the APVMA and within 28 days after the request is given, provide the APVMA with written evidence that the manufacture of the chemical product does not contravene, or fail to comply with, any manufacturing law of the country, or part of the country, in which it is manufactured.
- iii. Products are also subject to the additional conditions imposed by the APVMA under section 23(1)(b) referred to as the 'Agricultural Products Active Constituent Quality Assurance Requirements' as follows:
- Manufacture of active constituent – the registrant must not supply the chemical product, or cause it to be supplied, unless the active constituent contained in the chemical product:
    - i. complies with the APVMA Standard for that active constituent; and
    - ii. was manufactured at a site of manufacture listed in the Record of approved active constituents.
  - Analysis results – the registrant must not supply the chemical product or cause it to be supplied unless the registrant has in its possession prior to the supply of each batch of the chemical product, batch analysis results that show:
    - i. the active constituent contained in the chemical product complied with the APVMA Standard for that active constituent;
    - ii. if there is an APVMA Standard for a constituent in the chemical product that is not an active constituent, the constituent complied with the APVMA Standard for that constituent; and
    - iii. the batch number of the active constituent contained in the chemical product.
  - Records – the registrant must, at or prior to the supply of a batch of the chemical product by the registrant or by another person on behalf of the registrant, make or have in its possession, a record that contains the following information:
    - i. The name of the chemical product
    - ii. The APVMA product number of the chemical product
    - iii. If the chemical product was imported into Australia by another person on behalf of, or pursuant to an arrangement with the registrant, the name and address of that person
    - iv. If the chemical product was manufactured in Australia by another person on behalf of, or pursuant to an arrangement with the registrant, the name and address of that person
    - v. The date of importation into, or manufacture in, Australia as the case may be
    - vi. The batch number of the chemical product from which the supply was made
    - vii. The quantity of the chemical product that constitutes the batch
    - viii. The batch number, and name and address of the manufacturer of the active constituent contained in the chemical product
  - The registrant must produce, or cause to be produced, to the APVMA any batch analysis results or record within 10 working days of the request having been made by the APVMA, or other such period as determined by the APVMA.
  - The registrant must keep, or cause to be kept, any batch analysis results or record for 2 years after any batch analysis results or record is made.
  - Possession of batch analysis results and records – for the purposes of these conditions, batch analysis results or records are in the possession of the registrant if batch analysis results or records are:
    - i. in the possession of the registrant; or

- ii. in the possession of another person pursuant to an arrangement with the registrant.
  - Compliance with the Standard – for the purposes of these conditions, a constituent complies with the APVMA Standard if the constituent, when measured using a validated analytical method does not contain:
    - i. less than the minimum purity and/or content of the constituent as set out in the APVMA Standard for the Constituent
    - ii. more than the maximum level of any impurity as set out in the APVMA Standard.
  - Definitions and Interpretation – in these conditions the following words have the following meanings:
    - 'APVMA Standard' means the standard determined by the APVMA to which a constituent contained in chemical products must comply and which is published on the APVMA website.
    - 'Batch' means a defined quantity of material produced in a single series of operations.
    - 'Batch number' means that a distinctive combination of numbers and/or letters that specifically identifies a batch and from which the production history can be determined.
    - 'Batch analysis results' means the results of analysis from each batch of the constituent that include:
      - i. the name of the manufacturer and the manufacturing site address
      - ii. the date of the analysis
      - iii. the batch number and date of manufacture of the batch
      - iv. the analysis result(s) for the constituent purity and/or content and/or isomer ratio and/or the specified impurities as per the APVMA Standard for the constituent
      - v. full details and validation data for the analytical method(s) used for the determination of the constituent purity (linearity and precision) and/or the content and/or the isomer ratio and/or the specified impurities (linearity, precision, accuracy and limit of quantitation if relevant).
    - If analytical methods and validation data have been previously provided to the APVMA, a reference to that submission will suffice.
    - 'Record' means a document in written or electronic form that contains the particulars set out in paragraph (3) and which is readily accessible for the purposes of Part 9 of the Agvet Code (Enforcement).
    - 'Supply' has the same meaning as given to it in section 3 of the Agvet Code and includes the doing of those things through, or pursuant to an arrangement with, another person
  - vi. The APVMA is not satisfied that the conditions of registration referred to as 'Agricultural Products Quality Assurance Requirements' remain appropriate as they refer to an APVMA Standard available on the APVMA Website which has been replaced by the Agricultural and Veterinary Chemicals Code (Agricultural Active Constituents) Standards 2022.
- f. Section 5A(3)(a)(vi) – any relevant particulars that are, or would be, entered in the Register for the product:
- i. The distinguishing number remains appropriate.
  - ii. The constituents of the chemical products will not change as a result of the reconsideration.
  - iii. The concentration of each constituent of the chemical product will not change as a result of the reconsideration.
  - iv. The composition and purity of the active constituent is addressed by changes to the active constituent.
  - v. The formulation of the product will not change as a result of the reconsideration.
  - vi. The formulation type of the products have been considered and are contemporary and appropriate.

- vii. The net contents will not change as a result of the reconsideration.
- viii. Identifying information for the holder of the registration will not change as a result of the reconsideration.
- ix. The name of the manufacturer will not change as a result of the reconsideration.
- x. Identifying information for any nominated agent for the registration will not change as a result of the reconsideration.
- xi. The APVMA is satisfied that the instructions for use currently entered in the Register will not change as an outcome of the reconsideration.
- g. Section 5A(3)(a)(via) – whether the product conforms, or would conform, to any standard made for the product under section 6E to the extent that the standard relates to matters covered by subsection (1).
  - i. There is currently no APVMA standard for malathion products.
  - ii. The APVMA is proposing to make a standard for malathion products under section 6E as an outcome of this reconsideration.
  - iii. The APVMA is satisfied that the Agricultural chemical products containing malathion would meet the proposed standard.
- h. Section 5A(3)(a)(vii) – any matters prescribed by the regulations.
  - i. Regulation 8AB(1)(a) prescribes the method of analysis (if any) of the chemical composition and form of the constituents of the chemical product. In considering method of analysis of the chemical composition and form of the constituents in the chemical products, the APVMA has had regard to the existing product records, data submitted during the course of the reconsideration, and the analytical methods used to generate that data. The APVMA is satisfied of the chemical composition and form of the constituents for the currently registered products.
  - ii. In accordance with regulation 8AB(2), Regulations 8AB(1)(b) and (c) of the Agvet Regulations do not apply as the product is an agricultural product and is prescribed under regulation 59(1) for the purposes of section 120A of the Agvet Code.
  - iii. Regulations 8AB(1)(d), (e) and (f) do not apply based on the use pattern of the products.
- 24) Under section 5A(3)(b) the APVMA may have regard to one or more of the following matters in determining whether a chemical product meets the safety criteria:
  - a. Section 5A(3)(b)(i) – the acceptable daily intake of each constituent contained in the product;
    - i. The ADI for malathion remains unchanged at 0.02 mg/kg bw/day.
  - b. Section 5A(3)(b)(ii) – any dietary exposure assessment prepared under subsection 82(4) of the *Food Standards Australia New Zealand Act 1991* as a result of any proposed variation notified under section 82(3) of that Act in relation to the product, and any comments on the assessment given to the APVMA under section 82(4) of that Act.
    - i. The dietary exposure associated with the use of malathion was considered and is detailed in the Malathion Review Technical Report and is acceptable.
  - c. Section 5A(3)(b)(iii) – whether any trials or laboratory experiments have been carried out to determine the residues of the product and, if so, the results of those trials or experiments and whether those results show that the residues of the product will not be greater than limits that the APVMA has approved or approves.
    - i. In considering whether residues of malathion resulting in food commodities from use of the product will not be greater than the limits that the APVMA has approved or will approve, the APVMA has had regard to existing product records and information submitted as part of the reconsideration, as outlined in the Malathion Review Technical Report.
    - ii. The APVMA is not satisfied that appropriate MRLs have been established for all food or feed commodities

- d. Section 5A(3)(b)(iv) – the stability of the product.
- i. In considering the stability of the chemical products, the APVMA has had regard to the existing product records and information, including product stability data, submitted during the course of the reconsideration.
  - ii. The consideration of that information indicates that concentrations of impurities of toxicological concern, in particular isomalathion, have the potential to significantly increase during prolonged storage or storage at elevated temperatures.
  - iii. The APVMA is not satisfied that the concentration of impurities of toxicological concern will not exceed acceptable concentrations in the products after prolonged storage or storage at elevated temperature.
- e. Section 5A(3)(b)(v) – the specifications for containers for the product.
- i. In considering specifications for containers, the APVMA has had regard to the existing product records regarding the stability of the product in the proposed containers and the integrity of the container during storage of the product. Additionally, there have been no concerns raised with the current specifications for containers for these products.
  - ii. The product is subject to the conditions of registration prescribed under regulation 18(2), which are satisfied.
  - iii. The APVMA is satisfied that the specifications for containers for products is appropriate.
- f. Section 5A(3)(b)(vi) – there are no other matters that the APVMA thinks relevant.

**Consideration of whether the registered agricultural chemical products can be varied in such a way as to meet the safety criteria**

- 25) Section 34A (1) provides that if the APVMA is not satisfied under section 34(1) but is satisfied that the relevant particulars or conditions of the registration can be varied in such a way as to allow the registration to be affirmed, the APVMA must vary the relevant particulars or conditions.
- 26) The APVMA has considered whether registered chemical products can be varied to meet the safety criteria set out in Section 5A(3)(a) as follows:
- a. Section 5A(3)(a)(i), the APVMA is satisfied that the products can be varied to meet the safety criteria with regards to exposure of people, relevant organisms and ecosystems to the product and its residues including metabolites and degradation products as follows:
    - i. The safety directions for each product can be varied to include warnings and the use of personal protective equipment to reduce user exposure as outlined in the Malathion Review Technical Report.
    - ii. Re-entry statements and periods can be amended to reduce the exposure to workers working in the crops post application as outlined in the Malathion Review Technical Report.
    - iii. The current instructions for use can be varied by removing use patterns where PPE or other restrictions on use are not sufficient to address the risk to the user. Those uses are:
      - backpack ULV applications
      - backpack fogging applications
    - iv. The current instructions for use can be varied by restricting the methods of application to limit user exposure by requiring the following:
      - restricting aerial uses to application by closed mixing and loading
      - restricting airblast applications to application by closed cabs.
    - v. The current instructions for use of malathion on agricultural products can be varied to include to limit the maximum number of applications to 4 per season if the number of applications is not already specified on the label, except for

use patterns which are unlikely to result in residues in food including use in baits for the control of fruit flies and uses on ornamental plants.

- vi. The current instructions for use for malathion on broadacre crops can be varied to include the harvest withholding periods outlined in the Malathion Review Technical Reports:
- a 1-day harvest withholding period should apply to cereal crops (maize, rice and sorghum, grain legumes and linseed)
  - a 3-day withholding period should apply for both harvest and grazing for canola (rapeseed), safflower and sunflower crops.
- vii. The residues definition and the entries in the MRL standard can be amended to reflect the change of the accepted common name from maldison to malathion
- viii. Table 4 of the Australian MRL standard can be varied to include MRLs for animal feed including pastures, forage crops, orange pulp and grape pomace as follows:

Compound	Animal feed commodity	MRL (mg/kg)
<b>Delete:</b>		
Maldison		
AB 0226	Apple pomace, dry	20
	Tomato pomace, dry	10
<b>Add:</b>		
Malathion		
AB 0226	Apple pomace, dry	20
	Tomato pomace, dry	10
AB 0001	Citrus pulp, dry	40
AB 0269	Grape pomace, dry	90
	Primary feed commodities	800

- ix. A contemporary dietary assessment concluded that following the proposed variations to the products as listed above, the acute dietary exposure is acceptable with the highest acute dietary intake estimated at <15% of the ARfD as detailed in the Malathion review technical report.
- x. Environmental protection statements can be added to the instructions for use or varied to reduce the exposure of non-target aquatic species, as outlined in the Malathion Review Technical Report.
- xi. Environmental protection statements can be added to the instructions for use or varied to reduce impact on pollinators, as outlined in the Malathion Review Technical Report.
- xii. Spray drift restraints and buffer zones can be applied to use patterns as required to protect sensitive areas from exceedance of regulatory acceptable levels of exposure (RALs) as outlined in the Malathion Review Technical Report and as set out in Attachment C.
- b. Section 5A(3)(a)(iii), the APVMA is satisfied that a standard for products containing malathion as an active constituent can be established under section 6E of the Agvet Code as outlined in table 3, and conditions can be applied to product registrations under section 23(1)(b) requiring the holder to maintain records of how each batch meets the compositional requirements of that standard.

**Table 3. Compositional requirements of the proposed APVMA condition of approval for commercial products containing malathion**

Chemical	Formulation type			
	UL and VP	EW	EC#	DP
Malathion*	active constituent concentration	active constituent concentration	active constituent concentration	active constituent concentration <sup>^</sup>
Malaaxon	Max. 0.1%	Max. 0.8%	Max 0.1%	Max 0.1%
Isomalathion	Max. 0.4%	Max. 0.6%	Max 0.8%	Max. 2.5%
MeOOSPO	Max. 0.5%	Max. 0.5%	Max. 0.5%	Max. 0.5%
MeOSSPO	Max. 0.01%	NR	NR	NR

Concentration percentages for all impurities in products are relative to the weight of active in the product.

NR= not required - because of analytical limitations, testing for MeOSSPO is not required for EW, EC and DP products.

\*Allowable ranges of malathion concentrations in products are as specified in the Agricultural and Veterinary Chemicals Code Regulations 1995, with the exception of UL and DP products as outlined below.

<sup>^</sup>For a DP formulation, a tolerance range for declared contents up to 100 g/kg is -10% to +25%, instead of the usual  $\pm 10\%$ .

The +25% tolerance used in this assessment reflects an allowable variation required to offset a significant degradation that may occur in freshly formulated material after storage.

In the UL specification, malathion content is expressed as a minimum (950 g/kg) only, instead of the standard expression ( $>500 \pm 25$  g/kg). This is because the UL formulation consists of only, or mainly, an active constituent.

#Compositional requirements for EC products will also be applicable to veterinary products which are specified as topical solutions

- c. Section 5A(3)(a)(vi), the APVMA is satisfied that the relevant particulars that are or would be entered in the Register can be varied to reflect the outcome of this reconsideration. In particular
  - i. The name of the active constituent can be varied from maldison to malathion.
  - ii. The instructions for use can be varied to reflect the outcome of the reconsideration.
- d. Section 5A(3)(a)(v) - the APVMA is satisfied that the conditions of registration referred to as 'Agricultural Products Quality Assurance Requirements' can be varied to refer to the Agricultural and Veterinary Chemicals Code (Agricultural Active Constituents) Standards 2022 and to include the requirement for products to meet the product standard as follows:
  - Manufacture of active constituent – the registrant must not supply the chemical product, or cause it to be supplied, unless the active constituent contained in the chemical product:
    - i. complies with the Agricultural and Veterinary Chemicals Code (Agricultural Active Constituents) Standards 2022 (Active Constituent Standard 2022) for that active constituent; and
    - ii. was manufactured at a site of manufacture listed in the Record of approved active constituents.
  - Analysis results – the registrant must not supply the chemical product or cause it to be supplied unless the registrant has in its possession prior to the supply of each batch of the chemical product, batch analysis results that show:



- 
- i. the active constituent contained in the chemical product complies with the Active Constituent Standard 2022 for that active constituent;
  - ii. if there is a standard for a constituent in the chemical product that is listed in the Active Constituent Standard 2022, that the constituent complies with the Active Constituent Standard 2022 for that constituent; and
  - iii. the batch number of the active constituent contained in the chemical product.
- Records – the registrant must, at or prior to the supply of a batch of the chemical product by the registrant or by another person on behalf of the registrant, make or have in its possession, a record that contains the following information:
    - i. The name of the chemical product
    - ii. The APVMA product number of the chemical product
    - iii. If the chemical product was imported into Australia by another person on behalf of, or pursuant to an arrangement with the registrant, the name and address of that person
    - iv. If the chemical product was manufactured in Australia by another person on behalf of, or pursuant to an arrangement with the registrant, the name and address of that person
    - v. The date of importation into, or manufacture in, Australia as the case may be
    - vi. The batch number of the chemical product from which the supply was made
    - vii. The quantity of the chemical product that constitutes the batch
    - viii. The batch number, and name and address of the manufacturer of the active constituent contained in the chemical product
  - The registrant must produce, or cause to be produced, to the APVMA any batch analysis results or record within 10 working days of the request having been made by the APVMA, or other such period as determined by the APVMA.
  - The registrant must keep, or cause to be kept, any batch analysis results or records for 2 years after any batch analysis results or records is made.
  - Possession of batch analysis results and records – for the purposes of these conditions, batch analysis results or records are in the possession of the registrant if batch analysis results or records are:
    - i. in the possession of the registrant; or
    - ii. in the possession of another person pursuant to an arrangement with the registrant.
  - Compliance with the Standard – for the purposes of these conditions, a constituent complies with the Active Constituent Standard 2022 if the constituent, when measured using a validated analytical method does not contain:
    - i. less than the minimum purity and/or content of the constituent as set out in the Active Constituent Standard 2022 for the Constituent; and
    - ii. more than the maximum level of any impurity as set out in the Active Constituent Standard 2022
  - Definitions and Interpretation – in these conditions the following words have the following meanings:
    - 'Batch' means a defined quantity of material produced in a single series of operations.
    - 'Batch number' means that a distinctive combination of numbers and/or letters that specifically identifies a batch and from which the production history can be determined.

- 'Batch analysis results' means the results of analysis from each batch of the constituent that include:
    - i. the name of the manufacturer and the manufacturing site address
    - ii. the date of the analysis
    - iii. the batch number and date of manufacture of the batch
    - iv. the analysis result(s) for the constituent purity and/or content and/or isomer ratio and/or the specified impurities as per the Active Constituent Standard 2022 for the constituent
    - v. full details and validation data for the analytical method(s) used for the determination of the constituent purity (linearity and precision) and/or the content and/or the isomer ratio and/or the specified impurities (linearity, precision, accuracy and limit of quantitation if relevant).
  - If analytical methods and validation data have been previously provided to the APVMA, a reference to that submission will suffice.
  - 'Record' means a document in written or electronic form that contains the particulars set out in paragraph (3) and which is readily accessible for the purposes of Part 9 of the Agvet Code (Enforcement).
  - 'Supply' has the same meaning as given to it in section 3 of the Agvet Code.
- e. Section 5A(3)(a)(v) - the APVMA is satisfied that the conditions of registration can be varied to include the requirement that products containing malathion as an active constituent shall conform with any proposed product standard by removing the reference to the 'Agricultural products Quality Assurance Requirements' outlined in paragraph 26(d) and to include the following entry under the heading Analysis results:
- the registrant must not supply the chemical product or cause it to be supplied unless the registrant has in its possession prior to the supply of each batch of the chemical product, batch analysis results that show:
    - i. if there is a APVMA Standard for the product established under section 6E of the Agvet Code, the product must comply with the APVMA Standard for that product.
- 27) The APVMA has considered whether registered chemical products can be varied to meet the safety criteria set out in Section 5A(3)(b) as follows:
- a. Section 5A(3)(b)(iii) – the APVMA is satisfied that Agricultural and Veterinary Chemicals Code (MRL Standard) Instrument 2019 can be amended to include relevant MRLs for food or feed commodities, in particular for pastures, fodder plants, grape pomace and citrus pomace as outlined in the Malathion Review Technical Report.
  - b. Section 5A(3)(b)(iv), the APVMA proposes that it can be satisfied of the stability of agricultural chemical products containing malathion as an active constituent, if the products have specific storage instructions and an expiry date.
    - i. Currently registered agricultural chemical products containing malathion as an active constituent can be varied to be subject to a condition of registration requiring an expiry date based on stability data previously supplied.
    - ii. Storage can be limited to below 30° C (Room Temperature)
  - iii. The APVMA proposes that agricultural chemical products containing malathion as an active constituent, should be declared to be Date Controlled Products under paragraph 4(b) of the Agvet code regulations and included in Schedule 1 to the regulations as an outcome of this reconsideration. As an interim measure the APVMA intends that a condition of registration be applied to all agricultural chemicals containing malathion as the active constituent as proposed in 27(b)(i) above.

**Consideration of whether registered agricultural chemical products meet the efficacy criteria:**

- 28) Section 5B(1) of the Agvet Code provides that a chemical product meets the efficacy criteria if use of the product, in accordance with instructions approved, or to be approved, by the APVMA for the product or contained in an established standard, is, or would be, effective according to criteria determined by the APVMA by legislative instrument.
- 29) Section 5B(2) of the Agvet Code provides that for the purposes of being satisfied as to whether a chemical product meets the efficacy criteria, the APVMA must have regard to the following:
- a. Section 5B(2)(a) whether any trials or laboratory experiments have been carried out to determine the efficacy of the product and, if so, the results of those trials or experiments.
    - i. The APVMA has considered information submitted for the registration and variation of these products previously and remains satisfied that these continue to support the efficacy of the products.
  - b. Section 5B(2)(b) any conditions to which its registration is, or would be, subject;
    - i. The APVMA has considered the conditions of registration which apply to the products and is satisfied that none of these impact on the efficacy of the product and no additional conditions of registration are required to satisfy the efficacy criteria.
  - c. Section 5B(2)(c) any relevant particulars that are, or would be, entered in the Register for the product;
    - i. The APVMA has considered the relevant particulars that are entered in the Register and is satisfied that no changes to the Register are required to be satisfied of the efficacy of agricultural chemical products containing malathion.
  - d. Section 5B(2)(ca) whether the product conforms, or would conform, to any standard made for the product under section 6E to the extent that the standard relates to matters covered by subsection (1);
    - i. There are no standards made under section 6E which are relevant to the efficacy of malathion products.
  - e. Section 5B(2)(d) any matters prescribed by the regulations.
    - i. There are no regulations which relate to the efficacy of agricultural chemical products containing malathion.

**Consideration of whether the registered agricultural chemical products meet the trade criteria:**

- 30) Section 5C(1) of the Agvet Code provides that a product meets the trade criteria if use of the product, in accordance with instructions approved, or to be approved, by the APVMA or contained in an established standard, does not, or would not, unduly prejudice trade or commerce between Australia and places outside Australia.
- a. Regulation 8AD(2) provides that if it can be reasonably expected that a chemical product will be used in relation to a crop or animal, a product of which might be provided to a place outside Australia; or a crop that will be fed to animals a product of which might be provided to a place outside Australia then the APVMA must have full regard to the matters set out in section 5C(1) and (2) of the Agvet Code. Based on the use patterns in the "Direction for use" section on the current malathion agricultural chemical product labels that are considered to be major export commodities or stock feed, the APVMA has had regard to the following use patterns:
- i. Canola
  - ii. Cereal grains
  - iii. Citrus fruit
  - iv. Grapes
  - v. Pastures, forage and fodder crops

- vi. Pome fruit
  - vii. Pulses
  - viii. Stone fruit
  - ix. Use patterns where by-products may be used for stock feed (Almonds, citrus, grapes, pome fruit and tomatoes)
- 31) To determine whether the products will meet the trade criteria, the APVMA has had regard to the following as specified in Section 5C(2) of the Agvet Code:
- a. Section 5C(2)(a) - any conditions to which its registration is, or would be, subject.
    - i. The APVMA is satisfied that the conditions of registration currently applied to registered products remain appropriate with regards to the satisfaction of the risk to trade.
  - b. Section 5C(2)(b) - any relevant particulars that are, or would be, entered in the Register for the product. In considering the relevant particulars, the APVMA is not satisfied that the current uses in all crops and situations where malathion is used will not impact on our satisfaction of trade, specifically;
    - i. The APVMA is not satisfied that the current instructions for use are appropriate to satisfy the trade criteria in relation to the extent to which each use is expected to result in residues of malathion or its degradation products remaining on the treated crop, as outlined in the Malathion Review Technical Report.
    - ii. The APVMA is not satisfied that the current harvest withholding periods currently required for major export commodities are appropriate to satisfy the trade criteria.
    - iii. The APVMA is not satisfied that the instructions for use for malathion products contain adequate spray-drift restraints to prevent exceedance of the livestock RAL which is required to ensure that exposure of livestock to residues of malathion resulting from spray drift does not exceed 115 mg ac/kg.
    - iv. the APMVA is not satisfied that the current entries maldison in Table 4 of the Agricultural and Veterinary Chemicals Code (MRL Standard) Instrument 2019 include maximum residue levels in animal feed including pastures, forage crops, orange pulp and grape pomace.
  - c. Section 5C(2)(ba), whether the product conforms, or would conform, to any standard made for the product under section 6E to the extent that the standard relates to matters covered by subsection (1);
    - i. There are no standards made under section 6E which are relevant to the risk to trade of malathion agricultural chemical products
  - d. Section 5C(2)(c), any matters prescribed by the regulations.
    - i. In considering the trade criteria, the APVMA has had regard to Regulation 8AD as outlined in paragraph 30(a) above.

**Consideration of whether the registered agricultural chemical products can be varied in such a way as to meet the trade criteria:**

- 32) Section 34A (1) provides that if the APVMA is not satisfied under section 34(1) but is satisfied that the relevant particulars or conditions of the registration can be varied in such a way as to allow the registration to be affirmed, the APVMA must vary the relevant particulars or conditions.
- 33) The APVMA has considered whether the instructions for use for registered malathion products can be varied in such a way as to meet the trade criteria as follows:
- a. To satisfy section 5C(2)(b), the instructions for use of malathion product can be varied as follows:
    - i. The current instructions for use of malathion on agricultural products can be varied to include to limit the maximum number of applications to 4 per season (if the number of applications is not already specified on the label), except

for use patterns which are unlikely to result in residues in food (use for the control of fruit flies, and on ornamental plants).

- ii. The current instructions for use for malathion on broadacre crops can be varied to include the harvest withholding periods as detailed in paragraph 26 vi. above.
- iii. The instructions for use for malathion products can be varied to include spray-drift restraints, to prevent exceedance of the livestock RAL which is required to ensure that exposure of livestock to residues of malathion resulting from spray drift does not exceed 115 mg ac/kg.
- iv. Table 4 of the Agricultural and Veterinary Chemicals Code (MRL Standard) Instrument 2019 can be varied to include MRLs for animal feed including pastures, forage crops, orange pulp and grape pomace as detailed in paragraph 26 a viii. above.

**Consideration of whether the registered agricultural chemical products meet any requirement prescribed by the regulations**

- 34) The particulars to be recorded for a chemical product are listed under regulation 16. Based on the information submitted with the application for registration of the product, the current entries have been considered and can be varied to reflect the outcomes of this reconsideration.
- 35) The prescribed conditions of registration for chemical products are detailed in regulation 17C. The APVMA is satisfied that currently approved products comply with these conditions and that these remain appropriate.
- 36) Additional conditions apply to the current product registrations as outlined in paragraph 26 above. The APVMA is satisfied that holders of currently approved products can comply with these conditions and that they remain appropriate.
- 37) The conditions of registration relating to the product containers are detailed in regulation 18. Based on the information submitted with the application for registration of the product, these remain appropriate and no additional container conditions are required.

**Conclusion of considerations of agricultural chemical products**

- 38) The APVMA is satisfied that the registered malathion chemical products listed in Attachment A meet the efficacy criteria. While the APVMA is not satisfied that those same products currently meet the safety or trade criteria, the APVMA is satisfied that those products can be varied to allow affirmation (as varied) under section 34(1) of the Agvet Code.

## Agricultural chemical product labels

### Consideration of agricultural chemical label approvals

- 39) Section 34(1) of the Agvet Code provides that the APVMA must affirm the approval of a product label if, and only if, it is satisfied that the label:
- a. meets the labelling criteria and
  - b. complies with any requirement prescribed by the regulations.
- 40) Section 5D(1) of the Agvet Code provides that a label for containers for a chemical product 'meets the labelling criteria' if the label contains adequate instructions relating to such of the following as are appropriate:
- a. The circumstances in which the product should be used
  - b. How the product should be used
  - c. The times when the product should be used
  - d. The frequency of the use of the product
  - e. The withholding period after the use of the product
  - f. The re-entry period after the use of the product
  - g. The disposal of the product when it is no longer required
  - h. The disposal of containers of the product
  - i. The safe handling of the product and first aid in the event of an accident caused by the handling of the product
  - j. Any matters prescribed by the regulations. For section 5D(1)(j), of the Agvet Code, regulation 8AE(1) of the Agvet Code Regs prescribes the following:
    - i. Regulation 8AE(1)(a) – for a chemical product that is a veterinary chemical product, the duration of the treatment.
    - ii. Regulation 8AE(1)(b) – the prevention of undue prejudice to trade or commerce between Australia and places outside of Australia.
    - iii. Regulation 8AE(1)(c) – the appropriate signal words (if any) required by the current Poisons Standard.
    - iv. Regulation 8AE(1)(d) – for a chemical product that is a date-controlled product, the storage of containers for the product.
    - v. Regulation 8AE(1)(e) – any other matter determined by the APVMA CEO under regulation 8AE(2).
- 41) Section 5D(2) of the Agvet Code outlines the matters the APVMA must have regard to in determining whether a label meets the labelling criteria. These are:
- a. any conditions to which its approval is, or would be, subject (section 5D(2)(a)),
  - b. any relevant particulars and instructions that are, or would be, entered in the relevant APVMA file for the label (section 5D(2)(b)) and
  - c. whether the label conforms, or would conform, to any standard made for the label under section 6E to the extent that the standard relates to matters covered by subsection (1) (section 5D(2)(c)).

### Consideration of whether the approved labels meet the labelling criteria:

- 42) In considering whether the current approved labels for containers for malathion chemical products meet the labelling criteria the APVMA has had regard to section 5D(2)(a) as follows:

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- a. The APVMA is satisfied that the prescribed conditions for label approval (regulations 18B to 18J) that currently apply to the label remain appropriate.
  - b. The APVMA notes that an additional condition for the inclusion of an expiry date will be required as an outcome of this reconsideration based on the move to make malathion products date controlled chemical products
- 43) For section 5D(2)(d) of the Agvet Code, the APVMA has considered the current labels to determine whether relevant particulars and instructions that are, or would be, entered into the relevant APVMA file for the label are adequate, and proposed the following:
- a. The circumstances in which the product should be used:
    - i. In general, the crop/situation and pest statements in the instructions for use contained on the approved labels remain appropriate.
    - ii. In situations where there are no specific state or territory instructions for use, the uses are accepted as being appropriate for all states and territories.
  - b. How the product should be used:
    - i. The APVMA is not satisfied that the rate of application, application method and spray quality statements in the instructions for all uses on the approved labels remain appropriate.
    - ii. The APVMA is not satisfied that the product can be used safely without mandatory no-spray buffer zones to prevent exceedance of the relevant RALs in sensitive areas.
    - iii. The APVMA is not satisfied that the product can be used safely in aquatic situations for the control of mosquito larvae.
  - c. The times when the product should be used:
    - i. The APVMA is satisfied that the application timing for all use patterns remain appropriate.
  - d. The frequency of the use of the product.
    - i. The APVMA is not satisfied that all use patterns, where the product is applied directly to crops, contain sufficient instruction for the frequency and number of applications.
  - e. The withholding period after the use of the product:
    - i. The APVMA is not satisfied that the labels include appropriate harvest withholding periods for broad acre cereal crops, maize, rice, sorghum, legumes and linseed.
    - ii. the APVMA is not satisfied that the labels include appropriate grazing withholding periods for canola (rapeseed), safflower and sunflower.
  - f. The re-entry period after the use of the product:
    - i. The APVMA is not satisfied that the labels include appropriate the re-entry period statements as detailed in the Malathion Review Technical Report.
  - g. The disposal of the product when it is no longer required:
    - i. The APVMA is not satisfied that there are adequate instructions on the labels for disposal of product when it is no longer required.
  - h. The disposal of containers for the product
    - i. The APVMA is not satisfied that the instructions for disposal of containers on the labels for the product are appropriate.

- ii. The APVMA is not satisfied that the instructions for disposal of containers on the labels are sufficient to protect aquatic situations.
- i. The safe handling of the product and first aid in the event of an accident caused by the handling of the product.
- i. The APVMA is not satisfied of the current instructions for safe handling of the product on the labels as outlined in the consideration of appropriate safety directions in the Malathion Review Technical Report.
- ii. The APVMA is satisfied that the First Aid directions on the labels are appropriate.
- j. Any matters prescribed by the regulations. For section 5D(1)(j) of the Agvet Code, regulation 8AE(1) of the Agvet Regs relevantly prescribes the following:
  - i. Regulation 8AE(1)(a) – for a chemical product that is a veterinary chemical product, the duration of the treatment. Regulation 8AE(1)(a) does not apply to agricultural chemical products containing malathion as it applies to veterinary products only.
  - ii. Regulation 8AE(1)(b) – the prevention of undue prejudice to trade or commerce between Australia and places outside of Australia. The APVMA proposes changes to the maximum applications per season, relevant harvest and grazing withholding periods as outlined at paragraph 46 below and in Attachment C.
  - iii. Regulation 8AE(1)(c) – the appropriate signal words (if any) required by the current Poisons Standard. Malathion is listed in Schedule 5 of the Standard for the Uniform Scheduling of Medicines and Poisons preparations containing 10 % or less of malathion except for human therapeutic use; or in dust preparations containing 2 % or less of malathion and is otherwise listed in Schedule 6 of the Standard for the Uniform Scheduling of Medicines and Poisons. The APVMA is satisfied that products which are Schedule 5 poisons have the appropriate signal heading “CAUTION” and products which are schedule 6 poisons include the signal heading POISON. All labels include the cautionary phrase “Keep out of Reach of Children” and as all labels include safety directions, the signal heading also includes the statement “read safety directions before opening or using”.
  - iv. Regulation 8AE(1)(d) – for a chemical product that is a date-controlled product, the storage of containers for the product. As detailed in the Malathion Review Technical Report, due concerns raised in relation to the formation of toxic impurities during storage, all products containing malathion as an active constituent are proposed to be made date-controlled products. The APVMA is not satisfied that the current labels include appropriate storage conditions.
  - v. Regulation 8AE(1)(e) – any other matter determined by the APVMA CEO under regulation 8AE(2). No other matters have been determined by the APVMA CEO under regulation 8AE(2).
- k. For section 5D(2)(c) of the Agvet Code, whether the label conforms, or would conform, to any standard made for the label under section 6E to the extent that the standard relates to matters covered by subsection (1);
  - i. There is no standard made for malathion labels under section 6E.
- 44) The APVMA is not satisfied that the approved labels for containers for registered malathion chemical products meet the labelling criteria for the reasons set out in paragraph 43 above.

**Consideration of whether the approved labels for registered agricultural chemical products can be varied in such a way as to meet the labelling criteria:**

- 45) Section 34A (1) of the Agvet Code provides that if the APVMA is not satisfied under section 34(1) but is satisfied that the relevant particulars or conditions of the approval can be varied in such a way as to allow the approval to be affirmed, the APVMA must vary the relevant particulars or conditions.
- 46) The APVMA has considered whether the labels approved for containers for malathion chemical products can be varied in such a way as to meet the labelling criteria as follows:
  - a. The instructions for how the products should be used can be varied to remove application methods and rates which were not supported, as outlined in the Malathion Review Technical Report:



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- i. The option of open mixing and loading for aerial uses can be removed from the labels by adding the following restraint to labels with aerial use patterns: DO NOT use open mixing and loading systems for aerial application (use closed mixing and loading only).
  - ii. The option for application using airblast using open cabs can be removed by adding the restraint 'DO NOT apply by open cabs for airblast application, use closed cabs for airblast application only' to labels of commercial products which may be applied by airblast application.
  - iii. Ultra-low volume aerial application rates that are not supported as outlined in the Malathion Review Technical Report, can be removed. Those rates are:
    - 1150 g/L of malathion at a rate equal to or greater than 550 mL/ha
    - 1000 g/L of malathion at a rate equal to or greater than 625 mL/ha
    - 1169 g/L of malathion at a rate equal to or greater than 550 mL/ha
  - iv. Specific spray drift restraints can be included on the labels as outlined in the Malathion Review Technical report and as set out in attachment C to limit the risk of exceeding RALs relevant to risk to the environment, residues in food and human health.
  - v. Labels for products applied to flowering crops or in areas where bees might forage, including uses for adult mosquito control, can be varied to limit the application timing to protect bees by adding the following protection statement:
    - Toxic to bees. DO NOT apply to crops from the onset of flowering until flowering is complete. DO NOT allow spray drift to flowering weeds or flowering crops in the vicinity of the treatment area, except when applications are made to prevent or control a threat to public and/or animal health determined by the relevant State or Territory authority. Before spraying, notify beekeepers to move hives to a safe location with an untreated source of nectar and pollen, if there is potential for managed hives to be affected by the spray or spray drift."
  - vi. Labels for products applied as a dust to stored grain can be varied to clarify the possible impact on bees by adding the statement:
    - Toxic to bees. However, the use of this product as directed is not expected to have adverse effects on bees.
  - vii. Labels for products with use patterns for mosquito control can be varied to include the restraint 'DO NOT apply directly to water'.
- b. The instructions for the frequency of the use of the product can be varied to ensure that the product is applied in a manner for which the risk has been assessed as acceptable
    - i. "DO NOT apply more than 4 applications per season" can be added to the instructions for all crop uses which do not have a limit on the number of applications with the exception of fruit fly baits where exposure to the actual crop is not expected due to the use pattern and therefore the number of applications does not need to be limited.
  - c. The withholding periods after the use of the product can be varied as follows:
    - i. For broad acre cereal crops (maize, rice and sorghum, grain legumes and linseed) crops a 1-day harvest withholding can be added.
    - ii. For canola (rapeseed), safflower and sunflower, a harvest withholding period statement can be added to the labels specifying a 3-day withholding period for both harvest and a grazing withholding periods.
  - d. The re-entry periods after use of the product can be varied as follows:
    - i. All use patterns: Do not enter treated areas until spray has dried.

- ii. Fruiting vegetable crops: Do not enter for 1 day after application for irrigation, scouting, thinning and weeding.
- iii. Leafy vegetable crops: Do not enter for 1 day after application for irrigation and scouting mature plants, hand harvesting and pruning.
- iv. Field crops (low): Do not enter for 2 days after application for hand-set irrigation.
- v. Do not enter for 1 day after application for scouting, thinning and weeding.
- vi. Grapes: Do not enter for 1 day after application for bird control, propagation, trellis repair and transplanting; Do not enter for 2 days after application for hand irrigation, hand pruning, hand weeding and scouting; Do not enter for 17 days after application for tying, training, leaf pulling and hand harvesting, Do not enter for 24 days after application for girdling and turning.
- vii. Apples: Do not enter for 1 day after application for hand pruning, training, scouting, training, transplanting, orchard maintenance, propping and hand weeding;
  - Apples treated with 320 g/L EW product – Do not enter for 14 days after application for hand harvesting.
  - Apples: all other formulation types except Malathion 320 g/L EW – Do not enter for 8 days after application for hand harvesting.
- e. The labels can be varied to add the following instructions for the disposal of the product when it is no longer required:
  - Dispose of any unused chemical in compliance with relevant local, state or territory government regulations.
- f. The labels can be varied to address the disposal of containers as follows:
  - i. For all commercial products:
    - add the following disposal instructions:

Triple-rinse containers before disposal. Dispose of rinsate or any undiluted chemical according to state/territory legislative requirements. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.
    - and the following aquatic protection statement:

Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.
  - ii. For home and garden products:
    - add the following disposal instructions

Dispose of empty container by wrapping in paper, placing in plastic bag and putting in garbage.
    - and the following aquatic protection statement

Toxic to aquatic life. DO NOT allow the product, chemical containers or spray to get into drains, sewers, streams or ponds.
- g. The labels can be varied to include instructions for the safe handling of the products by amending the safety directions on each of the labels as follows:
  - i. Safety Direction for malathion products ULV or EC 1200 g/L or less - Harmful if swallowed. Will irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container, preparing the spray, wear cotton

overalls buttoned to the neck and wrist (or equivalent clothing) and elbow length chemical resistant gloves and a face shield. When using the prepared spray, wear chemical resistant clothing buttoned to the neck and wrist and a washable hat, and elbow length chemical resistant gloves. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, face shield and contaminated clothing.

- ii. Safety Direction for malathion products EW 550 g/L or less - May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container and preparing the product for use, wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. When using the prepared bait/spray, wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. If applying by low pressure hand wand, wear chemical resistant clothing buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. If applying by backpack sprayer, wear cotton overalls, over normal clothing buttoned to the neck and wrist and elbow length chemical resistant gloves and a half facepiece respirator. Wash hands after use. After each day's use, wash gloves, face shield and contaminated clothing.
  - iii. Safety Direction for malathion products VP 100 g/Kg or less - May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When using the product wear elbow-length chemical resistant gloves. Wash hands after use. After each days use wash gloves and contaminated clothing.
  - iv. Safety Direction for malathion products DP 40 g/Kg or less - May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When using the product wear elbow-length chemical resistant gloves. Wash hands after use. After each days use wash gloves and contaminated clothing
  - v. Safety Direction for malathion products HG EC 500 g/L or less - Harmful if swallowed. Will irritate the eyes and skin. Avoid contact with eyes and skin. When opening the container, preparing spray and using the prepared spray, wear rubber gloves. After use and before eating, drinking, or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves.
  - vi. Safety Direction for malathion products HG EC 100 g/L or less - Harmful if swallowed. Will irritate the eyes. Avoid contact with eyes. When opening the container, preparing spray and using the prepared spray, wear rubber gloves. After use and before eating, drinking, or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves.
  - h. As an outcome of this reconsideration, it is proposed that all products containing malathion as an active constituent will be made date-controlled products. If this is confirmed, the labels can be varied to include appropriate storage conditions and an expiry date.
- 47) Section 34A(3) provides that if the variation would affect instructions for use on a label, the APVMA must not make the variation until it has consulted each co-ordinator designated for a jurisdiction and taken into account any recommendations made by the co-ordinators.
- a. the coordinators for each jurisdiction have been consulted on this proposed decision and their recommendations have been taken into account.

#### **Conclusion on consideration of the approved labels for agricultural chemicals**

- 48) The APVMA is not satisfied that the approved labels listed in Attachment A meet the labelling criteria, but is satisfied that the labels can be varied in such a way as to allow affirmation (as varied) under section 34(1).

**Conclusion for agricultural chemicals**

- 49) For the purposes of sections 34(1) and 34A(1) of the Agvet Code, and having regard to the matters set out above, the APVMA has determined that the APVMA is:
- a. not satisfied the registered malathion agricultural chemical products listed in Attachment A meet the safety criteria or trade criteria;
  - b. not satisfied the approved labels for containers for malathion agricultural chemical products listed in Attachment A meet the labelling criteria and
  - c. is satisfied that the particulars of the product registrations and label approvals listed in Attachment A can be varied as detailed in the proposed label at Attachment C to allow the label approvals and the chemical product registrations to be affirmed.
- 50) Consequently, the APVMA proposes to:
- a. VARY the active constituent approvals as set out in attachment B and then AFFIRM the active constituent approvals listed in Attachment A
  - b. VARY the chemical product registrations and the label approvals listed in Attachment A, as set out in Attachment C and then
  - c. AFFIRM the listed chemical product registrations and the label approvals (as varied) in Attachment A.

## Veterinary chemical products

### Consideration of whether the registered veterinary chemical products meet the safety criteria:

- 51) Section 5A(1) of the Agvet Code provides that a chemical product meets the safety criteria if use of the product, in accordance with any instructions approved or to be approved by the APVMA for the constituent or product or contained in an established standard:
- a. is not, or would not be, an undue hazard to the safety of people exposed to it during its handling or people using anything containing its residues (section 5A(1)(a))
  - b. is not, or would not be, likely to have an effect that is harmful to human beings (section 5A(1)(b))
  - c. is not, or would not be, likely to have an unintended effect that is harmful to animals, plants or things or to the environment (section 5A(1)(c)).
- 52) In determining whether the veterinary chemical products meet the safety criteria as set out in section 5A(1)(a) to (c) the APVMA has had regard to the criteria set out in section 5A(3)(a) as follows:
- a. In relation to the toxicity of the product and its residues, including metabolites and degradation products, in relation to relevant organisms and ecosystems, including human beings (Section 5A(3)(a)(i)), the APVMA had regard to:
    - i. The existing product registration records and the existing approval records for the active constituents. Based on the current records, the APVMA is not satisfied that the records will be correct if the name of the active constituent is varied from maldison to malathion the reasons for which are outlined in the Malathion Review Technical Report.
    - ii. The findings in the Malathion Review Technical Report, that there are no objections on toxicological grounds to the ongoing approval of malathion as an active constituent if each source of active meets the proposed standard.
    - iii. Information received from holders concerning the levels of the impurities of toxicological concern; O,O,S-trimethylphosphorodithioate (MeOOSPS) and O,O,O-trimethylphosphorothioate (MeOOOPS), following storage of the products under current label conditions.
    - iv. The toxicity of malathion in studies of acute, short-term, chronic, reproductive, developmental, genotoxic, immunotoxic and neurotoxic effects, which are detailed in the Malathion Review Technical Report.
    - v. Studies of the absorption, distribution, metabolism and excretion of malathion in mammals.
    - vi. The confirmation of the ADI for malathion at 0.02 mg/kg bw/day on the basis of a no observed adverse effect level of 2 mg/kg bw/day based on inhibition of RBC cholinesterase activity at the next higher dose and application of an uncertainty factor of 100 to account for intra- and inter-species differences.
    - vii. The confirmation of the ARfD at 1.5 mg/kg bw/day, on the basis of a no observed effect level of 15 mg/kg bw/day based on an acute oral human study.
    - viii. The finding in the Malathion Review Technical Report that the APVMA is not satisfied that the current reference to the residue definition of malathion as 'maldison' in the MRL standard remains appropriate.
    - ix. Previous satisfaction of malathion residues in livestock or poultry resulting from topical applications to animals and treatment of animal housing and that there have been no reports received by the APVMA for detections of residues exceeding the MRL in animal commodities over the past ten years.
    - x. That the current MRLs for malathion in eggs, poultry (meat and edible offal), milk and mammalian meat and edible offal remain appropriate as outlined in the Malathion Review Technical Report.
    - xi. That there have been no trade incidents reported to the APVMA related to topical uses of malathion on livestock or poultry or in animal housing.

- xii. In considering the current instructions for use of malathion veterinary products, the APVMA is not satisfied that all of the current instructions for use present an acceptable risk to human health with regards to methods of application, safety directions and re-entry instructions, as detailed in the Malathion Review Technical Report.
  - xiii. The APVMA is satisfied that there is sufficient information in existing registration records and information provided by the holders to consider the fate of the active in the environment and its toxicity to off target species. The APVMA is not satisfied that the current instructions, are adequate to prevent unintended effects to aquatic areas and pollinators, particularly in reference to the use patterns for mosquito and fly control in outdoor situations.
  - xiv. The APVMA has had regard to the current storage and disposal statements and is satisfied that the current instructions for storage and for disposal of packaging, are adequate to prevent unintended effects harmful to plants or animals or things or the environment. However, the APVMA is not satisfied that the current disposal instructions for commercial products include sufficient instructions on how to dispose of unused chemical.
  - xv. The APVMA has had regard to the current protection statements and is not satisfied that the current protection statements are adequate to prevent unintended effects harmful to plants or animals or things or the environment as outlined in the Malathion Review Technical Report.
  - xvi. Based on the history of use of the product and that no reports of adverse effects in target animals from use of malathion products have been received by the Adverse Experience Reporting Program, the APVMA is satisfied that the products when used as directed, will be safe to target animals.
- b. Section 5A(3)(a)(ii) – the relevant poison classification of the product under the law in force in this jurisdiction.
    - i. Malathion is listed in Schedule 5 of the Standard for the Uniform Scheduling of Medicines and Poisons for preparations containing 10 % or less of malathion except for human therapeutic use; or in dust preparations containing 2 % or less of malathion
    - ii. Malathion is listed in Schedule 6 of the Standard for the Uniform Scheduling of Medicines and Poisons for preparations containing MALATHION except when included in Schedule 5, for human therapeutic use; or in dust preparations containing 2 % or less of malathion
    - iii. The listing of malathion in the Standard for the Uniform Scheduling of Medicines and Poisons is considered appropriate and no application for rescheduling has been made.
  - c. Section 5A(3)(a)(iii) – how the product is formulated.
    - i. In considering how the products are formulated, the APVMA has had regard to the existing registration records. The currently registered veterinary products containing malathion as an active constituent are formulated for topical application either as solutions in the form of emulsifiable concentrates or dustable powders.
    - ii. The APVMA has considered the toxicological profile of the impurities in current formulations. As there is potential for the formation of impurities in the product the APVMA is not satisfied all batches of formulated product will not exceed acceptable levels of toxicological impurities.
  - d. Section 5A(3)(a)(iv) – the composition and form of the constituents of the product.
    - i. In considering the composition and form of the constituents of the product, the APVMA has had regard to the existing registration records for excipients and Declarations of Composition submitted by the relevant holders for the approved active constituents.
    - ii. The APVMA is satisfied that the composition and form of constituents in the products remain appropriate.
  - e. Section 5A(3)(a)(v) – any conditions to which its registration is, or would be, subject.
    - i. The products are currently subject to the conditions of registration detailed under regulation 17C(2)
    - ii. Each veterinary product is also subject to a shelf life condition which specifies the duration of the shelf life for the product and requires this to be expressed as an expiry date on the product label.

- iii. The APVMA has had regard to these conditions and is satisfied that the conditions are appropriate for the currently registered products.
  - iv. The APVMA is not satisfied that the conditions require that each batch of the product should comply with the proposed standard for malathion products and that appropriate records should be kept to demonstrate this.
  - f. Section 5A(3)(a)(vi) – any relevant particulars that are, or would be, entered in the Record for the product.
    - i. The distinguishing number remains appropriate.
    - ii. The instructions for use considered during the reconsideration were those previously applied to the product and detailed on the product labels.
    - iii. The APVMA is not satisfied that all of the current instructions for use can be supported as outlined in the Malathion Review Technical Report. In considering other particulars to be entered in the register as prescribed by regulation 16, the APVMA has referred to previous applications and documentation. The APVMA is satisfied all particulars listed under regulation 16 except the name of the active constituent. The APVMA is not satisfied for the reason that the Record, which currently only includes reference to maldison, should be updated when the name of the active is varied to malathion as recommended in the Malathion Review Technical Report.
  - g. Section 5A(3)(a)(via) – whether the product conforms, or would conform, to any standard made for the product under section 6E to the extent that the standard relates to matters covered by subsection (1).
    - i. There is no current standard for malathion products.
    - ii. The APVMA is proposing to make a standard for malathion products under section 6E as an outcome of this reconsideration.
    - iii. The APVMA is satisfied that Veterinary chemical products containing malathion would meet the proposed standard.
  - h. Section 5A(3)(a)(vii) – any matters prescribed by the regulations.
    - i. Regulation 8AB(1)(a) of the Agvet Code Regulations prescribes the method of analysis (if any) of the chemical composition and form of the constituents of the chemical product. In considering method of analysis of the chemical composition and form of the constituents in the chemical products, the APVMA has had regard to the existing product records, data submitted during the reconsideration, and the analytical methods used to generate that data. There have been no concerns raised as part of this reconsideration regarding analysis of the composition and form of the constituents in these chemical products.
    - ii. Regulations 8AB(1)(b); for a product manufactured in Australia—whether each step in the manufacture of the product complies, or will comply, with the manufacturing principles and the Australian GMP Code; products manufactured within Australia which do not comply with this regulation are not supported.
    - iii. Regulations 8AB(1)(c) for a product manufactured outside Australia—whether each step in the manufacture of the product complies, or will comply, with a standard that the APVMA has determined is comparable to the manufacturing principles and the Australian GMP Code; products manufactured outside Australia which do not comply with this regulation are not supported.
    - iv. Regulations 8AB(1)(d), (e) and (f) do not apply based on the use pattern of the product.
- 53) Under section 5A(3)(b) the APVMA may have regard to one or more of the following matters in determining whether a chemical product meets the safety criteria:
- a. Section 5A(3)(b)(i) – the acceptable daily intake of each constituent contained in the product;
    - i. The ADI for malathion remains unchanged at 0.02 mg/kg bw/day.
  - b. Section 5A(3)(b)(ii) – any dietary exposure assessment prepared under subsection 82(4) of the *Food Standards Australia New Zealand Act 1991* as a result of any proposed variation notified under section 82(3) of that Act in relation to the product, and any comments on the assessment given to the APVMA under section 82(4) of that Act.

- i. The dietary exposure associated with the use of malathion was considered acceptable as detailed in the Malathion Review Technical Report.
- c. Section 5A(3)(b)(ii) – whether any trials or laboratory experiments have been carried out to determine the residues of the product and, if so, the results of those trials or experiments and whether those results show that the residues of the product will not be greater than limits that the APVMA has approved or approves.
  - i. In considering whether residues of malathion resulting in food commodities from use of the veterinary chemical products, will not be greater than the limits that the APVMA has approved or will approve, the APVMA remains satisfied that current maximum residue limits (MRLs) cover the current uses of the veterinary products based on previous assessments and history of use without exceeding MRLs as outlined in the Malathion Review Technical Report.
- d. Section 5A(3)(b)(iv) – the stability of the product.
  - i. In considering the stability of the chemical products, the APVMA has had regard to the existing product records and information, including product stability data, submitted during the course of the reconsideration.
  - ii. All veterinary products are subject to a shelf-life condition
  - iii. The APVMA has reviewed the current storage requirements and shelf life for veterinary products containing malathion and is satisfied that products where stability data has been provided, should remain within specification and toxic impurities should not exceed acceptable concentrations when stored as directed.
  - iv. The APVMA is not satisfied that products, where stability data has not been provided, will remain within specification and that toxic impurities will not exceed acceptable concentrations when stored as directed.
- e. Section 5A(3)(b)(v) – the specifications for containers for the product.
  - i. In considering specifications for containers, the APVMA has had regard to the existing product records regarding the stability of the product in the proposed containers and the integrity of the container during storage of the product. There have been no concerns raised regarding the current specifications for containers for these products.
  - ii. That the product is subject to the “Conditions of registration of chemical products –containers”, as prescribed under regulation 18(2). The APVMA is satisfied that these conditions remain appropriate.
- f. Section 5A(3)(b)(vi) – there are no other matters that the APVMA thinks relevant.

**Consideration of whether the registered veterinary chemical products can be varied in such a way as to meet the safety criteria:**

- 54) Section 34A (1) provides that if the APVMA is not satisfied under section 34(1) but is satisfied that the relevant particulars or conditions of the registration can be varied in such a way as to allow the registration to be affirmed, the APVMA must vary the relevant particulars or conditions.
  - a. Section 5A(3)(a)(i) – If the products are varied as follows, the APVMA would be satisfied with regard to the toxicity of the product and its residues, including metabolites and degradation products, in relation to relevant organisms and ecosystems, including human beings:
    - i. The registration records can be varied to refer to malathion instead of maldison.
    - ii. The reference to maldison in the MRL standard can be amended to refer to malathion.
    - iii. Instructions for use including methods of application, safety directions, re-entry and protection statements can be varied to address the unacceptable risk of the use of the product to human health due to exposure to the product during mixing, application and post application as detailed in the Malathion Review Technical Report.



- iv. Instructions for use including methods of application, areas to be treated, restraints and protection statements can be varied to address the unacceptable risk to non-target plants or animals or things or the environment as detailed in the Malathion Review Technical Report.
  - v. Additional instructions can be included on the label to provide information on how to dispose of unused chemical.
  - vi. The protection statements can be varied to prevent unintended effects harmful to plants or animals or things or the environment as outlined in the Malathion Review Technical Report
- b. Section 5A(3)(a)(iii) - The APVMA is satisfied that a standard for veterinary chemical products containing malathion as an active constituent can be established under section 6E of the Agvet Code as outlined in table 4 below and conditions can be applied to product registrations under section 23(1)(b) of the Agvet Code requiring the holder to maintain records of how each batch meets the compositional requirements of that standard.

**Table 4. Compositional requirements of the proposed APVMA condition of approval for veterinary products containing malathion**

Chemical	Formulation type	
	EC*	DP
Malathion*	active constituent concentration	active constituent concentration <sup>^</sup>
Malaoxon	Max 0.1%	Max 0.1%
Isomalathion	Max 0.8%	Max. 2.5%
MeOOSPO	Max. 0.5%	Max. 0.5%
MeOSSPO	NR	NR

\*The topical solutions for the veterinary wash products are EC formulations

<sup>^</sup>For a DP formulation, a tolerance range for declared contents up to 100 g/kg is -10% to +25%, instead of the usual  $\pm 10\%$ .

The +25% tolerance used in this assessment reflects an allowable variation required to offset a significant degradation that may occur in freshly formulated material after storage.

- c. Section 5A(3)(a)(v) - the APVMA is satisfied that the conditions of registration can be varied to include the requirement for products to meet the product standard as follows:
  - i. Analysis results – the registrant must not supply the chemical product or cause it to be supplied unless the registrant has in its possession prior to the supply of each batch of the chemical product, batch analysis results that show the chemical product complied with the Agricultural and Veterinary Chemicals Code (Agricultural Active Constituents) Standards 2022 for that product.
- d. Section 5A(3)(a)(vi) – any relevant particulars that are, or would be, entered in the Register for the product. If the products are varied as follows the APVMA would be satisfied of the relevant particulars entered in the Register for each product.
  - i. The instructions for use entered in the Register can be varied to amend directions for use as outlined in the Malathion Review Technical report.
  - ii. The record can be varied to change the name of the active constituent from maldison to malathion.
- e. Section 5A(3)(a)(vii) – any matters prescribed by the regulations.
  - i. Where a veterinary chemical product does not comply with regulations 8AB(1)(b) and 8AB(1)(c), the APVMA is not satisfied with regards to the safety criteria.

**Consideration of whether the registered veterinary chemical products meet the efficacy criteria:**

- 55) Section 5B(1) of the Agvet Code provides that a chemical product meets the efficacy criteria if use of the product, in accordance with instructions approved, or to be approved, by the APVMA for the product or contained in an established standard, is, or would be, effective according to criteria determined by the APVMA by legislative instrument.
- 56) Section 5B(2) of the Agvet Code – in considering whether the APVMA is satisfied that the veterinary chemical products meets the efficacy criteria, the APVMA has had regard to the following:
- a. Section 5B(2)(a) - whether any trials or laboratory experiments have been carried out to determine the efficacy of the product and, if so, the results of those trials or experiments;
    - i. The APVMA has considered the assessments of previously submitted information which was relied on to support registration of the products and remains satisfied that the information provide supports that the products should be efficacious when used according to label directions.
  - b. Section 5B(2)(b) - any conditions to which its registration is, or would be, subject;
    - i. The products are not subject to any conditions which relate specifically to the efficacy of the products.
  - c. Section 5B(2)(c) any relevant particulars that are, or would be, entered in the Register for the product;
    - i. The APVMA is satisfied that the relevant particulars relevant to the efficacy of the product, entered in the register will remain correct following the outcome of the reconsideration.
  - d. Section 5B(2)(ca) whether the product conforms, or would conform, to any standard made for the product under section 6E to the extent that the standard relates to matters covered by subsection (1);
    - i. The APVMA is satisfied that there is no standard made under section 6E for the product for the purposes of being satisfied of the efficacy criteria.
  - e. Section 5B(2)(d) any matters prescribed by the regulations.
    - i. There are no regulations relating to the efficacy of malathion veterinary chemical products.
- 57) Having had regard to the matters in sections 5B(1) and 5B(2)(a) to(d), the APVMA is satisfied that malathion veterinary products considered here will be effective as claimed based on previous assessments of information provided for registration of those products and clause 6 of the Agricultural and Veterinary Chemicals Code (Efficacy Criteria) Determination 2014.

**Consideration of whether the registered veterinary chemical products meet the trade criteria:**

- 58) Section 5C(1) of the Agvet Code provides that a product meets the trade criteria if use of the product, in accordance with instructions approved, or to be approved, by the APVMA or contained in an established standard, does not, or would not, unduly prejudice trade or commerce between Australia and places outside Australia.
- 59) Section 5C(2) - in considering whether it is satisfied that the veterinary chemical products meet the trade criteria, the APVMA has had regard to the following:
- a. Section 5C(2)(a) any conditions to which its registration is, or would be, subject;
    - i. There are no conditions relating to the trade criteria for these veterinary chemical products.
  - b. Section 5C(2)(b) – any relevant particulars that are, or would be, entered in the Register for the product;
    - i. The APVMA is satisfied that the current withholding periods for poultry meat, eggs, livestock meat and milk remain appropriate for the veterinary uses as detailed in the Malathion Review Technical Report.
  - c. Section 5C(2)(ba) – whether the product conforms, or would conform, to any standard made for the product under section 6E to the extent that the standard relates to matters covered by subsection (1);

- i. The APVMA is satisfied that there is no standard made under section 6E for the product for the purposes of being satisfied of the trade criteria.
- d. Section 5C(2)(c) - Any matters prescribed by the regulations.
  - i. The APVMA is satisfied that there is no prescribed regulations relevant to the trade criteria for malathion veterinary products.
- 60) The APVMA is satisfied that the registered malathion veterinary chemical products currently meet the trade criteria for the reasons set out below:
  - a. the current instructions for use for malathion veterinary chemicals are either for animal housing treatment or treatment of individual animals and;
  - b. the current instructions for use include a withholding period for meat, milk and eggs which continues to be appropriate.

**Consideration of whether the registered veterinary chemical products meet any requirements prescribed by the regulations**

- 61) The particulars to be recorded for a registered chemical product are listed under regulation 16. Based on the information submitted with the application for registration of the product the current entries have been confirmed and no concerns have been raised as part of this reconsideration.
- 62) The conditions of registration for chemical products are detailed in regulation 17C. Additional conditions apply to the current product registrations as outlined in paragraph 52 above. The conditions that currently apply to these products remain appropriate.
- 63) The conditions of registration relating to the product containers are detailed in regulation 18. Based on the information submitted with the application for registration of the products, these remain appropriate and no additional container conditions are required.

**Conclusion of considerations of veterinary chemical products**

- 64) The APVMA is satisfied that the registered malathion veterinary chemical products listed in Attachment A meet the efficacy and trade criteria. The APVMA is not satisfied that those same products meet the safety criteria, however, under section 34A(1), the APVMA is satisfied that the relevant particulars of those product can be varied to allow affirmation (as varied) under section 34(1) of the Agvet Code.

## Veterinary chemical product label approvals

- 65) Section 34(1) of the Agvet Code provides that the APVMA must affirm the approval of a product label if, and only if, it is satisfied that the label:
- a. meets the labelling criteria
  - b. complies with any requirement prescribed by the regulations.

### **Consideration of whether the approved labels for veterinary chemical products meet the labelling criteria:**

- 66) Under section 5D(1) the APVMA must be satisfied that a label contains adequate instructions for use. The APVMA has considered whether the current approved labels for containers for malathion veterinary chemical products contain adequate instructions with consideration of the outcomes of the Malathion Review Technical Report and the current Veterinary Labelling Code as determined as follows:
- a. Section 5D(1)(a) - the APVMA is satisfied that the current uses listed on approved on veterinary chemical products containing malathion relating to the control of various ectoparasites on cats, dogs, cattle, horses, pigs and poultry and in animal housing can be supported.
  - b. Section 5D(1)(b) - the APVMA is not satisfied that the current labels contain sufficient information on how the product should be used for all of the use patterns on the labels.
  - c. Section 5D(1)(c) - the APVMA is satisfied that the current labels contain sufficient information on the times the product should be used. The products are to be applied to control pests when they are present which is appropriate for the nature of the pests.
  - d. Section 5D(1)(d) - the APVMA is satisfied that the current labels contain sufficient information on the frequency with which the product should be used and that these are acceptable.
  - e. Section 5D(1)(e) – the APVMA is satisfied that the current labels contain appropriate withholding periods when the product may result in residues in for livestock.
  - f. Section 5D(1)(f) - the APVMA is not satisfied that the current labels include sufficient information for the safe re-entry period or re-handling of animals following the use of the product.
  - g. Section 5D(1)(g) - the APVMA is not satisfied that the current labels include sufficient information for the disposal of product when it is no longer required.
  - h. Section 5D(1)(h) - the APVMA is satisfied that the current labels include sufficient information regarding the disposal containers of the product.
  - i. Section 5D(1)(i) - the APVMA is not satisfied that the current labels include sufficient information the safe handling of the product. The APVMA is satisfied that the products contain sufficient information on first aid in the event of an accident caused by the handling of the product;
  - j. Section 5D(1)(j) – In considering matters prescribed by the regulations, the APVMA has considered regulation 8AE as follows:
    - i. Regulation 8AE(1)(a) - the APVMA is satisfied that the duration of any treatment using the product remains appropriate.
    - ii. Regulation 8AE(1)(b) - the APVMA is satisfied that labels for products to be used on animals which may be traded between Australia and places outside Australia include sufficient information to address the risk to trade.
    - iii. Regulation 8AE(1)(c) - the APVMA is satisfied that the labels include the appropriate signal words required by the current Poisons Standard.
    - iv. Regulation 8AE(1)(d) - the APVMA is satisfied that as the products are date-controlled chemical products, the labels contain appropriate storage of containers for the product.

- v. Regulation 8AE(1)(e) there are no other matters determined by the APVMA CEO under regulation 8AE(2).
  - k. Section 5D(2)(a) - any conditions to which a label's approval is, or would be, subject
    - i. the label approvals are subject to the prescribed conditions for label approval (regulations 18B to 18J). The APVMA is satisfied that these conditions remain appropriate.
    - ii. As labels must include an expiry date under regulation 18D(1)(c) the APVMA is satisfied that a date of manufacture is not required for these labels (18D(1)(d)).
  - l. Section 5D(2)(b) - any relevant particulars and instructions that are, or would be, entered in the relevant APVMA file for the label
    - i. The APVMA is not satisfied that the relevant particulars in the register will remain unchanged. The APVMA proposes to vary the current label and issue a varied label
    - ii. The APVMA is not satisfied that previously approved labels contain sufficient information and therefore proposes to cancel all previously approved labels.
  - m. Section 5D(2)(c) - whether the label conforms, or would conform, to any standard made for the label under section 6E. Although there is standard for labels made under section 6E, regulation 18C requires that if a labelling standard has not been made by the APVMA then the label for veterinary chemical products should conform to the Veterinary Labelling code.
    - i. The APVMA is not satisfied that the current labels will conform to the Veterinary Labelling code when the name of the active constituent is varied to be malathion.
  - n. Section 5D(2)(d) - any matters prescribed by the regulations. There are no other matters prescribed by the regulations that are relevant to these products.
- 67) The APVMA is not satisfied that the approved labels for containers for registered malathion chemical products meet the labelling criteria for the reasons set out in paragraph 66 above.

**Consideration of whether the approved labels for registered veterinary chemical products can be varied in such a way as to meet the labelling criteria:**

- 68) Section 34A (1) of the Agvet Code provides that if the APVMA is not satisfied under section 34(1) but is satisfied that the relevant particulars or conditions of the approval can be varied in such a way as to allow the approval to be affirmed, the APVMA must vary the relevant particulars or conditions.
- 69) The APVMA has considered whether the relevant label particulars for malathion veterinary chemical products can be varied in such a way as to meet the labelling criteria as follows:
- a. Section 5D(1)(b) - the APVMA is satisfied that the current labels can be varied to contain sufficient information on how the product should be used for all of the use patterns on the labels as follows:
    - i. The directions for use for application to cattle and pigs can be varied on commercial labels to specify that the product should be applied by low pressure spray.
    - ii. The directions for use for application to horses can be varied to specify that the product once diluted can be applied via sponging or trigger pump spray
    - iii. Reference to treatment of 'Living areas' can be varied to refer to treatment of 'Animal housing and bedding' to clarify where the products should be used.
    - iv. The direction for use cats and dogs can be varied to specify that the product should be applied by sponging.
    - v. The direction for use for application to poultry by spray can be varied to specify that the product should be applied by trigger pump spray.

- vi. The directions for use can be varied to specify that animal bedding is to be treated using a trigger pump spray.
- vii. The directions for use for treatment of animal housing can be varied to specify spray application by manually pressurised hand wand or trigger pump spray.
- viii. The directions for use for treatment of mosquito and fly control can be varied to specify spray application by manually pressurised hand wand.
- ix. The critical comments for fly control can restrict the area for application to areas out of reach of children and livestock.
- x. The directions for use for mosquito control can be varied to exclude application directly to water by adding the restraint 'DO NOT apply directly to water' due to high toxicity of malathion to fish.
- xi. All commercial labels can be varied to include the following aquatic protection statement:

Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.
- xii. For products which include use patterns for mosquito and fly control, the label can be varied to include the following pollinator protection statement:

Toxic to bees. DO NOT spray if bees are feeding on flowering plants

- b. Section 5D(1)(f) - the APVMA is satisfied that the current labels can be varied to include sufficient information for the safe re-entry period or re-handling of animals following the use of the product by including the following restraints on the labels:
  - i. DO NOT allow children to enter treated animal housing or handle treated animal bedding for 3 full days after application.
  - ii. DO NOT allow children to handle companion animals treated with malathion for one hour after application.
  - iii. DO NOT allow entry into treated animal housing or handle treated animal bedding until spray has dried.
- c. Section 5D(1)(g) - the APVMA is satisfied that the current commercial labels can be varied to include sufficient information for the disposal of product when it is no longer required as follows:
  - i. Product labels can be varied to include the statement "Dispose of unused chemical in compliance with relevant local, state or territory government regulations".
- d. Section 5D(1)(i) - the APVMA is satisfied that the current labels can be varied to include sufficient information for the safe handling of the product as follows:
  - i. Dustable powders containing 20g/kg malathion or less can be varied to include the following safety directions on the label:

May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When using the product wear elbow-length chemical resistant gloves and a disposable dust mask. Wash hands after use. After each days use wash gloves and contaminated clothing.

- ii. EC 200 g/L or less in xylene 700 g/L or less with surfactant 100 g/L or less, are not suitable for domestic use. These product labels can be varied to include a statement "Not suitable for domestic use" in addition to the following safety directions:

Poisonous if swallowed. Will damage the eyes. Will irritate the nose, throat and skin. Avoid contact with eyes and skin. Do not inhale vapour. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container and preparing the product for use, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat, elbow length chemical resistant gloves, goggles and a disposable mist mask. If product gets in eyes, wash it out immediately with water. If product gets on

skin, immediately wash area with soap and water. Wash hands after use. After each day's use, wash gloves, goggles and contaminated clothing.

- iii. EC 500 g/L or less in liquid hydrocarbons 500 g/L or less with surfactant 60 g/L or less can be varied to include the following safety directions on the label:

Will damage the eyes. Will irritate the nose, throat and skin. Avoid contact with eyes and skin. Do not inhale vapour. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container and preparing the product for use, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat, elbow length chemical resistant gloves, goggles and a disposable mist mask. If applying by low pressure hand wand wear cotton overalls, over normal clothing, buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. If applying by backpack sprayer, wear cotton overalls, over normal clothing buttoned to the neck and wrist and elbow length chemical resistant gloves and a half facepiece respirator. If product in gets eyes, wash it out immediately with water. If product gets on skin, immediately wash area with soap and water. Wash hands after use. After each day's use, wash gloves, goggles and contaminated clothing.

- iv. EC 200 g/L or less for domestic use (home veterinary products) can be varied to include the following safety directions on the label:

Harmful if swallowed. Will irritate the eyes. Avoid contact with eyes. Do not inhale spray mist. When opening the container, preparing spray and using the prepared spray, wear rubber gloves. After use and before eating, drinking, or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves.

- e. Section 5D(2)(b) - the APVMA is satisfied that the relevant particulars in the register can be varied:

- i. As outlined in Paragraph 54 above.
- ii. To refer to the active constituent as malathion instead of maldison
- iii. To include the varied label number and cancel previous labels

- f. Section 5D(2)(c) - whether the label conforms, or would conform, to any standard made for the label under section 6E.

- i. The APVMA is satisfied that the label can be varied to conform with the Veterinary Labelling Code and updated to include variations made to the Register.

- 70) Section 34A (3) provides that if the variation would affect instructions for use on a label, the APVMA must not make the variation until it has consulted each co-ordinator designated for a jurisdiction and taken into account any recommendations made by the co-ordinators.

- a. the coordinators for each jurisdiction were consulted prior to the publishing of this proposed decision.

#### **Conclusion on consideration of the veterinary chemical product approved labels**

- 71) The APVMA is not satisfied that the approved labels listed in Attachment A meet the labelling criteria, but is satisfied under section 34A(1) that the labels can be varied in such a way as to allow affirmation (as varied) under section 34(1) of the Agvet Code.

#### **Conclusion of veterinary chemicals**

- 72) For the purposes of sections 34(1) and 34A(1) of the Agvet Code, and having regard to the matters set out above, the APVMA has determined that the APVMA is:

- a. not satisfied the registered veterinary chemical products containing malathion listed in Attachment A meet the safety criteria or trade criteria
- b. not satisfied the approved labels for containers for veterinary chemical products containing malathion listed in Attachment A meet the labelling criteria

- c. satisfied that the particulars of the registered veterinary chemical products containing malathion and associated label approvals listed in Attachment A can be varied as detailed in the proposed label at Attachment C to allow the label approvals and the chemical product registrations to be affirmed.
- d. Consequently, the APVMA proposes to:
  - i. VARY the relevant particulars of registration of veterinary chemical products containing malathion and the label approvals for those products listed in Attachment A, as set out in Attachment C; and then
  - ii. AFFIRM the listed veterinary chemical product registrations and the label approvals (as varied) in Attachment A.



## Attachment C: Sample malathion labels

### Agricultural chemical product sample labels

#### Malathion 1000 g/L emulsifiable concentrate – 62194

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
<b>Product name:</b>	Fyfanon 1000 EC Insecticide
<b>Constituent statement:</b>	1000 g/L malathion An anticholinesterase compound
<b>Mode of action:</b>	Group <b>1B</b> Insecticide
<b>Statement of claims:</b>	Controls adult mosquitoes, Queensland fruit fly and chewing and sucking insect pests of citrus, grape vines, lucerne, oilseed crops, ornamentals, pastures, peas, pome and stone fruits, tobacco and vegetables as specified in the Directions for use table.
<b>Net contents:</b>	5 L, 20 L
<b>Restrains:</b>	DO NOT apply directly to water. DO NOT use open mixing and loading systems for aerial application (use closed mixing and loading only). DO NOT use open cabs for air blast application. DO NOT use backpack ULV misters/cold foggers. SPRAY DRIFT RESTRAINTS: [See below]
<b>Other limitations:</b>	
<b>Withholding period:</b>	Cereals, rice, lucerne, pastures, forage crops: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 1 DAY AFTER APPLICATION. DO NOT HARVEST FOR 1 DAY AFTER APPLICATION. Canola (rapeseed), sunflower: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 3 DAYS AFTER APPLICATION. DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION. Fruit, vegetables: DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION.
<b>Trade advice:</b>	
<b>General instructions:</b>	Fyfanon is a contact insecticide and only partial control will be achieved if insects are protected from spray by dense foliage or if spray coverage is inadequate. All vehicles should be removed from areas to be sprayed as paintwork may be damaged. MIXING When mixing this product with water, good tank agitation must be maintained throughout the mixing and spraying operation. APPLICATION For high volume application on vegetables and row crops apply approximately 1000 litres of water/ha. For tree crops apply approximately 2000 litres of water/ha. Apply in high volume, low volume or through mister or aircraft spray equipment. Thorough uniform coverage is essential for effective insect control. This product may be diluted with diesel distillate and used through thermal fogging machines, or it can be applied undiluted by aircraft or suitable ground equipment designed for ultra-low volume application. COMPATIBILITY This product is compatible with summer spraying oil which may be added at a rate of 1.3 L/100 litres of water when recommended.
<b>Resistance warning:</b>	For insecticide resistance management Fyfanon 1000 EC Insecticide is a Group 1B insecticide. Some naturally occurring insect biotypes resistant to Fyfanon 1000 EC Insecticide and other Group 1B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Fyfanon 1000 EC Insecticide or other Group 1B insecticides are used repeatedly. The effectiveness of Fyfanon 1000 EC Insecticide on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use,

	<p>FMC Australasia Pty Ltd accepts no liability for any losses that may result from the failure of Fyfanon 1000 EC Insecticide to control resistant insects.</p> <p>Fyfanon 1000 EC Insecticide may be subject to specific resistance management strategies. For further information contact your local supplier, FMC Australasia Pty Ltd representative or local agricultural department agronomist.</p>
<b>Precautions:</b>	<p><b>RE-ENTRY PERIODS:</b></p> <p>DO NOT allow entry into treated areas until spray has dried.</p> <p>Fruiting vegetable crops: DO NOT enter for 1 day after application for irrigation, scouting, thinning and weeding.</p> <p>Leafy vegetable crops: DO NOT enter for 1 day after application for irrigation and scouting mature plants, hand harvesting and pruning.</p> <p>Field crops (low): DO NOT enter for 2 days after application for hand-set irrigation. Do not enter for 1 day after application for scouting, thinning and weeding.</p> <p>Grapes: DO NOT enter for 1 day after application for bird control, propagation, trellis repair and transplanting. DO NOT enter for 2 days after application for hand irrigation, hand pruning, hand weeding and scouting. DO NOT enter for 17 days after application for tying, training, leaf pulling and hand harvesting. DO NOT enter for 24 days after application for girdling and turning.</p> <p>Apples: DO NOT enter for 1 day after application for hand pruning, training, scouting, training, transplanting, orchard maintenance, propping and hand weeding. DO NOT enter for 8 days after application for hand harvesting. DO NOT enter for 17 days after application for thinning fruit.</p>
<b>Protection statements:</b>	<p><b>PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT</b></p> <p>Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.</p> <p><b>PROTECTION OF HONEYBEES AND OTHER INSECT POLLINATORS</b></p> <p>Toxic to bees. DO NOT apply to crops from the onset of flowering until flowering is complete. Do not apply or allow spray drift to flowering weeds, plants or crops in the vicinity of the treatment area, except when applications are made to prevent or control a threat to public and/or animal health determined by the relevant State or Territory authority. Before spraying, notify beekeepers to move hives to a safe location with an untreated source of nectar and pollen, if there is potential for managed hives to be affected by the spray or spray drift.</p> <p><b>PROTECTION OF LIVESTOCK</b></p> <p>DO NOT place treated grain bait for control of crickets in locations which are accessible which are accessible to domestic animals, livestock or birds. DO NOT feed treated grain to animals including poultry.</p>
<b>Storage and disposal:</b>	<p>Store below 30°C (room temperature). Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight.</p> <p>Triple-rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. Dispose of any unused chemical in compliance with relevant local, state or territory government regulations. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.</p>
<b>Safety directions:</b>	<p>Harmful if swallowed. Will irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container, preparing the spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and elbow length chemical resistant gloves and a face shield. When using the prepared spray, wear chemical resistant clothing buttoned to the neck and wrist and a washable hat, and elbow length chemical resistant gloves. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, face shield and contaminated clothing.</p>
<b>First Aid instructions:</b>	<p>If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre (Phone Australia 13 11 26, New Zealand 0800 764 766) or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed.</p>
<b>Date of manufacture and expiry date</b>	[INSERT HERE]

Directions for use:

Crop/situation	Pest	Rate	Critical comments
<b>Bowling and golf greens</b>	Argentine stem weevil ( <i>Hyperodes bonariensis</i> )	60 mL in 50 L water/100 m <sup>2</sup>	Lightly water grass after application.
<b>Canola</b>	Rutherglen Bug ( <i>Nysius vinitor</i> )	550 mL/ha	Apply by aircraft or ground equipment when the pest first appears and repeat as necessary. Do not apply more than 4 applications per season.
<b>Citrus</b>	Rutherglen Bug ( <i>Nysius vinitor</i> ) Thrips	60 mL/100 L water	Apply when pests first appear. Do not apply more than 4 applications per season.
	Bronze orange bug ( <i>Musgraveia sulciventris</i> ), Citrus aphid, Citrus butterfly, Spiny lemon bug, Tree hoppers		Apply when pests first appear. Do not apply more than 4 applications per season
	California red scale ( <i>Aonidiella aurantii</i> )	100 mL/100 L+ 1.3 L summer oil per 100 L water	For use in NSW, Vic, SA, WA & NT only. Apply November to March. Two applications, the first November to January and the second February to early March gives best results. Do not spray under hot conditions or when trees are under drought stress.
	Purple scale ( <i>Lepidosaphes beckii</i> ), Soft brown scale ( <i>Coccus hesperidum</i> )		For use in SA, NSW, Vic, Tas, WA & NT only. Apply November to March. Two applications, the first November to January and the second February to early March gives best results. Do not spray under hot conditions or when trees are under drought stress.
	Pink wax scale ( <i>Ceroplastes rubens</i> )		For use in SA, NSW, Vic, Tas, WA & NT only. Apply December to early January or when crawlers are active. Do not apply more than 4 applications per season.
<b>Cucurbits</b>	Pumpkin beetle ( <i>Aulacophora hilaris</i> )	60 to 100 mL/100 L water	Do not apply to melons or cucumbers when wet. In later growth stages of the crop increase rate and volume of cover. Do not apply more than 4 applications per season.
<b>Fruit fly lure control routine</b>	All fruit fly species EXCLUDING Mediterranean Fruit Fly	500 mL/100 L water	Use only in combination with the registered rate per 100 litres of water of a suitable product containing a yeast autolysate protein lure e.g. Pinnacle or Natflav. Do not apply mixtures of Fyfanon with the protein Flavax. Do not exceed the recommended rates of Fyfanon or these proteins as phytotoxicity may occur. Some crops may be prone to phytotoxicity induced by the proteins. The risk is increased during hot dry conditions and re-application of spray to the same parts of the plant. Apply bait within 4 hours of sunrise to avoid phytotoxicity. Apply the Fyfanon yeast autolysate lure to the foliage at the rate of 50 to 100 mL per tree using a coarse spray. Use the lower volume on smaller trees. Commence application at least 6 weeks before normal ripening of the fruit and repeat at 4-to-10-day intervals while fruit remains on trees. Use the longer spray interval when spraying during colder weather when fruit flies are less active. Heavy rain will wash the bait off foliage. Shorter application intervals will be necessary during warm wet weather. Spraying the mixture onto the foliage of other fruit trees in or around the orchard will assist in control. DO NOT apply bait to grass or other foliage. Avoid contact of the bait with fruit. DO NOT add other pesticides to the Fyfanon yeast autolysate protein mixture.
<b>Fruit fly lure control routine (citrus only)</b>		500 mL/100 L water or 15 to 20 L/ha	Mixing and spray timing as above. Apply as above OR at 15 to 20 L/ha total volume as a 30 cm band at skirt level of trees for area wide control. Some varieties of citrus may be susceptible to fruit damage from the spray and caution should be exercised prior to application to varieties not previously treated. As repetitive application to the same part of the tree may cause some phytotoxicity, alternate sides of the trees sprayed.
<b>Fruit fly lure eradication only</b>	All fruit fly species	990 mL/100 L water	Mixing as above. Apply 50 to 100 mL per tree for eradication purposes as a spot bait to every tree or every second tree in orchards in a fruit fly outbreak area. To avoid phytotoxicity bait should not be applied if the weather is excessively dry and hot. Where large fruit trees are treated it may be necessary to apply in several spots and up to 200 mL of bait per tree. Continue baiting for the period prescribed for the eradication in

Crop/situation	Pest	Rate	Critical comments
			the Code of Practice for the Management of Queensland Fruit Fly or equivalent document (prepared for the eradication of other fruit fly species). In urban areas 8 trees per household block should be spot sprayed with 50 to 100 mL of bait. To achieve successful eradication non-fruit trees and shrubs may need to be sprayed in order to achieve at least 100 spots/ha.
<b>Grapevines</b>	Grape vine scale ( <i>Parthenolecanium persicae</i> )	100 mL/100 L+ 1.3 L summer oil per 100 L water	For application during summer months if scale population increases. Do not apply more than 4 applications per season.
	Mealy bug	100 mL/100 L water	Apply when pest first appears. Do not apply more than 4 applications per season.
	Grapevine moth ( <i>Phalaenoides glycinae</i> )	60 mL/100 L water	
<b>Lucerne</b>	Black Field Cricket ( <i>Teleogryllus commodus</i> )	BAIT 125 mL/10 kg kibbled grain/ha Use clean wheat, barley or oats. Do not use dusty grain.	IMMATURE CRICKETS Mix in a drum or cement mixer. It is not necessary to leave treated grain standing to absorb Fyfanon as it is absorbed rapidly and can be used immediately after treatment. Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with Fyfanon 1000 EC Insecticide.
		BAIT 125 to 250 mL per 10 to 20 kg kibbled grain/ha. Use clean wheat, barley or oats. Do not use dusty grain.	MATURE CRICKETS Mix in a drum or cement mixer. It is not necessary to leave treated grain standing to absorb Fyfanon as it is absorbed rapidly and can be used immediately after treatment. Treated grain remains active for 4 to 6 weeks. Any excess grain therefore will be available to kill moderate numbers of re-invading crickets. Higher baiting rates (20 kg/ha) should be used where populations are dense, where plentiful alternative feed exists, or when the extra expense is considered a small premium to pay for greater certainty of control. Spread late in the afternoon or evening when early in the season, and in the morning late in the season. Baiting may fail if large quantities of pasture seed are present. Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with Fyfanon 1000 EC Insecticide.
	Black Field Cricket ( <i>Teleogryllus commodus</i> )	SPRAY 700 mL in 25 to 50 L water	Apply in the evening. Pasture cover must be low so that the chemical will have direct contact with the crickets. The method may fail if cold weather keeps crickets below the ground for a day or 2, or if rain falls after application. Do not apply more than 4 applications per season.
	Lucerne Flea ( <i>Sminthurus viridis</i> )	70 to 150 mL/ha	Rates vary according to stages of growth. For low volume application use sufficient water to give adequate cover at 3-to-4-week intervals after opening rains. Do not apply more than 4 applications per season.
	Spotted Alfalfa Aphid	550 mL/ha	Apply when insect appears. Use sufficient water to give thorough coverage. Do not apply more than 4 applications per season.
<b>Mosquito resting sites, breeding grounds</b>	Adult mosquitoes	300 mL/ha	Apply preferably at dusk without dilution through aircraft (helicopter) using ULV spray application equipment.
		Fogging 200 to 300 mL/ha	For areas of sparse cover use the lower rate. For areas of dense cover use the higher rate. COLD FOGGERS (Leco, Beeco): Use undiluted. THERMAL FOGGERS (Pulsfog, Swingfog): Use 200 to 300 mL/10 L of diluent per hectare. Diluents: Diesel distillate or power kerosene. Dilution rate depends on machine output, speed and swath width. Consult the operator manual for further details.
<b>Onions</b>	Onion thrip ( <i>Thrips tabaci</i> )	85 mL/100 L water	Apply at first sign of infestation. Repeat each 10 days or as necessary. Do not apply more than 4 applications per season.
<b>Ornamentals (flowers and shrubs)</b>	Aphids, Azalea lace bug ( <i>Stephanitis pyrioides</i> ), caterpillars, thrips	60 mL/100 L water	Apply when pest first appears and repeat if necessary.

Crop/situation	Pest	Rate	Critical comments
	Scale insects on hardy plants	100 mL/100 L+ 1.3 L summer oil per 100 L water	
Pastures (plus cereals and non-crop areas)	Black Field Cricket ( <i>Teleogryllus commodus</i> )	BAIT 125 mL/10 kg kibbled grain/ha. Use clean wheat, barley or oats. Do not use dusty grain.	IMMATURE CRICKETS: Mix in a drum or cement mixer. It is not necessary to leave treated grain standing to absorb Fyfanon as it is absorbed rapidly and can be used immediately after treatment. Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with Fyfanon 1000 EC Insecticide.
		BAIT 125 to 250 mL per 10 to 20 kg kibbled grain/ha. Use clean wheat, barley or oats. Do not use dusty grain.	MATURE CRICKETS Mix in a drum or cement mixer. It is not necessary to leave treated grain standing to absorb Fyfanon as it is absorbed rapidly and can be used immediately after treatment. Treated grain remains active for 4 to 6 weeks. Any excess grain therefore will be available to kill moderate numbers of re-invading crickets. Higher baiting rates (20 kg/ha) should be used where populations are dense, where plentiful alternative feed exists, or when the extra expense is considered a small premium to pay for greater certainty of control. Spread late in the afternoon or evening when early in the season, and in the morning late in the season. Baiting may fail if large quantities of pasture seed are present. Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with Fyfanon 1000 EC Insecticide.
		SPRAY 700 mL in 25 to 50 L water	Apply in the evening. Pasture cover must be low so that the chemical will have direct contact with the crickets. The method may fail if cold weather keeps crickets below the ground for a day or 2, or if rain falls after application. Do not apply more than 4 applications per season.
	Australian Plague Locust ( <i>Chortoicetes terminifera</i> ) Large Hoppers	850 mL/ha	GROUND APPLICATION ONLY BOOM: Apply in 110 L water/ha MISTING: Apply in 2.5 L water/ha. Repeat application as necessary. Do not apply more than 4 applications per season.
		1.1 L/ha	
	Plague Locust Small Hoppers	600 mL/ha	
1.1 L/ha			
Pastures (medic)	Spotted Alfalfa Aphid ( <i>Therioaphis trifolii</i> )	550 mL/ha	Apply when aphids appear. Use sufficient water to ensure thorough coverage. Do not apply more than 4 applications per season.
Field peas	Pea weevil ( <i>Bruchus pisorum</i> )	625 mL/ha	Spray when first flowers begin to wither. Do not add water. Use undiluted through calibrated spray equipment designed for ultra-low volume application.
Pome fruit (apples & pears)	Apple leaf hopper ( <i>Typhlocyba froggatti</i> ), Codling moth ( <i>Cydia pomonella</i> ), Thrips, Woolly aphid ( <i>Eriosoma lanigerum</i> )	60 mL/100 L water	Apply when pests first appear or apply every 10 to 14 days from 2 weeks after full bloom. Wet trees thoroughly. Do not apply more than 4 applications per season.
Rice	Rice Bloodworm larvae ( <i>Chironomus tepperi</i> )	300 mL/ha	Premix in at least an equal volume of water and apply the product in 10 to 30 litres of water per hectare by aircraft to rice bays at sowing time or within 24 hours of sowing or when infestations occur after the application of permanent water. Do not apply more than 4 applications per season.
Rice seed		Apply 300 mL to the quantity of seed required to sow one hectare.	Apply only to pregerminated rice seed prior to aerial sowing. Dilute the 300 mL of product in 750 mL to 1 litre of water. Just prior to sowing pour the diluted solution evenly over the pregerminated rice seed in the aircraft hopper or in the hopper of the aircraft loading auger. Ensure thorough mixing. Do not sow treated seed outside the boundaries of the flooded rice field. Treated seed must not be used for human and/or animal consumption.

Crop/situation	Pest	Rate	Critical comments
Stone fruit	Black cherry aphid, Black peach aphid ( <i>Brachycaudus persicae</i> ), Green peach aphid ( <i>Myzus persicae</i> ), Oriental fruit moth ( <i>Cydia molesta</i> )	60 mL/100 L water	Apply when pest first appears or apply every 10 to 14 days from blossoming. Wet trees thoroughly. Do not apply more than 4 applications per season.
Sunflower	Rutherglen Bug ( <i>Nysius vinitor</i> )	550 mL/ha	Spray at bud stage for Sunflowers. Apply by aircraft or with suitable ground equipment. Do not apply more than 4 applications per season.
Tobacco (field, seed bed)	Small plague grasshoppers ( <i>Austroicetes cruciata</i> ) Vegetable weevil ( <i>Listroderes obliquus</i> )	50 mL/100 L water	Apply when pest first appears and repeat if necessary. Do not apply more than 4 applications per season.
Tomatoes	Tomato russet mite ( <i>Aculops lycopersici</i> )	60 to 100 mL/100 L water	Apply when pest first appears. Adequate coverage is essential in later growth stages of these crops and rate and volume should be increased to give additional cover. Do not apply more than 4 applications per season.
Vegetables (beans, cabbage, carrots, cauliflowers, celery, lettuce, tomatoes)	Aphids, Cabbage moth ( <i>Plutella xylostella</i> ), Cabbage white butterfly ( <i>Pieris rapae</i> ), Green vegetable bug ( <i>Nezara viridula</i> ), Jassids, Leaf hoppers, Rutherglen bug ( <i>Nysius vinitor</i> ), Thrips		

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

#### SPRAY DRIFT RESTRAINTS

Specific definitions for terms used in this section of the label can be found at [apvma.gov.au/spraydrift](http://apvma.gov.au/spraydrift)

DO NOT allow bystanders to come into contact with the spray cloud.

DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. The buffer zones in the relevant buffer zone table/s below may not be sufficient in all situations. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.

DO NOT apply unless the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application.

DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. These conditions exist most evenings 1 to 2 hours before sunset and persist until 1 to 2 hours after sunrise.

#### Buffer zones for boom sprayers

DO NOT apply by a boom sprayer unless the following requirements are met:

- spray droplets not smaller than a MEDIUM spray droplet size category
- minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for boom sprayers') are observed.

## Buffer zones for boom sprayers

Application rate	Boom height above the target canopy	Mandatory buffer zones				
		Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
6 L/ha	0.5 m or lower	0 metres	55 metres	55 metres	0 metres	0 metres
	1.0 m or lower	0 metres	160 metres	160 metres	0 metres	0 metres
1.1 L/ha	0.5 m or lower	0 metres	15 metres	15 metres	0 metres	0 metres
	1.0 m or lower	0 metres	50 metres	45 metres	0 metres	0 metres
850 mL/ha	0.5 m or lower	0 metres	10 metres	10 metres	0 metres	0 metres
	1.0 m or lower	0 metres	40 metres	40 metres	0 metres	0 metres
640 mL/ha	0.5 m or lower	0 metres	10 metres	5 metres	0 metres	0 metres
	1.0 m or lower	0 metres	30 metres	30 metres	0 metres	0 metres
Up to 600 mL/ha (85 mL/100L at 750 L/ha)	0.5 m or lower	0 metres	10 metres	5 metres	0 metres	0 metres
	1.0 m or lower	0 metres	30 metres	30 metres	0 metres	0 metres
150 mL/ha	0.5 m or lower	0 metres	0 metres	0 metres	0 metres	0 metres
	1.0 m or lower	0 metres	10 metres	10 metres	0 metres	0 metres
70 mL/ha	0.5 m or lower	0 metres	0 metres	0 metres	0 metres	0 metres
	1.0 m or lower	0 metres	0 metres	0 metres	0 metres	0 metres

## Buffer zones for aircraft

DO NOT apply by aircraft unless the following requirements are met:

- spray droplets not smaller than a MEDIUM spray droplet size category
- for maximum release heights above the target canopy of 3 m or 25% of wingspan or 25% of rotor diameter whichever is the greatest, minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for aircraft') are observed.

## Buffer zones for aircraft

Application rate	Aircraft type	Mandatory buffer zones				
		Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
550 mL/Ha	Fixed wing	0 metres	120 metres	120 metres	0 metres	0 metres
	Helicopter	0 metres	90 metres	90 metres	0 metres	0 metres
300 mL/ha	Fixed wing	0 metres	75 metres	75 metres	0 metres	0 metres
	Helicopter	0 metres	60 metres	60 metres	0 metres	0 metres
150 mL/ha	Fixed wing	0 metres	40 metres	35 metres	0 metres	0 metres
	Helicopter	0 metres	40 metres	40 metres	0 metres	0 metres
70 mL/ha	Fixed wing	0 metres	15 metres	15 metres	0 metres	0 metres
	Helicopter	0 metres	20 metres	20 metres	0 metres	0 metres

## Buffer zones for vertical sprayers

DO NOT apply by a vertical sprayer unless the following requirements are met:

spray is not directed above the target canopy

the outside of the sprayer is turned off when turning at the end of rows and when spraying the outer row on each side of the application site

for dilute water rates up to the maximum listed for each type of canopy specified, minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for vertical sprayers') are observed.

## Buffer zones for vertical sprayers

Type of target canopy and dilute water rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
<b>Up to 100 mL/100 L in citrus</b>					
2 metres tall and smaller, maximum dilute water rate of 1000 L/ha	0 metres	10 metres	10 metres	0 metres	0 metres
Taller than 2 metres (not fully foliated), maximum dilute water rate of 4000 L/ha	0 metres	40 metres	40 metres	0 metres	0 metres
Taller than 2 metres (fully foliated), maximum dilute water rate of 4000 L/ha	0 metres	30 metres	30 metres	0 metres	0 metres
<b>100 mL/100 L in cucurbits, grapevines, ornamentals and vegetables</b>					



All	0 metres	10 metres	10 metres	0 metres	0 metres
<b>60 mL/100 L in pome fruit and stone fruit</b>					
<b>2 metres tall and smaller, maximum dilute water rate of 1000 L/ha</b>	0 metres	5 metres	5 metres	0 metres	0 metres
<b>Taller than 2 metres (not fully foliated), maximum dilute water rate of 1500 L/ha</b>	0 metres	20 metres	20 metres	0 metres	0 metres
<b>Taller than 2 metres (fully foliated), maximum dilute water rate of 1500 L/ha</b>	0 metres	15 metres	15 metres	0 metres	0 metres
<b>Up to 60 mL/100 L in cucurbits, grapevines, ornamentals, tomatoes, tobacco fields and vegetables</b>					
All	0 metres	5 metres	5 metres	0 metres	0 metres

Buffer zones for ULV application (by Helicopter only)

DO NOT apply by Helicopter unless the following conditions are observed:

- a minimum droplet size of Very Fine
- the release height is not greater than 4 metres above the ground
- minimum distances between the application site and downwind sensitive areas that appear in the 'Mandatory buffer zones' section of the table titled 'Buffer zones for ULV application by fixed-wing aircraft' below.

Buffer zones for ULV application (Helicopter only)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
300 mL/ha	0 metres	110 metres	105 metres	0 metres	0 metres

Buffer zones for foggers, misters and ULV (ground application)

DO NOT apply by foggers, misters or ground ULV equipment unless the following conditions are observed:

- the release height is not greater than 2 metres above the ground
- minimum distances between the application site and downwind sensitive areas that appear in the 'Mandatory buffer zones' section of the table titled 'Buffer zones for foggers (ground application)', 'Buffer zones for misters (ground application)' and 'Buffer zones for ULV (ground application)' below.

Buffer zones for foggers (ground application)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
300 mL/ha	0 metres	40 metres	40 metres	0 metres	0 metres

## Buffer zones for misting (ground application)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
1100 mL/ha	0 metres	165 metres	160 metres	0 metres	0 metres
850 mL/ha	0 metres	130 metres	130 metres	0 metres	0 metres

## Buffer zones for ULV (ground application)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
625 mL/ha	0 metres	100 metres	95 metres	0 metres	0 metres

**Malathion 1150 g/L Emulsifiable Concentrate – 48992**

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
<b>Product name:</b>	HY-MAL Insecticide
<b>Constituent statement:</b>	1150 g/L malathion An anticholinesterase compound
<b>Mode of action:</b>	Group <b>1B</b> Insecticide
<b>Statement of claims:</b>	Controls adult mosquitoes, Queensland fruit fly and chewing and sucking insect pests of citrus, grape vines, lucerne, oilseed crops, ornamentals, pastures, peas, pome and stone fruits, rice, tobacco and vegetables as specified in the Directions for Use table.
<b>Net contents:</b>	5 L, 20 L
<b>Restrains:</b>	DO NOT apply directly to water. DO NOT use open mixing and loading systems for aerial application (use closed mixing and loading only). DO NOT use open cabs for air blast application. DO NOT use backpack ULV misters/ cold foggers. SPRAY DRIFT RESTRAINTS [See below]
<b>Directions for use:</b>	[See below]
<b>Other limitations:</b>	
<b>Withholding period:</b>	Cereals, rice, lucerne, pastures, forage crops: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 1 DAY AFTER APPLICATION. DO NOT HARVEST FOR 1 DAY AFTER APPLICATION. Canola (rapeseed), sunflower: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 3 DAYS AFTER APPLICATION. DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION. Fruit, vegetables: DO NOT HARVEST FOR 3 DAYS AFTER APPLCIATION
<b>Trade advice:</b>	
<b>General instructions:</b>	MIXING When mixing this product with water, good tank agitation must be maintained throughout the mixing and spraying operation. APPLICATION For high volume application on vegetables and row crops apply approximately 1000 litres of water/ha. For tree crops apply approximately 2000 litres of water/ha. Apply in high volume, low volume or through mister or aircraft spray equipment. Thorough uniform coverage is essential for effective insect control. This product may be diluted with diesel distillate and used through thermal fogging machines, or it can be applied undiluted by aircraft or suitable ground equipment designed for ultra-low volume application. COMPATIBILITY This product is compatible with summer spraying oil which may be added at a rate of 1.3 L/100 litres of water when recommended.
<b>Resistance warning:</b>	For insecticide resistance management HY-MAL Insecticide is a Group 1B insecticide. Some naturally occurring insect biotypes resistant to HY-MAL Insecticide and other Group 1B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if HY-MAL Insecticide or other Group 1B insecticides are used repeatedly. The effectiveness of HY-MAL Insecticide on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Nufarm Australia Limited accepts no liability for any losses that may result from the failure of HY-MAL Insecticide to control resistant insects. HY-MAL Insecticide may be subject to specific resistance management strategies. For further information contact your local supplier, Nufarm Australia Limited representative or local agricultural department agronomist.
<b>Precautions:</b>	RE-ENTRY PERIODS: DO NOT allow entry into treated areas until spray has dried. Fruiting vegetable crops: DO NOT enter for 1 day after application for irrigation, scouting, thinning and weeding. Leafy vegetable crops: DO NOT enter for 1 day after application for irrigation and scouting mature plants, hand harvesting and pruning.

	<p>Field crops (low): DO NOT enter for 2 days after application for hand-set irrigation. Do not enter for 1 day after application for scouting, thinning and weeding.</p> <p>Grapes: DO NOT enter for 1 day after application for bird control, propagation, trellis repair and transplanting. DO NOT enter for 2 days after application for hand irrigation, hand pruning, hand weeding and scouting. DO NOT enter for 17 days after application for tying, training, leaf pulling and hand harvesting. DO NOT enter for 24 days after application for girdling and turning.</p> <p>Apples: DO NOT enter for 1 day after application for hand pruning, training, scouting, training, transplanting, orchard maintenance, propping and hand weeding. DO NOT enter for 8 days after application for hand harvesting. DO NOT enter for 17 days after application for thinning fruit.</p>
<b>Protection statements:</b>	<p><b>PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT</b></p> <p>Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.</p> <p><b>PROTECTION OF HONEYBEES AND OTHER INSECT POLLINATORS</b></p> <p>Toxic to bees. DO NOT apply to crops from the onset of flowering until flowering is complete. Do not apply or allow spray drift to flowering weeds, plants or crops in the vicinity of the treatment area, except when applications are made to prevent or control a threat to public and/or animal health determined by the relevant State or Territory authority. Before spraying, notify beekeepers to move hives to a safe location with an untreated source of nectar and pollen, if there is potential for managed hives to be affected by the spray or spray drift.</p> <p><b>PROTECTION OF LIVESTOCK</b></p> <p>DO NOT place treated grain bait for control of crickets in locations which are accessible which are accessible to domestic animals, livestock or birds. DO NOT feed treated grain to animals including poultry.</p>
<b>Storage and disposal:</b>	<p>Store below 30°C (room temperature). Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight.</p> <p>Triple-rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. Dispose of any unused chemical in compliance with relevant local, state or territory government regulations. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.</p>
<b>Safety directions:</b>	<p>Harmful if swallowed. Will irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container, preparing the spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and elbow length chemical resistant gloves and a face shield. When using the prepared spray, wear chemical resistant clothing buttoned to the neck and wrist and a washable hat, and elbow length chemical resistant gloves. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash glove, face shields and contaminated clothing.</p>
<b>First Aid instructions:</b>	<p>If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre (Phone Australia 13 11 26, New Zealand 0800 764 766) or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed.</p>
<b>Date of manufacture and expiry date</b>	[INSERT HERE]

## Directions for use:

Crop/situation	Pest	Rate	Critical comments
<b>Bowling and golf greens</b>	Argentine stem weevil ( <i>Hyperodes bonariensis</i> )	55 mL in 50 L water/100 square metres	Lightly grass after application.
<b>Canola</b>	Rutherglen Bug ( <i>Nysius vinitor</i> )	500 mL/ha	Apply by aircraft or ground equipment when the pest first appears and repeat as necessary. Do not apply more than 4 applications per season.

<b>Citrus</b>	Rutherglen bug ( <i>Nysius vinitor</i> <i>Thrips</i> )	55 mL/100 L water	Apply when pests first appear. Do not apply more than 4 applications per season.
	Bronze orange bug ( <i>Musgraveia</i> <i>sulciventris</i> ), Citrus aphid, Citrus butterfly, Spiny lemon bug, Tree hoppers		Apply when pests first appear. Do not apply more than 4 applications per season.
	California red scale ( <i>Aonidella aurantii</i> )	90 mL/100 L+ 1.3 L summer oil per 100 L water	Apply November- March. Two applications, the first November - January and the second February to early March gives best results. Do not spray under hot conditions or when trees are under drought stress. NSW, Vic, SA, WA & NT only
	Purple scale ( <i>Lepidosaphes</i> <i>beckii</i> ), Soft brown scale ( <i>Coccus</i> <i>hesperidum</i> )		Apply November- March. Two applications, the first November - January and the second February - early March gives best results. Do not spray under hot conditions or when trees are under drought stress. For use in SA, NSW, Vic, Tas, WA & NT only.
	Pink wax scale ( <i>Ceroplastes rubens</i> )		Apply December to early January or when crawlers are active. Do not apply more than 4 applications per season. SA, NSW, Vic, Tas, WA & NT only.
<b>Cucurbits</b>	Pumpkin beetle ( <i>Aulacophorahilaris</i> )	55 to 90 mL/100 L water	Do not apply to melons or cucumbers when wet. In later growth stages of the crop increase rate and volume of cover. Do not apply more than 4 applications per season.
<b>Fruit Fly lure control routine</b>	All fruit fly species excluding Mediterranean Fruit Fly	435 mL/100 L water	Use only in combination with the registered rate per 100 litres of water of a suitable product containing a yeast autolysate protein lure e.g. Pinnacle®, or Natflav®. Do not apply mixtures of HY-MAL with the protein Flavax®.  Do not exceed the recommended rates of HY-MAL or these proteins as phytotoxicity may occur. Some crops may be prone to phytotoxicity induced by the proteins. The risk is increased during hot dry conditions and re-application of spray to the same parts of the plant. Apply bait within 4 hours of sunrise to avoid phytotoxicity. Apply the HY-MAL yeast autolysate lure to the foliage at the rate of 50 to 100 mL per tree using a coarse spray. Use the lower volume on smaller trees. Commence application at least 6 weeks before normal ripening of the fruit and repeat at 4-to-10-day intervals while fruit remains on trees. Use the longer spray interval when spraying during colder weather when fruit flies are less active. Heavy rain will wash the bait off foliage. Shorter application intervals will be necessary during warm wet weather.  Spraying the mixture onto the foliage of other fruit trees in or around the orchard will assist in control. DO NOT apply bait to grass or other foliage. Avoid contact of the bait with fruit DO NOT add other pesticides to the HY-MAL/yeast autolysate protein mixture.
<b>Fruit Fly lure control routine (citrus only)</b>		435 mL/100 L water	Mixing and spray timing as above. Apply as above or at 15 to 20 L/ha total volume as a 30 cm band at skirt level of trees for area wide control.  Some varieties of citrus may be susceptible to fruit damage from the spray and caution should be exercised prior to application to varieties not previously treated. As repetitive application to the same part of the tree may cause some phytotoxicity, alternate sides of the trees sprayed.
<b>Fruit Fly lure eradication only</b>	All fruit fly species	870 mL/100 L water	Mixing as above. Apply 50 to 100 mL per tree for eradication purposes as a spot bait to every tree or every second tree in orchards in a fruit fly outbreak area. To avoid phytotoxicity bait should not be applied if the weather is excessively dry and hot.

			<p>Where large fruit trees are treated it may be necessary to apply in several spots and up to 200 mL of bait per tree. Continue baiting for the period prescribed for eradication in the Code of Practice for the Management of Queensland Fruit Fly or equivalent document (prepared for the eradication of other fruit fly species).</p> <p>In urban areas 8 trees per household block should be spot sprayed with 50 to 100 mL of bait. To achieve successful eradication non-fruit trees and shrubs may need to be sprayed in order to achieve at least 100 spots/ha.</p>
<b>Grapevines</b>	Grape vine scale ( <i>Parthenolecanium persicae</i> )	90 mL/100 L+ 1.3 L summer oil per 100 L water	For application during summer months if scale population increases. Do not apply more than 4 applications per season.
	Mealy bug	90 mL/100 L water	Apply when the pest first appears. Do not apply more than 4 applications per season.
	Grapevine moth ( <i>Phelaenoides glycinae</i> )	55 mL/100 L water	Apply when the pest first appears. Do not apply more than 4 applications per season.
	Fruit fly (all species)	BAIT SPRAY 435 mL+ recommended rate of yeast autolysate protein lure/100 L water	<p>Prepare a bait solution by mixing 435 mL per 100 L water plus the recommended rate of yeast autolysate protein lure (e.g. Pinnacle or Natflav). Apply prepared bait at 15 to 20 L per hectare.</p> <p>Wine grapes and table grapes: Apply as a spot spray to the top third of trellis posts. Avoid contact of the prepared bait with foliage or fruit. DO NOT apply mixtures of HY-MAL with the protein Flavax. Avoid spraying in windy weather that may cause drift onto fruit. Commence application at least 6 weeks before normal ripening of the fruit and repeat at 4 to 10-day intervals while fruit remains on the plants. Use longer spray interval when spraying during cold weather when fruit fly is less active. Shorter intervals will be necessary during warm wet weather. Heavy rain will wash bait off foliage.</p> <p>Phytotoxicity precautions: To avoid phytotoxicity, bait should not be applied if the weather is excessively dry and hot and avoid re-application of the spray to the same locations on the plants.</p> <p>The sensitivity of all varieties of the crops to be treated under this permit has not been fully evaluated. It is advisable, therefore, to only treat a small number of plants to ascertain their reaction before treating the whole crop. Yeast protein (yeast autolysate protein) can cause leaf and fruit phytotoxicity - necrosis of leaf and fruit tissue.</p>

<b>Table grapes</b>	Qld Fruit Fly Mediterranean Fruit Fly	55 mL/100 L	<p>Spray to the point of run-off. As evidenced by visual inspection or by Cue lure traps within the vineyard, apply when pest first appears and repeat as required. DO NOT exceed a maximum of 3 applications per crop with at least 7-10 days between consecutive applications. DO NOT spray any plants in flower while bees are foraging.</p> <p>Phytotoxicity precautions:</p> <p>To avoid phytotoxicity, bait should not be applied if the weather is excessively dry and hot and avoid re-application of the spray to the same locations on the plants.</p> <p>The sensitivity of all varieties of the crops to be treated under this permit has not been fully evaluated. It is advisable, therefore, to only treat a small number of plants to ascertain their reaction before treating the whole crop.</p> <p>Yeast protein (yeast autolysate protein) can cause leaf and fruit phytotoxicity - necrosis of leaf and fruit tissue.</p>
<b>Lucerne</b>	Black Field Cricket ( <i>Teleogryllus commodus</i> )	BAIT 110 mL/10 kg kibbled grain/ha. Use clean wheat, barley or oats. Do not use dusty grain.	<b>IMMATURE CRICKETS</b> Mix in a drum or cement mixer. It is not necessary to leave treated grain standing to absorb HY-MAL as it is absorbed rapidly and can be used immediately after treatment. Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with HY-MAL Insecticide.
		BAIT 110 to 220 mL per 10 to 20 kg whole or kibbled grain/ha. Use clean wheat, barley or oats. Do not use dusty grains.	<b>MATURE CRICKETS:</b> Mix in a drum or cement mixer. It is not necessary to leave treated grain standing to absorb HY-MAL as it is absorbed rapidly and can be used immediately after treatment. Treated grain remains active for 4 to 6 weeks. Any excess grain therefore will be available to kill moderate numbers of re-invading crickets. Higher baiting rates (20 kg per ha) should be used where populations are dense, where plentiful alternative feed exists, or when the extra expense is considered a small premium to pay for greater certainty of control. Spread late in afternoon and evening early in the season and the morning late in the season. Baiting may fail if large quantities of pasture seed are present. Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with HY-MAL Insecticide.
		SPRAY 610 mL in 25 to 50 L water	Apply in the evening. Pasture cover must be low so that the chemical will have direct contact with the crickets. The method may fail if cold weather keeps crickets below the ground for a day or 2, or if rain falls after application. Do not apply more than 4 applications per season.
	Lucerne Flea ( <i>Sminthuros viridis</i> )	60 to 130 mL/ha	Rates vary according to stages of growth. For low- volume application use sufficient water to give adequate cover at 3 to 4-week intervals after opening rains. Do not apply more than 4 applications per season.
	Spotted Alfalfa Aphid	500 mL/ha	Apply when insect appears. Use sufficient water to give thorough coverage. Do not apply more than 4 applications per season.
<b>Mosquito resting sites, breeding ground</b>	Adult mosquitoes	300 mL/ha	Apply preferably at dusk without dilution through aircraft using ULV spray application equipment.
		FOGGING 200 to 300 mL/ha	For areas of sparse cover use the lower rate. For areas of dense cover use the higher rate. Cold foggers (Leco, Beeco): Use undiluted. Thermal foggers (Pulsfog, Swing fog): Use 200 to 300 mL/10 L of diluent/hectare. Diluents: Diesel distillate or power kerosene. Dilution rate depends on machine output, speed and swath width. Consult the operator manual for further details.

<b>Onions</b>	Onion thrip ( <i>Thrips fabaci</i> )	75 mL/100 L water	Apply at first sign of infestation. Repeat each 10 days or as necessary. Do not apply more than 4 applications per season.
<b>Ornamentals (flowers and Shrubs)</b>	Aphids, Azalea lace bug ( <i>Sfephantitis pyroides</i> ) Caterpillars Thrips	55 mL/100 L water	Apply when pest first appears and repeat if necessary.
	Scale insects on hardy plan	90 mL/100 L+ 1.3 L summer oil per 100 L water	
<b>Passionfruit</b>	All fruit fly species	BAIT SPRAY 435 mL+ recommended rate of yeast autolysate protein lure/100 L water	<p>Prepare a bait solution by mixing 435 mL per 100 L water plus the recommended rate of yeast autolysate protein lure (e.g. Pinnacle or Natflav).</p> <p>Apply prepared bait via foliar spot or strip spray at 15 to 20L per hectare. Apply as a skirt spray targeting plant foliage avoiding contact of prepared batt with fruit.</p> <p>Phytotoxicity precautions: To avoid phytotoxicity, bait should not be applied if the weather is excessively dry and hot and avoid re-application of the spray to the same locations on the plants.</p> <p>The sensitivity of all varieties of the crops to be treated under this permit has not been fully evaluated. It is advisable, therefore, to only treat a small number of plants to ascertain their reaction before treating the whole crop.</p> <p>Yeast protein (yeast autolysate protein) can cause leaf and fruit phytotoxicity – necrosis of leaf and fruit tissue.</p>
<b>Pastures (plus cereals and non-crop areas)</b>	Black Field Cricket ( <i>Teleogryllus commodus</i> )	BAIT 110 mL/10 kg kibbled grain/ha. Use clean wheat, barley or oats. Do not use dusty grain.	<p>IMMATURE CRICKETS: Mix in a drum or cement mixer. It is not necessary to leave treated grain standing to absorb HY-MAL as it is absorbed rapidly and can be used immediately after treatment.</p> <p>Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with HY-MAL Insecticide.</p>
		BAIT 110 to 220 mL per 10 to 20 kg whole or kibbled grain/ha. Use clean wheat, barley or oats. Do not use dusty grain.	<p>MATURE CRICKETS: Mix in a drum or cement mixer. It is not necessary to leave treated grain standing to absorb HY-MAL as it is absorbed rapidly and can be used immediately after treatment. Treated grain remains active for 4 to 6 weeks. Any excess grain therefore will be available to kill moderate numbers of re-invading crickets.</p> <p>Higher baiting rates (20 kg per ha) should be used where populations are dense, where plentiful alternative feed exists, or when the extra expense is considered a small premium to pay for greater certainty of control. Spread late in the afternoon and evening early in the season and the morning late in the season. Baiting may fail if large quantities of pasture seed are present.</p> <p>Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with HY-MAL Insecticide.</p>
	Black Field Cricket ( <i>Teleogryllus commodus</i> )	SPRAY 610 mL in 25 to 50 L water	Apply in the evening. Pasture cover must be low so that the chemical will have direct contact with the crickets. The method may fail if cold weather keeps crickets below the ground for a day or if rain falls after application. Do not apply more than 4 applications per season.
	Australian Plague Locust ( <i>Chortoicetes terminifera</i> ) Large Hoppers	750 mL/ha	GROUND APPLICATION ONLY BOOM: Apply in 110 L water/ha



		950 mL/ha	MISTING: Apply in 2.5 L water/ha. Repeat application as necessary. Do not apply more than 4 applications per season.
	Plague Locust Small Hoppers	520 mL/ha	
		950 mL/ha	
<b>Pastures (Medic)</b>	Spotted Alfalfa Aphid ( <i>Therioaphis trifolii</i> )	500 mL/ha	Apply when aphids appear. Use sufficient water to ensure thorough coverage. Do not apply more than 4 applications per season.
<b>Field Peas</b>	Pea Weevil ( <i>Bruchus pisorum</i> )	550 mL/ha	Spray when first flowers begin to wither. Do not add water. Use undiluted through calibrated spray equipment designed for ultra-low volume application.
<b>Pome Fruit (Apples &amp; Pears)</b>	Apple leaf hopper ( <i>Typhlocyba froggatii</i> ), Codling moth ( <i>Cydia pomonella</i> ), Thrips, Woolly aphid ( <i>Eriosoma lanigerum</i> )	55 mL/100 L water	Apply when pests first appear or apply every 10 to 14 days from 2 weeks after full bloom. Wet trees thoroughly. Do not apply more than 4 applications per season.
<b>Rice</b>	Rice Bloodworm larvae ( <i>Chironomus tepperi</i> )	260 mL/ha	Premix in at least an equal volume of water and apply the product in 10 to 30 litres of water per hectare by aircraft to rice bays at sowing time or within 24 hours of sowing or when infestations occur after the application of permanent water. Do not apply more than 4 applications per season.
<b>Rice Seed</b>		Apply 260 mL to the quantity of seed required to sow one hectare	Apply only to pre germinated rice seed prior to aerial sowing. Dilute the 260 mL of product in 750 mL to 1 litre of water. Just prior to sowing pour the diluted solution evenly over the pre germinated rice seed in the aircraft hopper or in the hopper of the aircraft loading auger. Ensure thorough mixing. Do not sow treated seed outside the boundaries of the flooded rice field. Treated seed must not be used for human and/or animal consumption.
<b>Stone Fruit</b>	Black cherry aphid, Black peach aphid ( <i>Brachycaudus persicae</i> ), Green peach aphid ( <i>Myzus persicae</i> ), Oriental fruit moth ( <i>Cydia molesta</i> )	55 mL/100 L water	Apply when pest first appears or apply every 10 to 14 days from blossoming. Wet trees thoroughly. Do not apply more than 4 applications per season.
<b>Sunflower</b>	Rutherglen Bug ( <i>Nysius vinitor</i> )	500 mL/ha	Spray at bud stage for Sunflowers. Apply by aircraft or with suitable ground equipment. Do not apply more than 4 applications per season.
<b>Tobacco (field and seed bed)</b>	Small plague grasshoppers ( <i>Austroicetes cruciata</i> ), Vegetable weevil ( <i>Listroderes obliquus</i> )	45 mL/100 L water	Apply when pest first appears and repeat if necessary. Do not apply more than 4 applications per season.
<b>Tomatoes</b>	Tomato russet mite ( <i>Aculops lycopersici</i> )	55 to 90 mL/100 L water	Apply when pest first appears. Adequate coverage is essential in later growth stages of these crops and rate and volume should be increased to give additional cover. Do not apply more than 4 applications per season.

<b>Vegetables (Beans, cabbage, Carrots, Cauliflowers, Celery, Lettuce, Tomatoes)</b>	Aphids Cabbage moth ( <i>Plutella xylostella</i> ) Cabbage white butterfly ( <i>Pieris rapae</i> ) Green vegetable bug ( <i>Nezara viridula</i> ), Jassids Leaf Hoppers, Rutherglen bug ( <i>Nysius vinitor</i> ), Thrips		
<b>All crops listed above</b>	Australian Plague Locust ( <i>Chortoicetes terminifera</i> )	No greater than the label rate for the crop being treated	The application on individual crops must not be above the maximum existing label rate or exceed the maximum number of applications for that crop or be applied at intervals shorter than those specified for that crop or be applied at a timing of application later than specified in the directions for use for that crop.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

#### SPRAY DRIFT RESTRAINTS

Specific definitions for terms used in this section of the label can be found at [apvma.gov.au/spraydrift](http://apvma.gov.au/spraydrift)

DO NOT allow bystanders to come into contact with the spray cloud.

DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. The buffer zones in the relevant buffer zone table/s below may not be sufficient in all situations. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.

DO NOT apply unless the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application.

DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. These conditions exist most evenings one to 2 hours before sunset and persist until one to 2 hours after sunrise.

Buffer zones for boom sprayers

DO NOT apply by a boom sprayer unless the following requirements are met:

- spray droplets not smaller than a MEDIUM spray droplet size category
- minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for boom sprayers') are observed.

Application rate	Boom height above the target canopy	Mandatory buffer zones				
		Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
Up to 5.5 L/ha	0.5 m or lower	0 metres	60 metres	60 metres	0 metres	0 metres
	1.0 m or lower	0 metres	170 metres	160 metres	0 metres	0 metres

Application rate	Boom height above the target canopy	Mandatory buffer zones				
		Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
Up to 950 mL/ha	0.5 m or lower	0 metres	15 metres	15 metres	0 metres	0 metres
	1.0 m or lower	0 metres	50 metres	45 metres	0 metres	0 metres
Up to 750 mL/ha	0.5 m or lower	0 metres	10 metres	10 metres	0 metres	0 metres
	1.0 m or lower	0 metres	40 metres	40 metres	0 metres	0 metres
Up to 560 mL/ha (75 mL/100 L at 750 L/ha)	0.5 m or lower	0 metres	10 metres	105 metres	0 metres	0 metres
	1.0 m or lower	0 metres	30 metres	30 metres	0 metres	0 metres
Up to 520 mL/ha	0.5 m or lower	0 metres	10 metres	10 metres	0 metres	0 metres
	1.0 m or lower	0 metres	30 metres	30 metres	0 metres	0 metres
Up to 130 mL/ha	0.5 m or lower	0 metres	0 metres	0 metres	0 metres	0 metres
	1.0 m or lower	0 metres	10 metres	10 metres	0 metres	0 metres
Up to 60 mL/ha	0.5 m or lower	0 metres	0 metres	0 metres	0 metres	0 metres
	1.0 m or lower	0 metres	0 metres	0 metres	0 metres	0 metres

#### Buffer zones for aircraft

DO NOT apply by aircraft unless the following requirements are met:

- spray droplets not smaller than a MEDIUM spray droplet size category
- for maximum release heights above the target canopy of 3 m or 25% of wingspan or 25% of rotor diameter whichever is the greatest, minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for aircraft') are observed.

## Buffer zones for aircraft

Application rate	Type of aircraft	Mandatory buffer zones				
		Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
Up to 500 mL/ha	Fixed wing	0 metres	120 metres	120 metres	0 metres	0 metres
	Helicopter	0 metres	90 metres	90 metres	0 metres	0 metres
<b>Rice</b>						
Up to 260 mL/ha	Fixed wing	0 metres	75 metres	75 metres	0 metres	0 metres
	Helicopter	0 metres	60 metres	60 metres	0 metres	0 metres
Up to 130 mL/ha	Fixed wing	0 metres	40 metres	35 metres	0 metres	0 metres
	Helicopter	0 metres	40 metres	40 metres	0 metres	0 metres
Up to 60 mL/ha	Fixed wing	0 metres	15 metres	15 metres	0 metres	0 metres
	Helicopter	0 metres	20 metres	20 metres	0 metres	0 metres

## Buffer zones for vertical sprayers

DO NOT apply by a vertical sprayer unless the following requirements are met:

- spray is not directed above the target canopy
- the outside of the sprayer is turned off when turning at the end of rows and when spraying the outer row on each side of the application site
- for dilute water rates up to the maximum listed for each type of canopy specified, minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for vertical sprayers') are observed.

## Buffer zones for vertical sprayers

Type of target canopy and dilute water rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
435 mL/100 L in passionfruit					
2 metres tall and shorter, maximum dilute water rate of 1000 L/ha	0 metres	20 metres	20 metres	0 metres	0 metres
Taller than 2 metres (not fully foliated), maximum dilute water rate of 2000 L/ha	0 metres	55 metres	55 metres	0 metres	0 metres

<b>Taller than 2 metres (fully foliated), maximum dilute water rate of 2000 L/ha</b>	0 metres	45 metres	45 metres	0 metres	0 metres
Up to 435 mL/100 L in citrus, fruit fly control					
<b>All, maximum dilute water rate of 20 L/ha</b>	0 metres	0 metres	0 metres	0 metres	0 metres
90 mL/100 L in citrus					
<b>2 metres tall and smaller, maximum dilute water rate of 1000 L/ha</b>	0 metres	10 metres	10 metres	0 metres	0 metres
<b>taller than 2 metres (not fully foliated), maximum dilute water rate of 4000 L/ha</b>	0 metres	40 metres	40 metres	0 metres	0 metres
<b>taller than 2 metres (fully foliated), maximum dilute water rate of 4000 L/ha</b>	0 metres	30 metres	30 metres	0 metres	0 metres
90 mL/100 L in cucurbits, grapevines, ornamentals and vegetables					
<b>All</b>	0 metres	10 metres	10 metres	0 metres	0 metres
55 mL/100 L in citrus					
<b>2 metres tall and smaller, maximum dilute water rate of 1000 L/ha</b>	0 metres	5 metres	5 metres	0 metres	0 metres
<b>Taller than 2 metres (not fully foliated), maximum dilute water rate of 4000 L/ha</b>	0 metres	30 metres	30 metres	0 metres	0 metres
<b>Taller than 2 metres (fully foliated), maximum dilute water rate of 4000 L/ha</b>	0 metres	25 metres	20 metres	0 metres	0 metres
55 mL/100 L in pome fruit and stone fruit					
<b>2 metres tall and shorter, maximum dilute water rate of 1000 L/ha</b>	0 metres	5 metres	5 metres	0 metres	0 metres
<b>Taller than 2 metres (not fully foliated), maximum dilute water rate of 1500 L/ha</b>	0 metres	20 metres	20 metres	0 metres	0 metres
<b>Taller than 2 metres (fully foliated), maximum dilute water rate of 1500 L/ha</b>	0 metres	15 metres	15 metres	0 metres	0 metres
Up to 55 mL/100 L in grapevines, table grapes, ornamentals, cucurbits, tobacco fields or seed beds and vegetables					
<b>All</b>	0 metres	5 metres	5 metres	0 metres	0 metres

## Buffer zones for ULV application (by helicopter)

DO NOT apply by helicopter unless the following conditions are observed:

- a minimum droplet size of Very Fine
- the release height is not greater than 4 metres above the ground
- minimum distances between the application site and downwind sensitive areas that appear in the 'Mandatory buffer zones' section of the table titled 'Buffer zones for ULV application by helicopter' below

## Buffer zones for ULV application (by helicopter only)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
300 mL/ha	0 metres	120 metres	115 metres	0 metres	0 metres

## Buffer zones for foggers, misters and ULV (ground application)

DO NOT apply by foggers, misters or ground ULV equipment unless the following conditions are observed:

- the release height is not greater than 2 metres above the ground- minimum distances between the application site and downwind sensitive areas that appear in the 'Mandatory buffer zones' section of the table titled 'Buffer zones for foggers (ground application)', 'Buffer zones for misters (ground application)' and 'Buffer zones for ULV (ground application)' below.

## Buffer zones for foggers (ground application)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
300 mL/ha	0 metres	50 metres	45 metres	0 metres	0 metres

## Buffer zones for misting (ground application)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
950 mL/ha	0 metres	160 metres	160 metres	0 metres	0 metres
750 mL/ha	0 metres	135 metres	130 metres	0 metres	0 metres

## Buffer zones for ULV (ground application)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
550 mL/ha	0 metres	100 metres	95 metres	0 metres	0 metres

### Malathion 1169 g/L ultra-low volume – 49539

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
<b>Product name:</b>	Fyfanon ULV Insecticide
<b>Constituent statement:</b>	1169 g/L malathion An anticholinesterase compound
<b>Mode of action:</b>	Group <b>1B</b> Insecticide
<b>Statement of claims:</b>	An ultra-low volume formulation for the control of a wide range of insect pests in certain crops and eucalypts as shown under Directions for Use.
<b>Net contents:</b>	20 L, 200 L
<b>Restrains:</b>	DO NOT apply directly to water. DO NOT use open mixing and loading systems for aerial application (use closed mixing and loading only). DO NOT use open cabs for air blast application. DO NOT use backpack ULV misters/cold foggers. SPRAY DRIFT RESTRAINTS [See below]
<b>Other limitations:</b>	[INSERT HERE]
<b>Withholding period:</b>	Cereals, maize, rice, sorghum, grain legumes, linseed, lucerne, pastures, forage crops: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 1 DAY AFTER APPLICATION. DO NOT HARVEST FOR 1 DAY AFTER APPLICATION. Canola (rapeseed), safflower, sunflower: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 3 DAYS AFTER APPLICATION. DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION. Fruit, vegetable: DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION.
<b>Trade advice:</b>	[INSERT HERE IF REQUIRED]
<b>General instructions:</b>	Fyfanon is a contact insecticide and only partial control will be achieved if insects are protected from spray by dense foliage or if spray coverage is inadequate. All vehicles should be removed from areas to be sprayed as paintwork may be damaged. MIXING Fyfanon should be used undiluted except when fogging. When fogging for mosquito control, dilute with a kerosene/diesel distillate mixture of 1 L:8 L respectively. APPLICATION Apply by aircraft or mist spray using properly calibrated equipment designed for ultra-low volume application.
<b>Resistance warning:</b>	For insecticide resistance management Fyfanon ULV Insecticide is a Group 1B insecticide. Some naturally occurring insect biotypes resistant to Fyfanon ULV Insecticide and other Group 1B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Fyfanon ULV Insecticide or other Group 1B insecticides are used repeatedly. The effectiveness of Fyfanon ULV Insecticide on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, FMC Australasia Pty Ltd accepts no liability for any losses that may result from the failure of Fyfanon ULV Insecticide to control resistant insects. Fyfanon ULV Insecticide may be subject to specific resistance management strategies. For further information contact your local supplier, FMC Australasia Pty Ltd representative or local agricultural department agronomist.
<b>Precautions:</b>	Avoid contact with food, food utensils, or places where food is prepared or stored. RE-ENTRY PERIODS: DO NOT allow entry into treated areas until spray has dried.

	<p>Fruiting vegetable crops: DO NOT enter for 1 day after application for irrigation, scouting, thinning and weeding.</p> <p>Leafy vegetable crops: DO NOT enter for 1 day after application for irrigation and scouting mature plants, hand harvesting and pruning.</p> <p>Field crops (low): DO NOT enter for 2 days after application for hand-set irrigation. DO NOT enter for 1 day after application for scouting, thinning and weeding.</p> <p>Apples: DO NOT enter for 1 day after application for hand pruning, training, scouting, training, transplanting, orchard maintenance, propping and hand weeding. DO NOT enter for 8 days after application for hand harvesting. DO NOT enter for 17 days after application for thinning fruit.</p>
<b>Protection statements:</b>	<p><b>PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT</b></p> <p>Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.</p> <p><b>PROTECTION OF HONEYBEES AND OTHER INSECT POLLINATORS</b></p> <p>Toxic to bees. DO NOT apply to crops from the onset of flowering until flowering is complete. DO NOT allow spray drift to flowering weeds or flowering crops in the vicinity of the treatment area, except when applications are made to prevent or control a threat to public and/or animal health determined by the relevant State or Territory authority. Before spraying, notify beekeepers to move hives to a safe location with an untreated source of nectar and pollen, if there is potential for managed hives to be affected by the spray or spray drift.</p> <p><b>PROTECTION OF LIVESTOCK</b></p> <p>DO NOT place baits in locations which are accessible which are accessible to domestic animals, livestock or birds.</p>
<b>Storage and disposal:</b>	<p>Store below 30°C (room temperature). Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.</p> <p>Triple-rinse containers before disposal. Add rinsing's to spray tank. Do not dispose of undiluted chemicals on site. Dispose of any unused chemical in compliance with relevant local, state or territory government regulations.</p> <p>If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.</p>
<b>Safety directions:</b>	<p>Harmful if swallowed. Will irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container, preparing the spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and elbow length chemical resistant gloves and a face shield. When using the prepared spray, wear chemical resistant clothing buttoned to the neck and wrist and a washable hat, and elbow length chemical resistant gloves. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash glove, face shield s and contaminated clothing.</p>
<b>First Aid instructions:</b>	<p>If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre (Phone Australia 13 11 26, New Zealand 0800 764 766) or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed.</p>
<b>Date of manufacture and expiry date</b>	[INSERT HERE]

## Directions for use:

Crop/situation	Pest	Rate/ha	Critical comments
Cereal crops, pastures, pasture seed crops	Black Field Cricket	450 mL	Apply in the early morning when crickets are active or swarming. Do not apply more than 4 applications per season.
	Small Plague Grasshopper		Apply to infested areas. Do not apply more than 4 applications per season.



Crop/situation	Pest	Rate/ha	Critical comments
Cereals, pastures, non-crop areas	Black Field Cricket	Bait 110 mL/10 kg whole or kibbled grain/ha (Use clean wheat, barley or oats, not dusty grain)	Immature crickets: Mix in a drum or cement mixer. As treated grain absorbs Fyfanon rapidly, it is unnecessary to leave standing and grain can be used immediately. Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with Fyfanon ULV Insecticide.
		Bait 110 to 220 mL/10 to 20 kg whole or kibbled grain/ha (use clean wheat, barley or oats, not dusty grain)	Mature crickets: Mix in a drum or cement mixer. As treated grain absorbs Fyfanon rapidly, it is unnecessary to leave standing and grain can be used immediately. Excess grain will kill moderate numbers of re-invading crickets as treated grain remains active for 4 to 6 weeks. Use higher rate for heavy pest pressure, where plentiful alternative feed exists, or for certainty of control. Spread in late afternoon and evening early in the season, and morning late in the season. Baiting may be ineffective if large amounts of pasture seed are present. Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with Fyfanon ULV Insecticide.
Cereal crops, lucerne, pastures, pasture seed crops, grain, legume crops	Redlegged earth mite, Lucerne Flea	225 mL	Apply after hatching, usually 3 to 4 weeks after opening rains. Do not apply more than 4 applications per season.
		275 mL	
Cereal crops, maize, pastures, pasture seed crops, rice, sorghum	Common Armyworm	700 mL	Spray entire crop or pasture when infestation is widespread. Spray along the front when pests are moving as an army.
Crucifers, cucurbits, canola (rapeseed), safflower, sunflower	Rutherglen Bug	450 to 900 mL	Do apply to melons or cucumbers when wet. Use higher rate when plant growth is dense. Sunflowers: spray at bud stage. Do not apply more than 4 applications per season
Linseed	Common Armyworm	700 mL	Apply when Armyworms are actively feeding, in the early morning or late afternoon
Lucerne, pastures, pasture seed crops	Bluegreen Aphid, Spotted Aphid	450 mL	Apply at first sign of pest. Repeat as necessary. Do not apply more than 4 applications per season
	Wingless Grasshopper		Apply to infested areas. To prevent re-invasion, spray a wide protective barrier around crop or pasture. Do not apply more than 4 applications per season
Maize, pasture, pasture seed crops, sorghum	Australian Plague Locust	700 mL	Apply in hopper bands directly onto locusts.
Peaches	Oriental Fruit Moth	900 mL	Apply before trees are in full leaf at first sign of pest and repeat at signs of further moth flights.
Field peas	Pea Weevil	550 mL	Apply when first flowers begin to wither.
Pome fruit, stone fruit	Wingless Grasshopper	450 mL	Apply to infested areas. Do not apply more than 4 applications per season
		560 mL	

Crop/situation	Pest	Rate/ha	Critical comments
<b>Sorghum</b>	Sorghum Midge	450 mL	Apply at the flowering stage when adult pest numbers indicate likely damage. Repeat as necessary. Do not apply more than 4 applications per season.
	Rutherglen Bug	450 to 900 mL	Use higher rate when plant growth is dense.
<b>Stone fruit</b>			Use higher rate when tree growth is dense.
<b>Eucalyptus forests</b>	Phasmatid Nymphs	450 mL	Apply at first sign of pest. Repeat as necessary. Do not apply more than 4 applications per season.
<b>Mosquito breeding areas</b>	Adult mosquitoes	280 mL	Apply when adults emerge. Repeat as necessary. When fogging dissolve product in a suitable diluent. Dilution rate is dependent on output speed over ground and swath width of fogger (refer to General Instructions).

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION

#### SPRAY DRIFT RESTRAINTS

Specific definitions for terms used in this section of the label can be found at [apvma.gov.au/spraydrift](http://apvma.gov.au/spraydrift)

DO NOT allow bystanders to come into contact with the spray cloud.

DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. The buffer zones in the relevant buffer zone table/s below may not be sufficient in all situations. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.

DO NOT apply unless the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application.

DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. These conditions exist most evenings 1 to 2 hours before sunset and persist until 1 to 2 hours after sunrise.

Buffer zones for ULV application by fixed wing aircraft

DO NOT apply by Fixed Wing Aircraft unless the following requirements are met:

- a minimum droplet size of Very Fine
- the release height is not greater than 4 metres above the ground
- minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the table titled 'Buffer zones for ULV application by fixed-wing aircraft') are observed.

Buffer zones for ULV application (by fixed-wing aircraft only)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
Up to 450 mL/ha	0 metres	750 metres	730 metres	0 metres	0 metres
Up to 280 mL/ha	0 metres	505 metres	490 metres	0 metres	0 metres
Up to 225 mL/ha	0 metres	420 metres	410 metres	0 metres	0 metres

Buffer zones for misting or ULV (ground application only)

DO NOT apply by foggers, misters or ground ULV equipment unless the following requirements are met:

- the release height is not greater than 2 metres above the ground
- minimum distances between the application site and downwind sensitive areas that appear in the 'Mandatory buffer zones' section of the table titled 'Buffer zones for foggers (ground application)', Buffer zones for misters(ground application)' and Buffer zones for ULV (ground application)'below.

Buffer zones for misting or ULV (ground application)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
Up to 900 mL/ha	0 metres	160 metres	150 metres	0 metres	0 metres
Up to 700 mL/ha	0 metres	130 metres	120 metres	0 metres	0 metres
Up to 550 mL/ha	0 metres	100 metres	100 metres	0 metres	0 metres
Up to 450 mL/ha	0 metres	80 metres	80 metres	0 metres	0 metres
Up to 280 mL/ha	0 metres	80 metres	80 metres	0 metres	0 metres
Up to 225 mL/ha	0 metres	35 metres	30 metres	0 metres	0 metres

Buffer zones for foggers (ground application)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
Up to 280 mL/ha	0 metres	80 metres	80 metres	0 metres	0 metres

**Malathion 20 g/kg Dustable Powder – 50110**

<b>Signal heading:</b>	CAUTION KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
<b>Product name:</b>	David Grays Malathion Grain Dust Insecticide
<b>Constituent statement:</b>	20 g/kg malathion An anticholinesterase compound
<b>Mode of action:</b>	Group <b>1B</b> Insecticide
<b>Statement of claims:</b>	To control pests of stored grain
<b>Net contents:</b>	15 kg
<b>Restrains:</b>	
<b>Directions for use:</b>	DIRECTIONS FOR USE: (WA only) To protect wheat, oats, rice, corn barley and all stored grain from weevil attack, apply 600 g of David Grays Malathion Grain Dust to each 1000 kg of grain and mix thoroughly and with grain. NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.
<b>Other limitations:</b>	[INSERT HERE IF REQUIRED]
<b>Withholding period:</b>	DO NOT use treated grain for human consumption or for stock food within 14 days of treatment.
<b>Trade advice:</b>	[INSERT HERE IF REQUIRED]
<b>General instructions:</b>	For best results treat grain as near as possible to final storage in clean silos or sheds. Storage temperature should be less than 27° C and the moisture content of the grain at treatment should be below 12%.
<b>Resistance warning:</b>	[INSERT HERE]
<b>Precautions:</b>	
<b>Protection statements:</b>	PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers. PROTECTION OF HONEYBEES AND OTHER INSECT POLLINATORS Toxic to bees. However, the use of this product as directed is not expected to have adverse effects on bees.
<b>Storage and disposal:</b>	Store below 30°C (room temperature). Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Keep away from foodstuff. Triple-rinse containers before disposal. Dispose of any unused chemical in compliance with relevant local, state or territory government regulations. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.
<b>Safety directions:</b>	May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When using the product wear elbow-length chemical resistant gloves and a disposable dust mask. Wash hands after use. After each day's use wash gloves and contaminated clothing.
<b>First aid instructions:</b>	If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766.
<b>Expiry date and date of manufacture</b>	[INSERT HERE]

**Malathion Bait – 42727**

<b>Signal heading:</b>	CAUTION KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING								
<b>Product name:</b>	Q Fly Wick								
<b>Constituent statement:</b>	1.0 mL/wick 4-(p-Acetoxyphenyl)-2-butanone 0.43 mL/wick Malathion* 674 g/kg 4-(p-Acetoxyphenyl)-2-butanone, 306 g/kg Malathion* *An anticholinesterase compound								
<b>Mode of action:</b>	Group <b>1B</b> Insecticide								
<b>Statement of claims:</b>	An attractant for the male Queensland fruit fly <i>Bactrocera (Dacus) tryoni</i> containing an insecticide.								
<b>Net contents:</b>	2 g, 100 g (50 × 2g), 400 g (200 × 2 g)								
<b>Restrains:</b>									
<b>Directions for use: 2 g pack</b>	<p><b>DIRECTIONS FOR USE</b></p> <ol style="list-style-type: none"> <li>1. Push hook through hole in trap lid and into wick holder.</li> <li>2. Hang in tree at head height.</li> <li>3. Empty trap and record fly numbers weekly.</li> </ol> <p><b>IMPORTANT:</b> Q Fly Wicks are a monitoring tool only and should be used in conjunction with a routine baiting program or cover sprays (or a combination of both) to effect control of Queensland Fruit Fly. Regular monitoring of the crop for egg-laying activity by female flies should be employed in addition to the use of Q Fly Wicks.</p> <p>Hang trap containing Q Fly Wick within foliage of the host crop plant. Traps may be placed around the orchard perimeter to indicate source direction of flies entering the orchard. 1 or 2 traps in the centre of the orchard can be used to indicate the efficacy of the control program.</p> <p>Q Fly Wicks will attract male flies from up to 400 metres. Trap catches will vary depending on local sources of infestation and fruit fly population dynamics at the time. Local experience will help to determine the significance of trap catches.</p> <p>Q Fly Wicks should be replaced after 3 months.</p> <p><b>NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.</b></p>								
<b>Directions for use: 100 g and 400 g packs</b>	<p><b>DIRECTIONS FOR USE</b></p> <ol style="list-style-type: none"> <li>1. Insert hook.</li> <li>2. Hang in tree at head height within the crop canopy.</li> </ol> <p>This new fruit fly control method aims to reduce male fruit fly numbers as part of an area-wide strategy. Best results will be achieved if all the orchards in the area are using Q Fly Wicks.</p> <p>Q Fly Wicks will help reduce fruit fly pressure by targeting male flies in the population.</p> <p>Q Fly Wicks do not control female flies and it is important that protein baiting continues as usual. It is also a good idea to retain complete fruit fly traps for monitoring purposes, although counts will be reduced when Q Fly Wicks are used.</p> <p>Q Fly Wicks should be put out at 20 per hectare in the following situations:</p> <ul style="list-style-type: none"> <li>• where the area to be covered is less than 50 Ha</li> <li>• in high-risk crops such as stone fruits and grapes</li> <li>• in early season susceptible crops (e.g. imperial mandarins) during warm weather</li> </ul> <p>In most other situations, 10 Q Fly Wicks per Ha will be sufficient. Q Fly Wicks keep indefinitely if refrigerated and are fully effective for 3 months once placed in the field.</p> <p>It is recommended that Q Fly Wicks be placed in the orchard 3 times per year. The wicks will hang in the orchard for 1 year. They are supplied in 3 colours and should be released as follows:</p> <table border="0"> <tr> <td>Colour</td> <td>Time of the year</td> </tr> <tr> <td>Orange</td> <td>August/September</td> </tr> <tr> <td>Yellow</td> <td>November/December</td> </tr> <tr> <td>Pink</td> <td>February/March</td> </tr> </table>	Colour	Time of the year	Orange	August/September	Yellow	November/December	Pink	February/March
Colour	Time of the year								
Orange	August/September								
Yellow	November/December								
Pink	February/March								

	NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.
<b>Other limitations:</b>	
<b>Withholding period:</b>	
<b>Trade advice:</b>	
<b>General instructions:</b>	
<b>Resistance warning:</b>	<p>For insecticide resistance management Q Fly Wick is a Group 1B insecticide.</p> <p>Some naturally occurring insect biotypes resistant to Q Fly Wick and other Group 1B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Q Fly Wick or other Group 1B insecticides are used repeatedly. The effectiveness of Q Fly Wick on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Bugs for Bugs Pty Ltd accepts no liability for any losses that may result from the failure of Q Fly Wick to control resistant insects.</p> <p>Q Fly Wick may be subject to specific resistance management strategies. For further information contact your local supplier, Bugs for Bugs Pty Ltd representative or local agricultural department agronomist.</p>
<b>Precautions:</b>	
<b>Protection statements:</b>	<p><b>PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT</b></p> <p>Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.</p> <p><b>PROTECTION OF HONEYBEES AND OTHER INSECT POLLINATORS</b></p> <p>Toxic to bees. However, the use of this product as directed is not expected to have adverse effects on bees.</p>
<b>Storage and disposal:</b>	<p>Store below 30°C (room temperature). Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.</p> <p>Triple-rinse containers before disposal. Dispose of any unused chemical in compliance with relevant local, state or territory government regulations.</p> <p>If not recycling, break, crush or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.</p>
<b>Safety directions:</b>	<p>May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When using the product wear elbow-length chemical resistant gloves. Wash hands after use. After each day's use wash gloves and contaminated clothing</p>
<b>First aid instructions:</b>	<p>If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766.</p>
<b>Expiry date and date of manufacture</b>	[INSERT HERE]

**Malathion Bait – 50589**

<b>Signal heading:</b>	CAUTION KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
<b>Product name:</b>	Searles Fruit Fly Wick Attractant and Insecticide
<b>Constituent statement:</b>	781 g/kg 4-(p-Acetoxyphenyl)-2-butanone, 205 g/kg Malathion*, OR 0.2 g/wick 4-(p-Acetoxyphenyl)-2-butanone, 0.06 g/wick malathion* *An anticholinesterase compound
<b>Mode of action:</b>	GROUP <b>1B</b> Insecticide
<b>Statement of claims:</b>	An attractant for the male Queensland fruit fly <i>Bactrocera (Dacus) tryoni</i> containing an insecticide.
<b>Net contents:</b>	1 g
<b>Restrains:</b>	
<b>Directions for use: 2 g pack</b>	<b>DIRECTIONS FOR USE:</b> Place Searles Fruit Fly Wick into a trap and place into the foliage of the plant you wish to monitor. Male fruit flies will be attracted from up to 500 metres away. Replace Searles Fruit Fly Wick every 3 months or when efficacy is reduced. To determine the source direction of male fruit flies, deploy traps around the perimeter of the orchard. To determine the efficacy of the control program, plant 1 or 2 traps in the centre of the orchard.  IMPORTANT: Searles Fruit Fly Wicks should only be used as a monitoring tool and should be used in conjunction with routine spraying program for effective control. Remember to also monitor egg-laying female activity within the crop in addition to the use of Searles Fruit Fly Wicks.  NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.
<b>Other limitations:</b>	
<b>Withholding period:</b>	
<b>Trade advice:</b>	
<b>General instructions:</b>	
<b>Resistance warning:</b>	For insecticide resistance management Searles Fruit Fly Wick Attractant and Insecticide is a Group 1B insecticide.  Some naturally occurring insect biotypes resistant to Searles Fruit Fly Wick Attractant and Insecticide and other Group 1B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Searles Fruit Fly Wick Attractant and Insecticide or other Group 1B insecticides are used repeatedly. The effectiveness of Searles Fruit Fly Wick Attractant and Insecticide on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, JC & AT Searle Pty Ltd accepts no liability for any losses that may result from the failure of Searles Fruit Fly Wick Attractant and Insecticide to control resistant insects.  Searles Fruit Fly Wick Attractant and Insecticide may be subject to specific resistance management strategies. For further information contact your local supplier, JC & AT Searle Pty Ltd representative or local agricultural department agronomist.
<b>Precautions:</b>	
<b>Protection statements:</b>	<b>PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT</b> Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.  <b>PROTECTION OF HONEYBEES AND OTHER INSECT POLLINATORS</b> Toxic to bees. However, the use of this product as directed is not expected to have adverse effects on bees.
<b>Storage and disposal:</b>	Store below 30°C (room temperature). Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.  Triple-rinse containers before disposal. Dispose of any unused chemical in compliance with relevant local, state or territory government regulations.  If not recycling, break, crush or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.

<b>Safety directions:</b>	May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When using the product wear elbow-length chemical resistant gloves. Wash hands after use. After each day's use wash gloves and contaminated clothing
<b>First aid instructions:</b>	If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766.
<b>Expiry date and date of manufacture</b>	[INSERT HERE]



## Malathion Bait – 63032

<b>Signal heading:</b>	CAUTION KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
<b>Product name:</b>	Eco-Lure Male Qld Fruit Fly Wick
<b>Constituent statement:</b>	674 g/kg 4-(p-Acetoxyphenyl)-2-butanone, 306 g/kg Malathion*, OR 1.0 mL/wick 4-(p-Acetoxyphenyl)-2-butanone, 0.5 mL/wick malathion* *An anticholinesterase compound
<b>Mode of action:</b>	GROUP 1B Insecticide
<b>Statement of claims:</b>	An attractant for the male Queensland fruit fly <i>Bactrocera (Dacus) tryoni</i> containing an insecticide.
<b>Net contents:</b>	1 g
<b>Restraints:</b>	
<b>Directions for use: 2 g pack</b>	<p><b>DIRECTIONS FOR USE</b></p> <ol style="list-style-type: none"> <li>1. Push hook through hole in trap lid and into wick holder</li> <li>2. Hang in tree at head height.</li> <li>3. Empty trap and record fly numbers weekly.</li> </ol> <p>Hang the eco-lure trap containing the eco-lure wick within foliage of the host crop plant. Traps may be placed around the orchard perimeter to indicate source direction of flies entering the orchard. 1 or 2 traps in the centre of the orchard can be used to indicate the efficacy of the control program.</p> <p>The wicks will attract male flies from up to 400 metres. Eco-lure Trap catches will vary depending on local sources of infestation and fruit fly population dynamics at the time. Local experience will help to determine the significance of trap catches. eco-lure wicks should be replaced after 3 months.</p> <p><b>IMPORTANT:</b> eco-lure wicks are a monitoring tool only and should be used in conjunction with a routine baiting program or cover sprays (or a combination of both) to effect control of Queensland Fruit Fly.</p> <p>Regular monitoring of the crop for egg-laying activity by female flies should be employed in addition to the use of eco-lure wicks.</p> <p><b>NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.</b></p>
<b>Other limitations:</b>	
<b>Withholding period:</b>	
<b>Trade advice:</b>	
<b>General instructions:</b>	
<b>Resistance warning:</b>	<p>For insecticide resistance management Eco-Lure Male Qld Fruit Fly Wick is a Group 1B insecticide.</p> <p>Some naturally occurring insect biotypes resistant to Eco-Lure Male QLD Fruit Fly Wick and other Group 1B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Eco-Lure Male Qld Fruit Fly Wick or other Group 1B insecticides are used repeatedly. The effectiveness of Eco-Lure Male Qld Fruit Fly Wick on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Duluxgroup (Australia) Pty Ltd accepts no liability for any losses that may result from the failure of Eco-Lure Male Qld Fruit Fly Wick to control resistant insects.</p> <p>Eco-Lure Male Qld Fruit Fly Wick may be subject to specific resistance management strategies. For further information contact your local supplier, Duluxgroup (Australia) Pty Ltd representative or local agricultural department agronomist.</p>
<b>Precautions:</b>	
<b>Protection statements:</b>	<p><b>PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT</b></p> <p>Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.</p> <p><b>PROTECTION OF HONEYBEES AND OTHER INSECT POLLINATORS</b></p> <p>Toxic to bees. However, the use of this product as directed is not expected to have adverse effects on bees.</p>

<b>Storage and disposal:</b>	<p>Store below 30°C (room temperature). Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.</p> <p>Triple-rinse containers before disposal. Dispose of any unused chemical in compliance with relevant local, state or territory government regulations.</p> <p>If not recycling, break, crush or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.</p>
<b>Safety directions:</b>	<p>May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When using the product wear elbow-length chemical resistant gloves. Wash hands after use. After each day's use wash gloves and contaminated clothing</p>
<b>First aid instructions:</b>	<p>If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766.</p>
<b>Expiry date and date of manufacture</b>	[INSERT HERE]

**Malathion 320 g/L Oil-in-water Emulsion – 69529**

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING			
<b>Product name:</b>	Fyfanon Premium Insecticide			
<b>Constituent statement:</b>	320 g/L malathion An anticholinesterase compound			
<b>Mode of action:</b>	GROUP	1B	Insecticide	
<b>Statement of claims:</b>	For the control of certain insect pests in apples as per the Directions for Use.			
<b>Net contents:</b>	1 to 1000 L			
<b>Restrains:</b>	DO NOT apply by aerial application. DO NOT apply by air blast application. DO NOT apply using spraying equipment carried on the back of the user. DO NOT apply by low pressure hand wand. See 'SPRAY DRIFT RESTRAINTS' sections.			
<b>Directions for use:</b>	Crop	Pest	Rate mL/100L	Critical comments
	Apples	Apple Leaf Hopper, Thrips, Woolly Aphid	350	Apply a maximum of 3 sprays per crop with a minimum interval of 14 days between applications. Apply at first sign of pest.
		Codling moth	350 to 450	Apply a maximum of 3 sprays per crop with a minimum interval of 14 days between applications. Apply at first sign of pest. Use higher rates as dictated by pest populations.
		European red mite	350	Apply a maximum of 3 sprays per crop with a minimum interval of 14 days between applications.
		Red spider mite		Apply at first sign of pest.
	NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.			
<b>Other limitations:</b>				
<b>Withholding period:</b>	APPLES: DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION.			
<b>Trade advice:</b>	[INSERT HERE]			
<b>General instructions:</b>	<p>MIXING/APPLICATION</p> <p>DILUTE SPRAYING</p> <p>Use a sprayer designed to apply high volumes of water up to the point of runoff and matched to the crop being sprayed. Set up and operate the sprayer to achieve even coverage throughout the crop canopy. Apply sufficient water to cover the crop to the point of run-off. Avoid excessive run-off.</p> <p>The required water volume may be determined by applying different test volumes, using different settings on the sprayer, from industry guidelines or expert advice.</p> <p>Add the amount of product specified in the Directions for Use table for each 100 L of water. Spray to the point of run-off.</p> <p>The required dilute spray volume will change unless otherwise specified and the sprayer set up and operation may also need to be changed, as the crop grows.</p> <p>CONCENTRATE SPRAYING</p> <p>(a) Use a sprayer designed and set up for concentrate spraying (that is a sprayer which applies water volumes less than those required to reach the point of run-off) and matched to the crop being sprayed.</p>			

	<p>(b) Set up and operate the sprayer to achieve even coverage throughout the crop canopy using your chosen water volume.</p> <p>(c) Determine an appropriate dilute spray volume (See <i>Dilute spraying</i> above) for the crop canopy. This is needed to calculate the concentrate mixing rate.</p> <p>(d) The mixing rate for concentrate spraying can then be calculated in the following way: EXAMPLE ONLY</p> <p>(i) Dilute spray volume as determined above: For example, 1500 L/ha</p> <p>(ii) Your chosen concentrate spray volume: For example, 500 L/ha</p> <p>(iii) The concentration factor in this example is: <math>3 \times</math> (i.e. <math>1500 \text{ L} \div 500 \text{ L} = 3</math>)</p> <p>(iv) If the dilute label rate is 10 mL/100 L, then the concentrate rate becomes <math>3 \times 10</math>, that is 30 mL/100 L of concentrate spray</p> <p>(e) The chosen spray volume, amount of product per 100 L of water, and the sprayer set up and operation may need to be changed as the crop grows.</p> <p>(g) For further information on concentrate spraying, users are advised to consult relevant industry guidelines, undertake appropriate competency training and follow industry Best Practices.</p> <p>MIXING</p> <p>Add the recommended quantity of this product to the required volume of water, mix thoroughly.</p>
<b>Resistance warning:</b>	<p>For insecticide resistance management Fyfanon Premium Insecticide is a Group 1B insecticide. Some naturally occurring insect biotypes resistant to Fyfanon Premium Insecticide and other Group 1B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Fyfanon Premium Insecticide or other Group 1B insecticides are used repeatedly. The effectiveness of Fyfanon Premium Insecticide on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, FMC Australasia Pty Ltd accepts no liability for any losses that may result from the failure of Fyfanon Premium Insecticide to control resistant insects.</p> <p>Fyfanon Premium Insecticide may be subject to specific resistance management strategies. For further information contact your local supplier, FMC Australasia Pty Ltd representative or local agricultural department agronomist.</p>
<b>Precautions:</b>	<p>RE-ENTRY PERIOD:</p> <p>DO NOT allow entry into treated areas until spray has dried.</p> <p>DO NOT enter for 1 day after application for hand pruning, training, scouting, training, transplanting, orchard maintenance, propping and hand weeding.</p> <p>DO NOT enter for 14 days after application for hand harvesting.</p> <p>DO NOT enter for 17 days after application for thinning fruit.</p>
<b>Protection statements:</b>	<p>PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT</p> <p>Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.</p> <p>PROTECTION OF HONEYBEES AND OTHER INSECT POLLINATORS</p> <p>Toxic to bees. DO NOT apply to crops from the onset of flowering until flowering is complete. DO NOT allow spray drift to flowering weeds or flowering crops in the vicinity of the treatment area. Before spraying, notify beekeepers to move hives to a safe location with an untreated source of nectar and pollen, if there is potential for managed hives to be affected by the spray or spray drift.</p>
<b>Storage and disposal:</b>	<p>Store below 30°C (room temperature). Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.</p> <p>Triple-rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. Dispose of any unused chemical in compliance with relevant local, state or territory government regulations. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.</p>
<b>Safety directions:</b>	<p>May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container and preparing the product for use, wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. When using the prepared bait/spray, wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. If applying by low pressure hand wand, wear chemical resistant clothing buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. If applying by backpack sprayer, wear cotton overalls, over normal clothing buttoned to the neck and wrist and elbow</p>

	length chemical resistant gloves and a half facepiece respirator. Wash hands after use. After each day's use, wash gloves, face shield and contaminated clothing.
<b>First aid instructions:</b>	If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre (Phone Australia 13 11 26, New Zealand 0800 764 766) or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed.
<b>Expiry date and date of manufacture</b>	[INSERT HERE]

## SPRAY DRIFT RESTRAINTS

Specific definitions for terms used in this section of the label can be found at [apvma.gov.au/spraydrift](http://apvma.gov.au/spraydrift)

DO NOT allow bystanders to come into contact with the spray cloud.

DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. The buffer zones in the relevant buffer zone table/s may not be sufficient in all situations. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.

DO NOT apply unless the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application.

DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. These conditions exist most evenings 1 to 2 hours before sunset and persist until 1 to 2 hours after sunrise.

DO NOT apply by a vertical sprayer unless the following requirements are met:

- spray is not directed above the target canopy
- the outside of the sprayer is turned off when turning at the end of rows and when spraying the outer row on each side of the application site
- for dilute water rates up to the maximum listed for each type of canopy specified, minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for vertical sprayers') are observed.

## Buffer zones for vertical sprayers

Type of target canopy	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
Up to 450 mL/100 L					
<b>2 metres tall and smaller, maximum dilute water rate of 1000 L/ha</b>	0 metres	10 metres	10 metres	0 metres	0 metres
<b>Taller than 2 metres (not fully foliated), maximum dilute water rate of 1500 L/ha</b>	0 metres	30 metres	30 metres	0 metres	0 metres
<b>Taller than 2 metres (fully foliated), maximum dilute water rate of 1500 L/ha</b>	0 metres	20 metres	20 metres	0 metres	0 metres

**Malathion 440 g/L oil-in-water emulsion – 51150**

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
<b>Product name:</b>	Fyfanon 440 EW Insecticide
<b>Constituent statement:</b>	440 g/L malathion An anticholinesterase compound
<b>Mode of action:</b>	GROUP <b>1B</b> Insecticide
<b>Statement of claims:</b>	For the control of a wide range of insect pests in certain crops, eucalypts and wildflowers as shown under <i>Directions for use</i>
<b>Net contents:</b>	1 to 1000 L
<b>Restrains:</b>	DO NOT apply directly to water. DO NOT use open mixing and loading systems for aerial application (use closed mixing and loading only). DO NOT use open cabs for air blast application. DO NOT use backpack ULV misters/ cold foggers. SPRAY DRIFT RESTRAINTS [See below].
<b>Other limitations:</b>	
<b>Withholding period:</b>	Cereal crops, rice, lucerne, pasture: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 1 DAY AFTER APPLICATION. DO NOT HARVEST FOR 1 DAY AFTER APPLICATION. Canola (rapeseed): DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 3 DAYS AFTER APPLICATION. DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION. Fruit and vegetables except cucumbers: DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION Cucumbers: Do NOT HARVEST FOR 1 DAY AFTER APPLICATION Stored cereal grain - 12 ppm: HOLD GRAIN IN STORE AND DO NOT USE FOR PROCESSING INTO FOOD FOR HUMAN CONSUMPTION OR STOCK FOOD UNTIL THE MALATHION LEVEL HAS DECLINED TO 8 ppm OR WITHIN 90 DAYS AFTER TREATMENT
<b>Trade advice:</b>	EXPORT OF TREATED PROUDCE: Treated crop commodities destined for export may require extra time between application and harvest to be accepted in some export markets. Before you use this product, you are advised to contact FMC Australasia Pty Ltd and/or your industry body about any potential trade issues and their management.
<b>General instructions:</b>	GENERAL INSTRUCTIONS MIXING/APPLICATION Add the recommended quantity of this product to the required volume of water, mix thoroughly. DILUTE SPRAYING (tree and vine crops only) Use a sprayer designed to apply high volumes of water up to the point of runoff and matched to the crop being sprayed. Set up and operate the sprayer to achieve even coverage throughout the crop canopy. Apply sufficient water to cover the crop to the point of run-off. Avoid excessive run-off. The required water volume may be determined by applying different test volumes, using different settings on the sprayer, from industry guidelines or expert advice. Add the amount of product specified in the <i>Directions for use</i> table for each 100 L of water. Spray to the point of run-off. The required dilute spray volume will change unless otherwise specified and the sprayer set up and operation may also need to be changed, as the crop grows. CONCENTRATE SPRAYING (tree and vine crops only) a) Use a sprayer designed and set up for concentrate spraying (that is a sprayer which applies water volumes less than those required to reach the point of run- off) and matched to the crop being sprayed. b) Set up and operate the sprayer to achieve even coverage throughout the crop canopy using your chosen water volume. c) Determine an appropriate dilute spray volume (see <i>Dilute spraying</i> above) for the crop canopy. This is needed to calculate the concentrate mixing rate. d) The mixing rate for concentrate spraying can then be calculated in the following way: EXAMPLE ONLY (i) Dilute spray volume as determined above: For example, 1500 L/ha (ii) Your chosen concentrate spray volume: For example, 500 L/ha

	<p>(iii) The concentration factor in this example is: <math>3 \times</math> (i.e. <math>1500 \text{ L} \div 500 \text{ L} = 3</math>)</p> <p>(iv) If the dilute label rate is 10 mL/100 L, then the concentrate rate becomes <math>3 \times 10</math>, that is 30 mL/100 L of concentrate spray.</p> <p>e) The chosen spray volume, amount of product per 100 L of water, and the sprayer set up and operation may need to be changed as the crop grows.</p> <p>f) For further information on concentrate spraying, users are advised to consult relevant industry guidelines, undertake appropriate competency training and follow industry best practices.</p> <p><b>MIXING</b></p> <p>Add the recommended quantity of this product to the required volume of water, mix thoroughly.</p>
<b>Resistance warning:</b>	<p>For insecticide resistance management Fyfanon 440 EW Insecticide is a Group 1B insecticide. Some naturally occurring insect biotypes resistant to Fyfanon 440 EW and other Group 1B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Fyfanon 440 EW or other Group 1B insecticides are used repeatedly. The effectiveness of Fyfanon 440 EW on resistant individuals could be significantly reduced. Since the occurrence of resistant individuals is difficult to detect prior to use, FMC Australasia Pty Ltd accepts no liability for any losses that may result from the failure of Fyfanon 440 EW to control resistant insects. Fyfanon 440 EW may be subject to specific resistance management strategies. For further information contact your local supplier, FMC Australasia Pty Ltd representative or local agricultural department agronomist.</p>
<b>Precautions:</b>	<p>Avoid contact with food, food utensils, or places where food is prepared or stored.</p> <p><b>RE-ENTRY PERIODS:</b></p> <p>DO NOT allow entry into treated areas until spray has dried.</p> <p>Fruiting vegetable crops: DO NOT enter for 1 day after application for irrigation, scouting, thinning and weeding.</p> <p>Leafy vegetable crops: DO NOT enter for 1 day after application for irrigation and scouting mature plants, hand harvesting and pruning.</p> <p>Field crops (low): DO NOT enter for 2 days after application for hand-set irrigation. DO NOT enter for 1 day after application for scouting, thinning and weeding.</p> <p>Grapes: DO NOT enter for 1 day after application for bird control, propagation, trellis repair and transplanting. DO NOT enter for 2 days after application for hand irrigation, hand pruning, hand weeding and scouting. DO NOT enter for 17 days after application for tying, training, leaf pulling and hand harvesting. DO NOT enter for 24 days after application for girdling and turning.</p> <p>Apples: DO NOT enter for 1 day after application for hand pruning, training, scouting, training, transplanting, orchard maintenance, propping and hand weeding. DO NOT enter for 8 days after application for hand harvesting. DO NOT enter for 17 days after application for thinning fruit.</p> <p>Treated animal housing: DO NOT allow entry into treated animal housing or handle treated animal bedding until spray has dried. Children must not be allowed to enter into treated animal housing or handle treated animal bedding for 3 full days post-application.</p>
<b>Protection statements:</b>	<p><b>PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT</b></p> <p>Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers</p> <p><b>PROTECTION OF HONEYBEES AND OTHER INSECT POLLINATORS</b></p> <p>Toxic to bees. DO NOT apply to crops from the onset of flowering until flowering is complete. DO NOT allow spray drift to flowering weeds or flowering crops in the vicinity of the treatment area. Before spraying, notify beekeepers to move hives to a safe location with an untreated source of nectar and pollen, if there is potential for managed hives to be affected by the spray or spray drift.</p> <p><b>PROTECTION OF LIVESTOCK</b></p> <p>DO NOT place treated grain bait for control of crickets in locations which are accessible which are accessible to domestic animals, livestock or birds. DO NOT feed treated grain to animals including poultry.</p>
<b>Storage and disposal:</b>	<p>Store below 30°C (room temperature).</p> <p><b>Disposable containers:</b></p> <p>Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.</p> <p>Triple-rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. Dispose of any unused product in compliance with relevant local, state or territory government regulations. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.</p> <p><b>Refillable containers:</b></p>



	Empty contents fully into application equipment. Close all valves and return to [point of supply/designated collection point/other specific collection details] for refill or storage.
<b>Safety directions:</b>	May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container and preparing the product for use, wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. When using the prepared bait/spray, wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. If applying by low pressure hand wand, wear chemical resistant clothing buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. If applying by backpack sprayer, wear cotton overalls, over normal clothing buttoned to the neck and wrist and elbow length chemical resistant gloves and a half facepiece respirator. Wash hands after use. After each day's use, wash gloves, face shield and contaminated clothing.
<b>First aid instructions:</b>	If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre (Phone Australia 13 11 26, New Zealand 0800 764 766) or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed.
<b>Expiry date and date of manufacture</b>	[INSERT HERE]

Directions for use:

### 1. Tree and Vine crops

This table shows rates for dilute spraying. For concentrate spraying, refer to the Mixing/Application section.

Crop	Pest	Rate	Critical comments
<b>Apples, pears</b>	Apple leaf hopper, Codling moth, Red spider mite, Thrips, Woolly aphid	140 mL/100 L	Apply at first sign of pest. Do not apply more than 4 applications per season.
	Apple leaf hopper, Codling moth, European red mite, Woolly aphid		
<b>Citrus</b>	Purple scale, Red scale, Soft brown scale	230 mL/100 L plus 1.3 L summer oil/100 L	Apply November-March. For best results apply twice; November-January and then early February. For use in NSW, ACT, Vic, SA, WA, NT only.
	Pink wax scale		Apply December-early January or when crawlers are active. Do not apply more than 4 applications per season. For use in NSW, ACT, Vic, SA, WA, NT only.
	Purple scale, Soft brown scale		Apply November-March, with 2 applications, the first November-January and the second in February. Early application gives best results. For use in Tas, WA only.
	Bronze orange bug, Citrus aphid, Citrus butterfly, Rutherglen bug, Spined citrus bug, Tree hopper, Thrips	140 mL/100 L	Apply as necessary. Do not apply more than 4 applications per season. For use in NSW, ACT, Vic, SA, WA only.
	Citrus aphid, Rutherglen bug, Tree hopper, Thrips		Apply as necessary. Do not apply more than 4 applications per season. For use in Tas, WA only.
<b>Grapevines</b>	Mealy bug	230 mL/100 L	Apply when pests appear and repeat if pest population increases. Do not apply more than 4 applications per season
	Vine moth	140 mL/100 L	
	Grape vine scale	230 mL/100 L plus 1.3 L summer oil/100 L	For application during summer months if scale population increases. Do not apply more than 4 applications per season NSW, ACT, Vic, Tas, SA, WA, only

Crop	Pest	Rate	Critical comments
Stone fruit	Black peach aphid, Green peach aphid, European red mite, Oriental fruit moth	140 mL/100 L	Apply at first sign of pest and repeat as necessary. Do not apply more than 4 applications per season  Warning: Some Green Peach Aphid populations may be resistant to organophosphate insecticides, and therefore WILL NOT be controlled by Fyfanon® 440 EW

## 2. Field crops and pasture

Crop/situation	Pest	Rate	Critical comments
Canola	Rutherglen bug	1.25 L/ha	Apply at first sign of pest, repeat every 7 to 10 days as necessary. Do not apply more than 4 applications per season
Cereals, non-crop areas, pastures	Plague locust, small hoppers	1.4 L/ha	Ground application only Boom apply in 110 L water/ha Misting apply in 2.5 L water/ha. Repeat as necessary.
		2.5 L/ha	
	Large hoppers, Plague locust	1.9 L/ha	
		2.5 L/ha	
Cereals, non-crop areas, pastures continued	Field cricket ( <i>Teleogryllus commodus</i> )	Bait 285 mL/10 kg kibbled grain/ha	Immature crickets  Mix in a drum or cement mixer. It is not necessary to leave treated grain standing to absorb Fyfanon 440 EW Insecticide as it is absorbed rapidly and can be used immediately after treatment.  Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with Fyfanon 440 EW Insecticide.
		Bait 285 to 570 mL/10 to 20 kg kibbled grain/ha	Mature crickets  Use higher rate for heavy infestations. Mix in a drum or cement mixer and keep 24 hours before spreading. Spread in late afternoon and evening early in the season, and morning late in the season. Baiting may be ineffective if large amounts of pasture seed are present.  Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with Fyfanon 440 EW Insecticide.
		Spray 1.6 L/25-50 L	Apply in evening. Ensure pasture cover is low so chemical will come into direct contact with crickets. Spraying may be ineffective if cold conditions keep crickets underground for 1-2 days, or if rain falls after application. Do not apply more than 4 applications per season.
Lucerne	Lucerne flea	160 to 340 mL/ha	Apply by low volume equipment with sufficient water to ensure good coverage at 3 to 4 weekly intervals after opening rains. Vary rate according to stage of growth. Do not apply more than 4 applications per season.
	Spotted alfalfa aphid	1.25 L/ha	Apply at first sign of pest. Use sufficient water to ensure thorough coverage. Do not apply more than 4 applications per season.
	Pea aphid		
	Field cricket ( <i>Teleogryllus commodus</i> )	Bait 285 mL/10 kg kibbled grain/ha	Immature crickets  Mix in a drum or cement mixer. It is not necessary to leave treated grain standing to absorb Fyfanon 440 EW Insecticide as it is absorbed rapidly and can be used immediately after treatment.  Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with Fyfanon 440 EW Insecticide.

Crop/situation	Pest	Rate	Critical comments
		Bait 285 to 570 mL/10 to 20 kg kibbled grain/ha	Mature crickets: Use higher rate for heavy infestations. Mix in a drum or cement mixer and keep 24 hours before spreading. Spread in late afternoon and evening early in the season, and morning late in the season. Baiting may be ineffective if large amounts of pasture seed are present. Prepared bait should be stored separate from stock feed and the containers clearly marked to indicate that the contents have been treated with Fyfanon 440 EW Insecticide.
		Spray 1.6 L/25 to 50 L	Apply in evening. Ensure pasture cover is low so chemical will come into direct contact with crickets. Spraying may be ineffective if cold conditions keep crickets underground for 1 to 2 days, or if rain falls after application. Do not apply more than 4 applications per season.
Pastures	Spotted alfalfa aphid	1.25 L/ha	Apply at first sign of pest. Use sufficient water to ensure thorough coverage. Do not apply more than 4 applications per season
Rice	Rice bloodworm larvae	680 mL/10 to 30 L/ha	Apply by aircraft to rice bays at or within 24 hours of sowing, or when infestations occur after application of permanent water. Do not apply more than 4 applications per season
	Common armyworm	1.8 L/ha	When infestation is widespread, spray total crop. When infestation is moving as an army, spray the front. Do not apply more than 4 applications per season

### 3. Vegetable crops

Crop	Pest	Rate	Critical comments
Cucurbits	Pumpkin beetle	140 to 230 mL/100 L	Do not apply to cucumbers or melons when wet. Apply as necessary. Do not apply more than 4 applications per season
Tomatoes	Tomato russet mite		Apply at first sign of pest and repeat as necessary. Do not apply more than 4 applications per season
Vegetables (bean, cabbage, carrot, cauliflower, celery, cucurbit, lettuce, tomato)	Aphid, Green vegetable bug, Jassid, Leaf hopper, Red legged earth mite (not Tas), Rutherglen bug, Twenty-eight-spotted ladybird (not Tas)		Apply at first sign of pest. Ensure adequate coverage in later growth stages by increasing rate and volume. Do not apply more than 4 applications per season WARNING Some Green peach aphid populations may be resistant to organophosphate insecticides, and therefore WILL NOT be controlled by Fyfanon®440 EW

### 4. Fruit and Vegetables – Fruit Fly

Crop	Pest	Rate	Critical comments
To effectively manage fruit fly, a multi-faceted approach should be used. Fyfanon® 440 EW assists in the management of fruit flies as part of an integrated program that includes other registered insecticides, baiting, trapping, pest monitoring, and orchard hygiene. The efficacy of the multi-faceted approach will be dependent upon the level of pest pressure during the season.			
Apples, pears	Fruit fly	140 – 230 mL/100 L	Apply treatment when fruit fly activity is initially observed, as determined by regular monitoring and fruit fly trapping. Apply as a thorough cover spray to the point of run-off. DO NOT spray on any plants in flower while bees are foraging. Strawberries, Blueberries, <i>Rubus</i> and <i>Ribes</i>
Citrus			
Grapevines			
Persimmons			
Stone fruit			

Crop	Pest	Rate	Critical comments
<b>Strawberries blueberries, <i>rubus</i> and <i>ribes</i></b>			Apply a maximum of 6 applications per season, with a minimum of 7 days between consecutive (repeat) sprays. Other crops
<b>Capsicum, tomato</b>		295 mL/100 L	Apply a maximum of 4 applications per season, with a minimum of 7 days between consecutive (repeat) sprays.
<b>Cucumbers</b>			
<b>Fruit trees</b>	Fruit fly	Bait 700 mL to 100 L (308 g ai/100 L) plus a protein bait at recommended rates.	Apply as a lower pressure coarse foliar, spot or strip spray throughout the orchard or in fruit fly hot spots. For foliar and strip spraying apply in a volume of 5 – 20 L/ha of bait solution. For spot spraying, apply 100 to 150 spots/ha at 50 – 100 mL/spot of bait solution. Only apply to leaves, trunk and lower limbs of trees. Apply weekly from 6 weeks before harvest to 2 weeks after harvest. If rain occurs after application, reapply as soon as possible after the rain event. DO NOT apply directly to fruit. DO NOT spray trees when bees are foraging. DO NOT use the bait treatment as a broadcast or cover spray.
<b>Blueberries, <i>rubus</i> and <i>ribes</i> and strawberries</b>	Fruit fly	Bait 700 mL to 100 L plus a yeast autolysate or hydrolysate protein bait at recommended rates.	Apply only to perimeter non-crop vegetation and fruit fly resting sites. Apply as a low pressure coarse foliar, spot or strip spray. For foliar and strip spraying, apply in a volume of 5 to 20 L/ha of bait solution. For spot spraying, apply 100 to 150 spots/ha at 50 to 100 mL/spot of bait solution. Apply weekly from 6 weeks before harvest. If rain occurs after application, reapply as soon as possible after the rain event. DO NOT apply to plants or fruit directly. DO NOT spray plants when bees are foraging. DO NOT use the bait treatment as a broadcast or cover spray. Do not exceed recommended rates of Fyfanon 440 EW and yeast autolysate protein to avoid phytotoxicity.

## 5. Stored cereal grain

Crop/situation	Pest	Rate	Critical comments
Stored cereal grain, grain storage facilities and equipment	Stored grain insect pests (except Lesser Grain Borer) including Indian meal moth, Rice weevil, Rust-red flour beetle, Saw-toothed grain beetle, Tropical warehouse moth	5.7 L/100 L (10 L prepared spray/200 m <sup>2</sup> surface)	For use in WA only. Apply prepared spray to the walls, floors, roof structure, machinery, transport vehicles and areas surrounding storage facilities. Use as a routine hygiene procedure before grain is stored in any facility. Prevent surface contamination of grain. DO NOT apply more than at 2 monthly intervals in warm weather and 3 monthly intervals in winter.
		2.7 L/100 L (12 ppm) (1 L prepared spray/tonne grain)	For use in WA only. For up to 6 months protection apply to the grain as it is being transferred into storage. Ensure the use of suitable equipment to give an even coverage to the grain and which will adjust to the flow rate of the grain.
		56 mL/L (5 L prepared spray/100 m <sup>2</sup> )	For use in WA only. At 3 monthly intervals apply to the surface of the stored grain.

## 6. Miscellaneous

Crop/situation	Pest	Rate	Critical comments
<b>Animal quarters</b>	Fleas, flies, ticks	11.5 mL/L (50 g sugar may be added per 1 L of spray as a bait for fly control)	Apply thoroughly to animal houses such as stables, kennels, and bedding using 1 L of diluted spray per 20 m <sup>2</sup> of area. Good basic sanitation is necessary for a successful fly control program. Remove manure piles and other waste materials which act as breeding sites.
<b>Dairies, stables, factories, homes</b>	Flies	2.3 L/100 L	Treat surface where flies congregate such as walls, ceilings, stanchions, windows, etc out of reach of animals and children. Repeat as required.
<b>Poultry and pig sheds</b>	Common hide beetle ( <i>Dermestes maculatus</i> )	6.8 L/100 L Spray 5 L of solution to 100 m <sup>2</sup>	Ensure proper sanitation and run-off.
<b>Eucalypts, natives</b>	Autumn gum moth, GumLeaf skeletoniser, Leaf beetle, Spitfire, Spring beetle	340 mL plus 125 mL activator/100 L	When mixing with alkaline water, use 500 mL of LI700 per 100 L instead of activator.
	Scale insects	195 mL plus 3.3 L white oil/100 L	Ensure thorough coverage.
<b>Flowers, ornamentals</b>	Aphid, Azalea lace bug, Mites	140 mL/100 L	Apply at first sign of pest, repeat every 7 to 10 days as necessary.
	Scale on hardy plants	230 mL/100 L plus 1.3 L summer oil/100 L	
<b>Wildflowers, proteas</b>	Aphid, Leaf hopper, Sucking bugs, Thrips	115 mL/100 L	Ensure thorough coverage.
	Grasshoppers	Spray 570 mL/100 L Bait 55 mL/1 kg bran	Mix bait in a plastic bag. Leave overnight. Spread thoroughly.
<b>Mosquito breeding areas</b>	Adults	680 mL/ha	Dilute with water as required. Apply by pressure spray. Apply at major emergence of adults.
<b>Tobacco (seed bed, field)</b>	Brown vegetable weevil, Springtails	115 mL/100 L	Apply the spray to tobacco in seedbed when the insects are present. Repeat application of the spray at 7 - 10-day intervals if necessary to control the insects. Ensure thorough coverage.
	Small plague wingless grasshopper		

NOT TO BE USED FOR ANY OTHER PURPOSE OR IN ANY MANNER CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION

#### SPRAY DRIFT RESTRAINTS

Specific definitions for terms used in this section of the label can be found at [apvma.gov.au/spraydrift](http://apvma.gov.au/spraydrift)

DO NOT allow bystanders to come into contact with the spray cloud.

DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. The buffer zones in the relevant buffer zone table/s below may not be sufficient in all situations. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.

DO NOT apply unless the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application.

DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. These conditions exist most evenings 1 to 2 hours before sunset and persist until 1 to 2 hours after sunrise.

#### Buffer zones for boom sprayers

DO NOT apply by a boom sprayer unless the following requirements are met:

- spray droplets not smaller than a MEDIUM spray droplet size category
- minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for boom sprayers') are observed.

#### Buffer zones for boom sprayers

Application rate	Boom height above the target canopy	Mandatory buffer zones				
		Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
Cereals, non-crop areas, pastures						
2.5 L/ha	0.5 m or lower	0 metres	15 metres	15 metres	0 metres	0 metres
	1.0 m or lower	0 metres	50 metres	45 metres	0 metres	0 metres
1.9 L/ha	0.5 m or lower	0 metres	10 metres	10 metres	0 metres	0 metres
	1.0 m or lower	0 metres	40 metres	40 metres	0 metres	0 metres
1.4 L/ha	0.5 m or lower	0 metres	10 metres	5 metres	0 metres	0 metres
	1.0 m or lower	0 metres	30 metres	30 metres	0 metres	0 metres
1.25 L/ha	0.5 m or lower	0 metres	5 metres	5 metres	0 metres	0 metres
	1.0 m or lower	0 metres	30 metres	30 metres	0 metres	0 metres
340 mL/ha	0.5 m or lower	0 metres	0 metres	0 metres	0 metres	0 metres
	1.0 m or lower	0 metres	10 metres	10 metres	0 metres	0 metres
160 mL/ha	0.5 m or lower	0 metres	0 metres	0 metres	0 metres	0 metres
	1.0 m or lower	0 metres	0 metres	0 metres	0 metres	0 metres

## Buffer Zones for Aerial application

DO NOT apply by aircraft unless the following requirements are met:

- spray droplets not smaller than a MEDIUM spray droplet size category
- for maximum release heights above the target canopy of 3m or 25% of wingspan or 25% of rotor diameter whichever is the greatest, minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for aircraft') are observed.

## Buffer Zones for Aerial application

Application rate	Aircraft type	Mandatory buffer zones				
		Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
2.5 L/ha	Fixed wing	0 metres	200 metres	190 metres	0 metres	0 metres
	Helicopter	0 metres	140 metres	140 metres	0 metres	0 metres
1.9 L/ha	Fixed wing	0 metres	160 metres	160 metres	0 metres	0 metres
	Helicopter	0 metres	120 metres	120 metres	0 metres	0 metres
1.4 L/ha	Fixed wing	0 metres	130 metres	130 metres	0 metres	0 metres
	Helicopter	0 metres	95 metres	95 metres	0 metres	0 metres
1.8 L/ha	Fixed wing	0 metres	160 metres	150 metres	0 metres	0 metres
	Helicopter	0 metres	120 metres	110 metres	0 metres	0 metres
680 mL/ha	Fixed wing	0 metres	75 metres	75 metres	0 metres	0 metres
	Helicopter	0 metres	60 metres	60 metres	0 metres	0 metres
1.25 L/ha	Fixed wing	0 metres	120 metres	120 metres	0 metres	0 metres
	Helicopter	0 metres	90 metres	90 metres	0 metres	0 metres
340 mL/ha	Fixed wing	0 metres	40 metres	35 metres	0 metres	0 metres
	Helicopter	0 metres	40 metres	40 metres	0 metres	0 metres
160 mL/ha	Fixed wing	0 metres	15 metres	15 metres	0 metres	0 metres
	Helicopter	0 metres	20 metres	20 metres	0 metres	0 metres

## Buffer Zones for Vertical Sprayers

DO NOT apply by a vertical sprayer unless the following requirements are met:

- spray is not directed above the target canopy
- the outside of the sprayer is turned off when turning at the end of rows and when spraying the outer row on each side of the application site

- for dilute water rates up to the maximum listed for each type of canopy specified, minimum distances between the application site and downwind sensitive areas (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for vertical sprayers') are observed.

Type of target canopy and dilute water rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
700 mL/100 L in fruit trees, strawberries, blueberries, <i>rubus</i> and <i>ribes</i>					
All, maximum dilute rate of 20 L/ha	0 metres	15 metres	15 metres	0 metres	0 metres
570 mL/100 L wildflowers and proteas					
All	0 metres	10 metres	10 metres	0 metres	0 metres
340 mL/100 L in eucalypts and natives					
2 metres tall and smaller, maximum dilute water rate of 1000 L/ha	0 metres	10 metres	10 metres	0 metres	0 metres
taller than 2 metres (not fully foliated), maximum dilute water rate of 2000 L/ha	0 metres	35 metres	35 metres	0 metres	0 metres
taller than 2 metres (fully foliated), maximum dilute water rate of 2000 L/ha	0 metres	25 metres	25 metres	0 metres	0 metres
295 mL/100 L in capsicum, cucumber and tomatoes					
All	0 metres	10 metres	10 metres	0 metres	0 metres
230 mL/100 L in citrus					
2 metres tall and smaller, maximum dilute water rate of 1000 L/ha	0 metres	10 metres	10 metres	0 metres	0 metres
taller than 2 metres (not fully foliated), maximum dilute water rate of 4000 L/ha	0 metres	40 metres	40 metres	0 metres	0 metres
taller than 2 metres (fully foliated), maximum dilute water rate of 4000 L/ha	0 metres	30 metres	30 metres	0 metres	0 metres
230 mL/100 L in apples, pears, persimmons and stone fruit					
2 metres tall and smaller, maximum dilute water rate of 1000 L/ha	0 metres	10 metres	10 metres	0 metres	0 metres
taller than 2 metres (not fully foliated), maximum dilute water rate of 1500 L/ha	0 metres	25 metres	25 metres	0 metres	0 metres
taller than 2 metres (fully foliated), maximum dilute water rate of 1500 L/ha	0 metres	20 metres	20 metres	0 metres	0 metres
230 mL/100 L in cucurbits, vegetables (bean, cabbage, carrot, cauliflower, celery, cucurbit, lettuce, tomato), grapevines, strawberries, blueberries, <i>rubus</i> , <i>ribes</i> , flowers and ornamentals					



<b>All</b>	0 metres	10 metres	10 metres	0 metres	0 metres
195 mL/100 L in eucalypts and natives					
<b>2 metres tall and smaller, maximum dilute water rate of 1000 L/ha</b>	0 metres	10 metres	10 metres	0 metres	0 metres
<b>taller than 2 metres (not fully foliated), maximum dilute water rate of 4000 L/ha</b>	0 metres	30 metres	30 metres	0 metres	0 metres
<b>taller than 2 metres (fully foliated), maximum dilute water rate of 4000 L/ha</b>	0 metres	20 metres	20 metres	0 metres	0 metres
140 mL/100 L in citrus					
<b>2 metres tall and smaller, maximum dilute water rate of 1000 L/ha</b>	0 metres	5 metres	5 metres	0 metres	0 metres
<b>taller than 2 metres (not fully foliated), maximum dilute water rate of 4000 L/ha</b>	0 metres	30 metres	30 metres	0 metres	0 metres
<b>taller than 2 metres (fully foliated), maximum dilute water rate of 4000 L/ha</b>	0 metres	20 metres	20 metres	0 metres	0 metres
140 mL/100 L in apples, pears, persimmons and stone fruit					
<b>2 metres tall and smaller, maximum dilute water rate of 1000 L/ha</b>	0 metres	5 metres	5 metres	0 metres	0 metres
<b>taller than 2 metres (not fully foliated), maximum dilute water rate of 1500 L/ha</b>	0 metres	20 metres	20 metres	0 metres	0 metres
<b>taller than 2 metres (fully foliated), maximum dilute water rate of 1500 L/ha</b>	0 metres	15 metres	15 metres	0 metres	0 metres
Up to 140 mL/100 L in cucurbits, vegetables, grapevines, strawberries, blueberries, <i>rubus</i> , <i>ribes</i> , flowers ornamentals, tobacco field, wildflowers, and proteas					
<b>All</b>	0 metres	5 metres	5 metres	0 metres	0 metres

Buffer zones for misters (ground application)

DO NOT apply by misters unless the following conditions are observed:

the release height is not greater than 2 metres above the ground

minimum distances between the application site and downwind sensitive areas that appear in the 'Mandatory buffer zones' section of the table titled 'Buffer zones for misters (ground application)' below.

## Buffer zones for misting (ground application)

Application rate	Mandatory buffer zones				
	Bystander areas	Natural aquatic areas	Pollinator areas	Vegetation areas	Livestock areas
2.5 L/ha	0 metres	165 metres	160 metres	0 metres	0 metres
1.4 L/ha	0 metres	100 metres	95 metres	0 metres	0 metres
1.1 L/ha	0 metres	75 metres	70 metres	0 metres	0 metres
680 mL/ha	0 metres	40 metres	40 metres	0 metres	0 metres

## Home garden agricultural chemical product sample labels

### Malathion 100 g/L emulsifiable concentrate – 58968

<b>Signal heading:</b>	CAUTION KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING									
<b>Product name:</b>	David Grays Malathion and White Oil Insecticide									
<b>Constituent statement:</b>	Active constituent: 100 g/L malathion An anticholinesterase compound 400 g/L petroleum oil Solvent: 357 g/L liquid hydrocarbon									
<b>Statement of claims:</b>	For the control of Scale, Aphids, Thrips, Caterpillars, Leafhoppers and other insects as indicated on vegetables, fruit trees and ornamentals in the home garden.									
<b>Net contents:</b>	200 mL									
<b>How to Use</b>	<table border="0"> <thead> <tr> <th>Crop</th> <th>Insect pests</th> <th>How to apply</th> </tr> </thead> <tbody> <tr> <td>Fruit trees, ornamentals, vegetables</td> <td>Scale, aphids, thrips, caterpillars, leafhoppers</td> <td>Mix 10 mL in 2 litres of water and spray when pests first appear.</td> </tr> <tr> <td>Ornamentals, vegetables</td> <td>Rutherglen Bug, Green Vegetable Bug.</td> <td>Repeat at 7 to 10-day intervals as necessary</td> </tr> </tbody> </table>	Crop	Insect pests	How to apply	Fruit trees, ornamentals, vegetables	Scale, aphids, thrips, caterpillars, leafhoppers	Mix 10 mL in 2 litres of water and spray when pests first appear.	Ornamentals, vegetables	Rutherglen Bug, Green Vegetable Bug.	Repeat at 7 to 10-day intervals as necessary
Crop	Insect pests	How to apply								
Fruit trees, ornamentals, vegetables	Scale, aphids, thrips, caterpillars, leafhoppers	Mix 10 mL in 2 litres of water and spray when pests first appear.								
Ornamentals, vegetables	Rutherglen Bug, Green Vegetable Bug.	Repeat at 7 to 10-day intervals as necessary								
<b>Limitation on use:</b>	NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED									
<b>Withholding period</b>	DO NOT PICK EDIBLE PLANTS FOR 3 DAYS AFTER SPRAYING.									
<b>Restraints</b>										
<b>How to prepare</b>	Mix 10 mL in 2 litres of water DO NOT mix more than is needed. DO NOT store prepared spray. Compatibility: DO NOT mix with Bordeaux or any other alkaline mixtures.									
<b>Caution statements</b>	DO NOT allow entry into treated areas until spray has dried. Toxic to bees. DO NOT spray if bees are feeding on flowering plants. Toxic to aquatic life. DO NOT allow the product, chemical containers or spray to get into drains, sewers, streams or ponds.									
<b>Storage and disposal</b>	Store below 30°C (room temperature). Store in the closed, original container in a cool, dry place out of the reach of children. Do not store in direct sunlight. Dispose of empty container by wrapping in paper, placing in plastic bag and putting in garbage.									
<b>Safety directions</b>	Harmful if swallowed. Will irritate the eyes. Avoid contact with eyes. When opening the container, preparing spray and using the prepared spray, wear rubber gloves. After use and before eating, drinking, or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves.									
<b>First aid instructions</b>	If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766.									
<b>Expiry date and date of manufacture</b>	[INSERT HERE]									

**Malathion 500 g/L emulsifiable concentrate – 42035**

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING												
<b>Product name:</b>	David Grays Malathion Garden Spray												
<b>Constituent statement:</b>	Active constituent: 500 g/L malathion An anticholinesterase compound Solvent: 488 g/L hydrocarbon liquid												
<b>Statement of claims:</b>	For the control of aphids, mites, scale, cabbage moth and loopers on ornamentals and vegetables, and fruit fly on fruit trees in the home garden.												
<b>Net contents:</b>	200 mL, 500 mL												
<b>How to use</b>	How to use: <table border="1"> <thead> <tr> <th>Plant</th> <th>Pest</th> <th>Rate</th> <th>How to apply</th> </tr> </thead> <tbody> <tr> <td>Ornamentals, vegetables</td> <td>Aphids, mites, Cabbage Moth, scale, loopers.</td> <td>5 mL per 2 litres of water.</td> <td>Apply late in the day out of heat</td> </tr> <tr> <td>Fruit trees</td> <td>Fruit Fly</td> <td>25 mL per 4 litres of water</td> <td>To treat 20 trees, mix solution with 25 mL of protein or 200 g sugar.</td> </tr> </tbody> </table>	Plant	Pest	Rate	How to apply	Ornamentals, vegetables	Aphids, mites, Cabbage Moth, scale, loopers.	5 mL per 2 litres of water.	Apply late in the day out of heat	Fruit trees	Fruit Fly	25 mL per 4 litres of water	To treat 20 trees, mix solution with 25 mL of protein or 200 g sugar.
Plant	Pest	Rate	How to apply										
Ornamentals, vegetables	Aphids, mites, Cabbage Moth, scale, loopers.	5 mL per 2 litres of water.	Apply late in the day out of heat										
Fruit trees	Fruit Fly	25 mL per 4 litres of water	To treat 20 trees, mix solution with 25 mL of protein or 200 g sugar.										
<b>Limitation on use</b>	NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED												
<b>Restraints</b>													
<b>Withholding period</b>	DO NOT PICK EDIBLE PLANTS FOR 4 DAYS AFTER SPRAYING.												
<b>How to prepare</b>	Pour the required quantity into a measuring cylinder and mix with water. Repeat if required and replace childproof cap. DO NOT mix more than is needed. DO NOT store prepared spray.												
<b>Caution statements</b>	DO NOT allow entry into treated areas until spray has dried. Toxic to bees. DO NOT spray if bees are feeding on flowering plants. Toxic to aquatic life. DO NOT allow the product, chemical containers or spray to get into drains, sewers, streams or ponds.												
<b>Storage and disposal</b>	Store below 30°C (room temperature). Store in the closed, original container in a cool, dry place out of the reach of children. Do not store in direct sunlight. Dispose of empty container by wrapping in paper, placing in plastic bag and putting in garbage.												
<b>Safety directions</b>	Harmful if swallowed. Will irritate the eyes. Avoid contact with eyes. When opening the container, preparing spray and using the prepared spray, wear rubber gloves. After use and before eating, drinking, or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves.												
<b>First aid instructions</b>	If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre (Phone Australia 13 11 26, New Zealand 0800 764 766) or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed.												
<b>Expiry date and date of manufacture</b>	[INSERT HERE]												

**Malathion 500 g/L emulsifiable concentrate – 62242**

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING								
<b>Product name:</b>	David Grays Fruit Fly Garden Spray								
<b>Constituent statement:</b>	Active constituent: 500 g/L malathion An anticholinesterase compound Solvent: 488 g/L hydrocarbon liquid								
<b>Statement of claims:</b>	For the control of fruit fly on fruit trees in the home garden.								
<b>Net contents:</b>	200 mL, 500 mL								
<b>How to Use</b>	How to use <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 25%;">Plant</th> <th style="text-align: left; width: 25%;">Pest</th> <th style="text-align: left; width: 25%;">Rate</th> <th style="text-align: left; width: 25%;">How to apply</th> </tr> </thead> <tbody> <tr> <td>Fruit Trees</td> <td>Fruit Fly</td> <td>25 mL per 4 litres of water</td> <td>To treat 30 trees, mix solution with</td> </tr> </tbody> </table>	Plant	Pest	Rate	How to apply	Fruit Trees	Fruit Fly	25 mL per 4 litres of water	To treat 30 trees, mix solution with
Plant	Pest	Rate	How to apply						
Fruit Trees	Fruit Fly	25 mL per 4 litres of water	To treat 30 trees, mix solution with						
<b>Limitation on use</b>	NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED								
<b>Restraints</b>									
<b>Withholding period</b>	DO NOT PICK EDIBLE PLANTS FOR 4 DAYS AFTER SPRAYING.								
<b>How to prepare</b>	Pour the required quantity into a measuring cylinder and mix with water. Repeat if required and replace childproof cap. DO NOT mix more than is needed. DO NOT store prepared spray.								
<b>Caution statements</b>	DO NOT allow entry into treated areas until spray has dried. Toxic to bees. DO NOT spray if bees are feeding on flowering plants. Toxic to aquatic life. DO NOT allow the product, chemical containers or spray to get into drains, sewers, streams or ponds.								
<b>Storage and disposal</b>	Store below 30°C (room temperature). Store in the closed, original container in a cool, dry place out of the reach of children. Do not store in direct sunlight. Dispose of empty container by wrapping in paper, placing in plastic bag and putting in garbage.								
<b>Safety directions</b>	Harmful if swallowed. Will irritate the eyes. Avoid contact with eyes. When opening the container, preparing spray and using the prepared spray, wear rubber gloves. After use and before eating, drinking, or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves.								
<b>First aid instructions</b>	If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre (Phone Australia 13 11 26, New Zealand 0800 764 766) or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed.								
<b>Expiry date and date of manufacture</b>	[INSERT HERE]								

## Veterinary medicine sample labels

### Malathion 200 g/L topical solution/suspension – 37201

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING FOR ANIMAL TREATMENT ONLY
<b>Product name:</b>	Inca Malaban Wash Concentrate
<b>Constituent statement:</b>	Active constituent: 200 g/L malathion an anticholinesterase compound Solvent: 663 g/L Xylene
<b>Statement of claims:</b>	Controls fleas, lice and adult Brown Dog Ticks on dogs, cats, and in dog kennels. Also controls Sarcoptic Mange mites on dogs and cats and aids in control of Red Mites in aviaries as per <i>Directions for use</i> .
<b>Net contents:</b>	250 mL, 500 mL, 4 L
<b>Directions for use:</b>	
<b>Restraints</b>	NOT FOR USE IN DOMESTIC SITUATIONS DO NOT allow children to handle companion animals treated with malathion for one hour after application. DO NOT allow entry into treated animal housing or handle treated animal bedding until spray has dried. DO NOT allow children to enter treated animal housing or handle treated animal bedding for 3 full days after application.
<b>Contraindications</b>	DO NOT USE ON KITTENS AND PUPPIES UNDER 3 MONTHS OF AGE
<b>Precautions:</b>	
<b>Side effects</b>	
<b>Dosage and administration</b>	DOGS Fleas ( <i>Ctenocephalides spp.</i> ) and lice ( <i>Trichodectes canis</i> ): Mix 15mL malaban Wash with 1 Litre of water and swab animal. Repeat in 7 to 10 days if necessary. Saturate the kennel thoroughly, concentrating on cracks and crevices. Remove animal until the kennel dries. Sarcoptic mange ( <i>Sarcoptes scabiei</i> ) and Ticks ( <i>Rhipicephalus sanguineus</i> ): Mix 30mL Malaban Wash with 1 Litre of water and swab animal. Repeat in 7 to 10 days. Does Not Control Paralysis Tick ( <i>Ixodes holocyclus</i> ). In tick season daily searching for and removal of any ticks found is recommended. Search the animal thoroughly including between the toes and behind the ears. CATS Fleas ( <i>Ctenocephalides spp.</i> ): Mix 15mL Malaban Wash with 1 Litre of water and swab animal. Repeat in 7 to 10 days if necessary. AVIARIES AND LOFTS Red Mites ( <i>Dermanyssus</i> and <i>Ornithonyssus spp</i> ) and Lice ( <i>Order Mallophaga</i> ): Mix 15mL Malaban Wash with 1 litre of water. Remove birds, then spray aviaries and lofts thoroughly including nesting boxes, litter and walls. Return birds when aviaries etc. are dry. As total control of pests requires appropriate treatment of both the animal and its environment, also treat birds with a suitable registered insecticide.
<b>General directions</b>	NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION
<b>Withholding period:</b>	
<b>Trade advice</b>	
<b>Safety directions:</b>	Poisonous if swallowed. Will damage the eyes. Will irritate the nose, throat and skin. Avoid contact with eyes and skin. Do not inhale vapour. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container and preparing the product for use, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat, elbow length chemical resistant gloves, goggles and a disposable mist mask. If product in

	eyes, wash it out immediately with water. If product on skin, immediately wash area with soap and water. Wash hands after use. After each day's use, wash gloves, goggles and contaminated clothing.
<b>First aid instructions:</b>	If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766.
<b>Additional user safety</b>	MSDS: Additional information is listed in the Material Safety Data Sheet which can be obtained from the supplier.
<b>Environmental protection statements:</b>	PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.
<b>Storage:</b>	STORAGE Store below 30 ° C (Room Temperature). Containers should be kept closed.
<b>Disposal:</b>	Dispose of any unused chemical in compliance with relevant local, state or territory government regulations. (250 mL, 500 mL containers) Dispose of empty container by wrapping in paper and putting in garbage. (4 L container) Triple-rinse container into the medicated water. Do not dispose of undiluted chemicals on-site. If recycling, replace cap and return clean container to recycler or designated collection point. If not recycling, break, crush, or puncture container and deliver to an approved waste management facility. If an approved waste management facility is not available, bury the broken, crushed or punctured containers 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.
<b>Expiry date and date of manufacture</b>	[INSERT HERE]

**Malathion 200 g/L topical solution/suspension – 54285**

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING FOR ANIMAL TREATMENT ONLY			
<b>Product name:</b>	Bob Martin Since 1892 Flea & Tick Control for Dogs, Cats & Aviaries Malawash			
<b>Constituent statement:</b>	Active constituent: 200 g/L malathion An anticholinesterase compound Solvent: 640 g/L liquid hydrocarbons			
<b>Statement of Claims:</b>	A concentrate wash for use on dogs, cats and in aviaries for the control of fleas, ticks, mites, lice and sarcoptic mange.			
<b>Net contents:</b>	250 mL			
<b>Directions for use:</b>				
<b>Restrains</b>	DO NOT allow entry into treated animal housing or handle treated animal bedding until spray has dried. DO NOT allow children to handle companion animals treated with malathion for one hour after application. DO NOT allow children to enter treated animal housing or handle treated animal bedding for 3 full days after application.			
<b>Contraindications</b>	DO NOT use on kittens under 6 months or puppies under 3 months.			
<b>Precautions:</b>				
<b>Side effects</b>				
<b>Dosage and administration</b>	Animal/Area	Pest Controlled	Rate per 1L water	Critical Comments/Application
				Direct application to animal Animal Housing and Bedding
	Dogs Over 4 months	Fleas ( <i>Ctenocephalides</i> spp.)	15 mL	Mix 15 mL of Malawash per Litre of water and swab animal thoroughly. Repeat in 7 days if necessary.
	Cats over 6 months	Lice ( <i>Trichodectes canis</i> & <i>Felicola subrostratus</i> )		Mix 15 mL of Malawash per Litre of water and spray solution around the yard and bedding.
		Sarcoptic mange ( <i>Sarcoptes scabiei</i> ) Ticks ( <i>Rhipicephalus sanguineus</i> & <i>Ixodes holocyclus</i> )	30 mL	Mix 30 mL of Malawash per Litre of water and swab animal thoroughly. Do not immerse animal in the solution. Repeat in 7 Days if necessary. In Paralysis Tick areas, daily searching for removal of any ticks found is recommended
	Aviaries	Red Mites ( <i>Dermanyssus gallinae</i> ), ticks ( <i>Argas</i> spp.), lice ( <i>Menopon gallinae</i> )	50 mL	Remove birds and spray aviary thoroughly including nesting boxes, litter & walls with a mixture of 50 mL of Malawash per Litre of water.
<b>General directions</b>	NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION			
<b>Withholding period:</b>				



<b>Trade advice:</b>	
<b>Safety directions:</b>	Harmful if swallowed. Will irritate the eyes. Avoid contact with eyes. Do not inhale spray mist. When opening the container, preparing spray and using the prepared spray, wear rubber gloves. After use and before eating, drinking, or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves.
<b>First aid instructions:</b>	If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766.
<b>Additional user safety</b>	MSDS: Additional information is listed in the Material Safety Data Sheet which can be obtained from the supplier.
<b>Environmental statements:</b>	PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.
<b>Storage and disposal:</b>	Store below 30° C (Room Temperature) in the closed original container. Do not store in direct sunlight. Tighten cap after use.
<b>Disposal</b>	Dispose of any unused product in compliance with relevant local, state or territory government regulations. DISPOSAL (250 mL container) Dispose of empty container by wrapping in paper and putting in garbage.
<b>Expiry date and date of manufacture</b>	[INSERT HERE]

**Malathion 20 g/kg topical dust – 42267**

<b>Signal heading:</b>	CAUTION KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING FOR ANIMAL TREATMENT ONLY
<b>Product name:</b>	David Grays Poultry Dust
<b>Constituent statement:</b>	Active constituent: 20 g/kg malathion An anticholinesterase compound
<b>Statement of claims:</b>	Controls fleas ( <i>Echidrophaga gallinacea</i> ), flies ( <i>Musca domestica L.</i> ), lice ( <i>Manacanthus stramineus &amp; Menocan gallinae L.</i> ), ticks ( <i>Haemaphysalis spp.</i> ), and mites ( <i>Acarina</i> ) on poultry.
<b>Net contents:</b>	400 g, 3 kg, 15 kg.
<b>Directions for use:</b>	
<b>Restraints:</b>	DO NOT allow children to handle companion animals treated with malathion for one hour after application. DO NOT allow children to enter treated animal housing or handle treated animal bedding for 3 full days after application.
<b>General instructions:</b>	
<b>Precautions:</b>	
<b>Dosage and administration</b>	Dust David Grays Poultry Dust between the feathers of birds and repeat where necessary. To prevent breeding of poultry parasites, apply Poultry Dust to roosts and crevices of buildings.
<b>General directions:</b>	NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.
<b>Withholding period:</b>	Meat: Do not use later than 7 days before slaughter for human consumption. Eggs: Zero (0) days
<b>Trade advice:</b>	[INSERT HERE]
<b>Safety directions:</b>	May irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When using the product wear elbow-length chemical resistant gloves and a disposable dust mask. Wash hands after use. After each day's use wash gloves and contaminated clothing.
<b>First aid instructions:</b>	If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766.
<b>Environmental statements:</b>	PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers.
<b>Storage:</b>	Store in a dry place, keep container closed, protect from light. Store below 30 °C (room temperature).
<b>Disposal:</b>	Dispose of any unused chemical in compliance with relevant local, state or territory government regulations. Disposal (400 g pack): Dispose of empty container by wrapping with paper and putting in garbage. Disposal (3 kg and 15 kg packs): Triple-rinse container and dispose of rinsate in compliance with relevant local, state or territory government regulations. If recycling, replace cap and return clean container to recycler or designated collection point. If not recycling, break, crush, or puncture container and deliver to an approved waste management facility. If an approved waste management facility is not available, bury the broken, crushed or punctured containers 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.
<b>Expiry date and date of manufacture</b>	[INSERT HERE]

**Malathion 500 g/L Emulsifiable Concentrate – 33021**

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING FOR ANIMAL TREATMENT ONLY
<b>Product name:</b>	Pharmachemical Maldison 50 Insecticide
<b>Constituent statement:</b>	Active constituent: 500 g/L Malathion An anticholinesterase compounds Solvent: 493 g/L hydrocarbon liquid
<b>Statement of claims:</b>	For the control of a wide range of insect pests in dogs, poultry, pigs, horses and cattle and their housing as per the <i>Directions for use</i> table.
<b>Net contents:</b>	250 mL, 500 mL, 5 L
<b>Directions for use</b>	
<b>Restraints</b>	DO NOT allow entry into treated areas until spray has dried. DO NOT allow entry into treated animal housing or handle treated animal bedding until spray has dried. DO NOT allow children to handle companion animals treated with malathion for one hour after application. DO NOT allow children to enter treated animal housing or handle treated animal bedding for 3 full days after application.
<b>Contraindications</b>	
<b>Precautions:</b>	
<b>Side effects</b>	
<b>Dosage and administration</b>	See below
<b>General directions</b>	Dilute to recommended application strength with water before applying. Pharmachemical Maldison 50 Insecticide gives a spontaneous emulsion in water and may be added directly to the water in the spray vat with the agitators running. Mixes readily with hard or soft water.
<b>Withholding period:</b>	Meat: Do not use later than 7 days before slaughter for human consumption. MILK: Milk collected from cows within 5 hours following treatment MUST NOT BE USED or processed for human consumption or fed to bobby calves. Eggs: Zero (0) days
<b>Trade advice:</b>	EXPORT SLAUGHTER INTERVALS (ESI): This product does not have an ESI established. For advice on the ESI, please contact the manufacturer on (07) 3271 4411 before using this product.
<b>Safety directions:</b>	Will damage the eyes. Will irritate the nose, throat and skin. Avoid contact with eyes and skin. Do not inhale vapour. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container and preparing the product for use, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat, elbow length chemical resistant gloves, goggles and a disposable mist mask. If applying by low pressure hand wand wear cotton overalls, over normal clothing, buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. If applying by backpack sprayer, wear cotton overalls, over normal clothing buttoned to the neck and wrist and elbow length chemical resistant gloves and a half facepiece respirator. If product in eyes, wash it out immediately with water. If product on skin, immediately wash area with soap and water. Wash hands after use. After each day's use, wash gloves, goggles and contaminated clothing.
<b>First aid instructions:</b>	If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre (Phone Australia 13 11 26, New Zealand 0800 764 766) or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed.
<b>Additional user safety</b>	[Include if required: MSDS: Additional information is listed in the Material Safety Data Sheet which can be obtained from the supplier.]
<b>Environmental statements:</b>	PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers. PROTECTION OF HONEYBEES AND OTHER INSECT POLLINATORS Toxic to bees. DO NOT spray if bees are feeding on flowering plants.

<b>Storage:</b>	STORAGE Store below 30° C (room temperature). Store in a dry place, keep container closed, protect from light.
<b>Disposal:</b>	Dispose of any unused product in compliance with relevant local, state or territory government regulations DISPOSAL (250 mL, 500 mL containers) Dispose of empty container by wrapping in paper and putting in garbage. DISPOSAL (5 L container) Triple-rinse container into the medicated water. Do not dispose of undiluted chemicals on-site. If recycling, replace cap and return clean container to recycler or designated collection point. If not recycling, break, crush, or puncture container and deliver to an approved waste management facility. If an approved waste management facility is not available, bury the broken, crushed or punctured containers 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, vegetation and tree roots, in compliance with relevant local, state or territory government regulations. Do not burn empty containers or product.
<b>Expiry date and date of manufacture</b>	[INSERT HERE]

## DOSAGE and ADMINISTRATION

Animal situation	Pest	Dilution rate of product in water		Critical comments
		Spray/high volume	Alternative application	
Dogs over 3 months	Fleas & lice		50 mL/10 L	Saturate the animal using a sponge. Repeat in 7 days. Use the residue for spraying bedding etc with a trigger pump spray. Do not immerse the animal.
	Adult Brown Dog Tick & Sarcoptic Mange		50 mL/5 L	
Poultry pests	Lice & mites (poultry houses)		500 mL/25 L	Thoroughly treat nesting boxes, litter and walls with spray with manually pressurised hand wand.
			500 mL/8 L	Paint onto roosts with paint brush. The above applications should be repeated 8-14 days later to destroy lice hatching from eggs present at the first treatment.
	Lice or Tropical Fowl Mite	500 mL/100 L		Spray birds with a trigger pump spray at the rate of 50 L/1000 birds.
	Ticks		500 mL/8 L	Treat the walls, nesting boxes and roosts of poultry houses very thoroughly with a with manually pressurised hand wand, paying particular attention to cracks and crevices in timber where the lice hide.
Pigs	Pig lice & Sarcoptic Mange		250 mL/20 L	Thoroughly spray all pigs and sheds with a low-pressure spray.
Horses	Lice, ticks, Sandflies		250 mL/20 L	Apply by sponge or trigger pump spray to horse (i.e. 2 Litres of per horse).
Cattle	Lice	1 L/100 L		Spraying at the rate of 4.5 Litres per head is usually enough using a low-pressure spray.

NOT TO BE USED FOR ANY PURPOSE OR IN ANY MANNER CONTRARY TO THIS LABEL UNLESS AUTHORISED  
UNDER APPROPRIATE LEGISLATION

**Malathion 500 g/L emulsifiable concentrate – 63456**

<b>Signal heading:</b>	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING FOR ANIMAL TREATMENT ONLY
<b>Product name:</b>	Saint Bernard Petcare Maldison Wash Insecticide
<b>Constituent statement:</b>	Active constituent: 500 g/L malathion An anticholinesterase compound Solvent: 493 g/L hydrocarbon liquid
<b>Statement of Claims:</b>	For the control of a wide range of insect pests in dogs, cats, poultry, pigs, horses and cattle as per the <i>Directions for use</i> table.
<b>Net contents:</b>	250 mL
<b>Directions for use:</b>	
<b>Restraints</b>	DO NOT apply directly to water. DO NOT allow re-entry into treated areas until spray has dried. DO NOT allow entry into treated animal housing or handle treated animal bedding until spray has dried. DO NOT allow children to handle companion animals treated with malathion for one hour after application. DO NOT allow children to enter treated animal housing or handle treated animal bedding for 3 full days after application.
<b>Contraindications</b>	
<b>Precautions:</b>	Very toxic to aquatic life. DO NOT allow chemical containers or spray to get into drains, sewers, streams or ponds.
<b>Side effects</b>	
<b>Dosage and administration</b>	See below
<b>General directions</b>	MIXING: Saint Bernard Petcare Maldison wash insecticide gives spontaneous emulsion in water and may be added directly to the water in the spray vat with the agitators running, mixes readily with hard or soft water.
<b>Withholding period:</b>	Meat: Do not use later than 7 days before slaughter for human consumption. Milk: Milk collected from cows within 5 hours following treatment MUST NOT BE USED or processed for human consumption or fed to bobby calves. Eggs: Zero (0) days
<b>Trade advice:</b>	EXPORT SLAUGHTER INTERVALS (ESI): This product does not have an ESI established. For advice on the ESI, please contact the manufacturer on (07) 3271 4411 before using this product.
<b>Safety directions:</b>	Will damage the eyes. Will irritate the nose, throat and skin. Avoid contact with eyes and skin. Do not inhale vapour. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. When opening the container and preparing the product for use, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat, elbow length chemical resistant gloves, goggles and a disposable mist mask. If applying by low pressure hand wand wear cotton overalls, over normal clothing, buttoned to the neck and wrist and a washable hat and elbow length chemical resistant gloves. If applying by backpack sprayer, wear cotton overalls, over normal clothing buttoned to the neck and wrist and elbow length chemical resistant gloves and a half facepiece respirator. If product in eyes, wash it out immediately with water. If product on skin, immediately wash area with soap and water. Wash hands after use. After each day's use, wash gloves, goggles and contaminated clothing.
<b>First aid instructions:</b>	If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre (Phone Australia 13 11 26, New Zealand 0800 764 766) or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed.
<b>Additional user safety</b>	MSDS: Additional information is listed in the Material Safety Data Sheet which can be obtained from the supplier.
<b>Storage:</b>	Store below 30° C (room temperature). Store in a dry place, keep container closed, protect from light.

<b>Disposal:</b>	Dispose of any unused chemical in compliance with relevant local, state or territory government regulations. DISPOSAL (250 mL containers) Dispose of empty container by wrapping in paper and putting in garbage.
<b>Expiry date and date of manufacture</b>	[INSERT HERE]

## Dosage and administration:

Animal situation	Pest	Dilution rate of product in water		Critical comments
		Spray/high volume	Alternative application	
Dogs over 3 months, cats over 6 months	Fleas & lice		50 mL/10 L	Saturate the animal using a sponge. Repeat in 7 days. Use the residue for spraying bedding etc with a trigger pump spray. Do not immerse the animal.
	Adult Brown Dog Tick & Sarcoptic Mange		50 mL/5 L	
Poultry pests	Lice & mites (poultry houses)		250 mL/12.5 L	Thoroughly treat nesting boxes, litter and walls with spray. Paint onto roosts. The above applications should be repeated 8-14 days later to destroy lice hatching from eggs present at the first treatment. Spray birds using a trigger pump spray at the rate of 50L/1000 birds. Treat the walls, nesting boxes and roosts of poultry houses very thoroughly with a manually pressurised hand wand, paying particular attention to cracks and crevices in timber where the lice hide.
			250 mL/4 L	
	Lice or Tropical Fowl Mite	250 mL/50 L		
	Ticks	250 mL/4 L		
Pigs	Pig Lice & Sarcoptic Mange		250 mL/20L	Thoroughly spray all pigs and sheds using low pressure spray
Horses	Lice, Ticks, Sandflies		50 mL/4 L	Apply by sponge or trigger pump spray to horse (i.e. 2 L of spray per horse)
Cattle	Lice	1 L/100 L		Apply with low pressure spray. Spraying at the rate of 4.5 L per head is usually enough.
Fly control			500 mL/40 L	Apply with manually pressurised hand wand. The addition of sugar or molasses to the spray will result in a better kill. Do not apply past the point of run off. Do not apply to surfaces within reach of animals and/or children.
			25 mL/20L	

Animal situation	Pest	Dilution rate of product in water		Critical comments
		Spray/high volume	Alternative application	
Mosquito control	Adults	5 mL/100 m <sup>2</sup>		Apply with manually pressurised hand wand. Dilute with water as required. Application should be timed for periods of major emergence of adults.