



**Australian Government**  
**Australian Pesticides and  
Veterinary Medicines Authority**



## **Public Release Summary**

on the evaluation of the new active (Z,E)-7,9,11-dodecatrienyl formate in the product Semios Carob Moth Aerosol Pheromone

APVMA product number 93848

February 2026

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## Preface

The Australian Pesticides and Veterinary Medicines Authority (APVMA) is the Australian Government regulator responsible for assessing and approving agricultural and veterinary chemical products prior to their sale and use in Australia. Before approving an active constituent and/or registering a product, the APVMA must be satisfied that the statutory criteria, including the safety, efficacy, trade, and labelling criteria, have been met. The information and technical data required by the APVMA to assess the statutory criteria of new chemical products, and the methods of assessment, must be consistent with accepted scientific principles and processes. Details are outlined on the [APVMA website](#).

The APVMA has a policy of encouraging transparency in its activities and seeking community involvement in decision making. Part of that process is the publication of Public Release Summaries for products containing new active constituents. This Public Release Summary is intended as a brief overview of the assessment that has been conducted by the APVMA and of the specialist advice received from advisory agencies, including other Australian Government agencies and State departments of primary industries. It has been deliberately presented in a manner that is likely to be informative to the widest possible audience to encourage public comment.

## About this document

This Public Release Summary indicates that the APVMA is considering an application for registration of an agricultural or veterinary chemical. It provides a summary of the APVMA's assessment, which may include details of:

- the toxicology of both the active constituent and product
- the residues and trade assessment
- occupational exposure aspects
- environmental fate, toxicity, potential exposure and hazard
- efficacy and target crop or animal safety.

Comment is sought from interested stakeholders on the information contained within this document.

## Making a submission

In accordance with sections 12 and 13 of the Agvet Code, the APVMA invites any person to submit a relevant written submission as to whether the application for registration of [Product Name(s)] should be granted. Submissions should relate only to matters that the APVMA is required, by legislation, to take into account in deciding whether to grant the application. These matters include aspects of public health, occupational health and safety, chemistry and manufacture, residues in food, environmental safety, trade, and efficacy and target crop or animal safety. Submissions should state the grounds on which they are based. Comments received that address issues outside the relevant matters cannot be considered by the APVMA.

Submissions must be received by the APVMA by **close of business on Tuesday 10 March 2026** and be directed to the contact listed below. All submissions to the APVMA will be acknowledged in writing via email or by post.

Relevant comments will be taken into account by the APVMA in deciding whether the product should be registered and in determining appropriate conditions of registration and product labelling.

When making a submission please include:

- a contact name
- the company or organisation name (if relevant)
- an email or postal address (if available)
- 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, or if the APVMA chooses at its discretion not to publish any submissions received (refer to the [public consultation coversheet](#)).

Please lodge your submission using the [public consultation 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.

Unless you request for your submission to remain confidential, the APVMA may release your submission to the applicant for comment.

Written submissions should be addressed to:

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## Further information

Further information can be obtained via the contact details provided above.

Copies of technical evaluation reports covering chemistry, efficacy and safety, toxicology, occupational health and safety aspects, residues in food and environmental aspects are available from the APVMA on request.

Further information on Public Release Summaries can be found on the [APVMA website](#).

## Introduction

This publication provides a summary of the data reviewed and an outline of the regulatory considerations for the proposed registration of Semios Carob Moth Aerosol Pheromone, and approval of the new active constituent, (Z,E)-7,9,11-dodecatrienyl formate.

## Applicant

SEMIOS AUSTRALIA PTY LTD.

## Purpose of application

SEMIOS AUSTRALIA PTY LTD has applied to the APVMA for registration of the new product Semios Carob Moth Aerosol Pheromone, an aerosol formulation containing 12.5 g/kg of the new active constituent (Z, E) - 7,9,11-dodecatrienyl formate.

## Proposed claims and use pattern

For the management of Carob Moth (*Ectomyelois ceratoniae*) in almond trees through the process of mating disruption in orchards.

Semios aerosol dispensing system involves the placing of up to 5 automatically controlled dispensers per hectare. A single metered release of Carob Moth pheromone from each dispenser is released typically every 5 -20 minutes for approximately 12 hours per day.

## Mode of action

INSECTICIDE – a synthetic pheromone that disrupts mating and prevents successful egg laying without killing the insects

## Overseas registrations

The product is currently registered in USA as Splat EC-O, for the management of Carob Moth (*Ectomyelois ceratoniae*) in almond trees.

## Chemistry and manufacture

### Active constituent

The active constituent (Z,E)-7,9,11-dodecatrienyl formate is manufactured overseas. Details of the chemical name, structure, and physicochemical properties of (Z,E)-7,9,11-dodecatrienyl formate are listed below in Tables 1 to 2.

**Table 1: Nomenclature and structural formula of the active constituent [active constituent]**

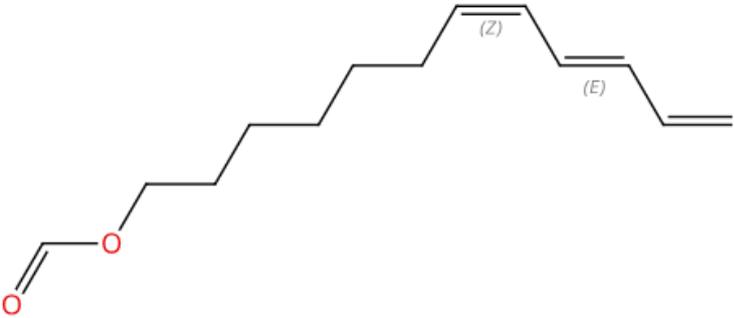
Common name (ISO):	(Z,E)-7,9,11-dodecatrienyl formate
IUPAC name:	(7Z,9E)-dodeca-7,9,11-trienyl] formate
CAS registry number:	146321-32-6
Molecular formula:	C <sub>13</sub> H <sub>20</sub> O <sub>2</sub>
Molecular weight:	208.30 g/mol
Structural formula:	

Table 2: Key physicochemical properties of the active constituent [active constituent]

Physical form:	Liquid
Colour:	Yellow
Odour:	Not available
Melting point:	Not available
Boiling point (predicted):	305.8 ± 21.0 °C (Press: 760 Torr)
Specific gravity/density/bulk density (predicted)	0.909 ± 0.06 g/cm <sup>3</sup> (Temp: 20 °C; Press: 760 Torr)
Stability:	Stable based on the stability of the formulated product containing the active
Safety properties:	Safe based on the stability of the formulated product containing the active
Solubility in water:	58.3 mg/L (Temp: 25 °C)
Organic solvent solubility:	Hexane and other common organic solvents
Dissociation constant (PK <sub>a</sub> ):	Not available
PH:	Not available
Octanol/water partition coefficient (Log K <sub>ow</sub> /K <sub>OW</sub> ):	Not available
Vapour pressure (Predicted):	1.1 x 10 <sup>-4</sup> kPa (Temp: 25 °C)
Henry's law constant:	Not available
UV/VIS absorption spectra:	Not available

## Formulated product

The product *Semios Carob Moth Aerosol Pheromone* will be manufactured overseas. Tables 3 and 4 outline some key aspects of the formulation and physicochemical properties of the product.

The proposed product is a ready to use aerosol (AE) formulation, in which the active together with the active stabiliser are dissolved in ethyl acetate to form an organic solution (the aerosol concentrate), while an aerosol propellant (dimethyl ether) is added in the aerosol can to provide the driving force for the spray.

Once it is needed, the propellant's higher vapour pressure (at ~ 6 bar at 25 °C) will spontaneously force the aerosol concentrate out of the can via the standpipe and the nozzle, dispersing a layer of the organic solution containing the sex pheromone, to act as a mating disruptor for the management of Carob Moth (*Ectomyelois ceratoniae*) in tree nuts.

Table 3: Key aspects of the formulation of the product *Semios Carob Moth Aerosol Pheromone*

Distinguishing name:	Semios Carob Moth Aerosol Pheromone
Formulation type:	Aerosol (AE)
Active constituent concentration:	12.5 g/kg (Z,E)-7,9,11-dodecatrienyl formate active constituent in the whole product, equivalent to 26 g/kg active in the aerosol concentrate (excluding of the aerosol propellant).

Table 4: Physicochemical properties of the product *Semios Carob Moth Aerosol Pheromone*

Physical form:	The aerosol concentrate: transparent, light-yellow solution
PH:	The aerosol concentrate: 5.1 – 6.4
Clogging of aerosol dispenser valves:	Aerosol Valve: Sprays well, no abnormal sprays. No signs of crystallization. Actuator: Sprays well, no abnormal sprays. No signs of crystallization.
Safety properties:	The packaging had no signs of cracks, rust, discoloration, distortion or other signs of corrosion.
Storage stability:	The product was stable during storage at 40 °C for 8 weeks

## Recommendations

The APVMA Chemistry section has evaluated the chemistry of the active constituent (Z,E)-7,9,11-dodecatrienyl formate and associated product *Semios Carob Moth Aerosol Pheromone*, including the manufacturing process, quality control procedures, stability, batch analysis results and analytical methods, and found them to be acceptable. The available storage stability data indicate that the formulated product is expected to remain stable for at least two years when stored under normal conditions.

Based on a review of the chemistry and manufacturing details, the registration of *Semios Carob Moth Aerosol Pheromone*, and approval of the active constituent (Z,E)-7,9,11-dodecatrienyl formate, are supported from a chemistry perspective.

## Toxicological assessment

The applicant provided a package of acute toxicological studies on the active constituent, (Z, E)-7,9,11-dodecatrienyl formate with a waiver for repeat-dose studies, requesting that available data and information be accepted in lieu of the data requirement for repeat-dose toxicity studies, based on the following:

- The active constituent is of low acute toxicity based on studies submitted.
- US EPA (2008) determined that no risks to human health are expected from lepidopteran pheromones.
- Pheromone-based products, such as Semios EC work via a non-toxic, species-specific mechanism.
- Significant exposure is not expected due to the low concentration of active constituent in the aerosol formulation and the automated method of application.
- Emissions of the pheromone are below natural levels estimated in the environment.
- The active constituent is volatile ( $1.1 \times 10^{-4}$  kPa) and dissipates rapidly in air once dispensed.

The APVMA accepted the applicant's waiver request based on these grounds.

## Evaluation of toxicology

### Chemical class

(Z,E)-7,9,11-Dodecatrienyl formate belongs to the biological insect pheromone chemical group.

### Pharmacokinetics

No studies provided.

### Acute toxicity (active constituent)

The acute oral, dermal and inhalation toxicity of (Z, E)-7,9,11-dodecatrienyl formate can be classified as being low with oral and LD<sub>50</sub> greater than 5000 mg/kg bw and LC<sub>50</sub> greater than 2080 mg/m<sup>3</sup> in rats. Additionally, (Z, E)-7,9,11-dodecatrienyl formate is classified as a slight skin irritant and a moderate eye irritant in rabbits. (Z, E)-7,9,11-dodecatrienyl formate was a skin sensitiser in the murine local lymph node assay (LLNA).

### Acute toxicity (product)

The applicant did not submit toxicology studies on the formulated product. APVMA therefore estimated the acute toxicity profile from the studies submitted on the active constituent and available data on the excipients in the formulation. The estimated acute toxicity profile of Semios EC Eco Aerosol Pheromone is similar to the active constituent, (Z, E)-7,9,11-dodecatrienyl formate.

### Repeat-dose toxicity

No studies provided. The APVMA accepted the applicant's waiver request.

### Chronic toxicity and carcinogenicity

No studies provided. The APVMA accepted the applicant's waiver request.

### Reproductive and developmental toxicity

No studies provided. The APVMA accepted the applicant's waiver request.

### Genotoxicity

No studies provided.

### Neurotoxicity/immunotoxicity

No studies provided.

### Mode of action (toxicology)

No studies provided. The active has a non-toxic mode of action in the target species.

### Toxicity of metabolites and/or impurities

A 5-batch analysis confirmed the purity of the active constituent and provided details of impurities. The impurities are of no increased hazard compared to the parent molecule.

### Reports related to human toxicity

A search of the scientific literature using the PubMed database of the United States National Library of Medicine yielded no reference relating to effects of dodecatrienyl formate (CAS No 146321-32-6) in humans or laboratory animals.

## Health-based guidance values and poisons scheduling

### Poisons Standard

(Z,E)-7,9,11-Dodecatrienyl formate is listed in Schedule 6 of the TGA Poisons Standard (SUSMP) for agricultural use as an insect pheromone, except when enclosed in a device which, in normal use, prevents access to its contents.

### Health-based guidance values

#### Acceptable daily intake / Acute reference dose

No repeat dose toxicological studies are available for (Z,E)-7,9,11-dodecatrienyl formate. Given the use pattern of the proposed product does not require direct application to edible portions of crops, and the relatively high volatility

of the active constituent ( $1.1 \times 10^{-4}$  kPa), food (nut) residues are unlikely to occur. Accordingly, no acceptable daily intake (ADI) or acute reference dose (ARfD) have been determined or considered necessary.

## Recommendations

The APVMA has evaluated the toxicology of the active constituent (Z,E)-7,9,11-dodecatrienyl formate and the associated product Semios EC Eco Aerosol Pheromone. APVMA has no objections on human health grounds to the approval of the technical grade active constituent (TGAC) and registration of the product, Semios Carob Moth Aerosol Pheromone, when used in accordance with the proposed directions for use and adhering to the recommended safety directions (below). For the protection of public health from dietary consumption of (Z,E)-7,9,11-dodecatrienyl formate residues in food, neither an acceptable daily intake (ADI) nor acute reference dose (ARfD) were considered necessary.

## Residues assessment

### Metabolism

Straight chain lepidopteran pheromones (SCLPs) and other similar arthropod semiochemicals are biodegradable by enzyme systems present in most living organisms and should present no problems with their normal physiology. Pheromones are short lived in the environment due to their volatile nature and rapid environmental transformation<sup>1</sup>. (Z, E)-7, 9, 11-dodecatrienyl formate is not intended to be applied directly onto the crop but rather released in the air through Semios automated aerosol dispensers. Therefore, no residues of (Z, E)-7, 9, 11-dodecatrienyl formate are expected in crops from the proposed use of Semios Carob Moth Aerosol Pheromone. For the purposes of this evaluation, no further consideration of the metabolism of (Z,E)-7,9,11-dodecatrienyl formate is required.

### Residue definition

A residue definition is not required for (Z,E)-7,9,11-dodecatrienyl formate as an entry in Table 5 of the Maximum Residue Limit (MRL) Standard is being considered. Table 5 entries are considered for substances where MRLs are not necessary.

### Residues in food and animal feeds

The proposed use pattern for Semios Carob Moth Aerosol Pheromone in tree nuts is the addition of 1-5 dispensers of product/ha (25 g ai/ha).

For semiochemicals, residue data may not be required if it has been determined that quantifiable residues on the consumable commodity are unlikely to occur or that residue levels are unlikely to exceed natural exposure levels during outbreaks of the pest. This can be demonstrated by a scientific rationale<sup>3</sup>.

#### Risk assessment

No acceptable daily intake (ADI) or acute reference dose (ARfD) are considered necessary.

The application rate is typically low and comparable to natural emissions. Volatility and rapid environmental transformation minimize residues in crops and exposure of non-target organisms. As the product formulation is contained in a sealed aerosol can that is electronically actuated by remote control to emit a small-metered dose, no residues are expected to be present in the environment and on food crops.

Uses of substances where maximum residue limits are not necessary, and entered into Table 5 of the APVMA MRL Standard for Residues of Chemical Products, are considered for:

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<sup>1</sup> OECD EH&S Publications – Guidance Document on Semiochemical Active Substances and Plant Protection Products – 2017 – [Link](#) - Accessed 11/06/2025.

1. situations where residues do not or should not occur in foods or animal feeds; or,
2. where the residues are identical to or indistinguishable from natural food components; or,
3. are otherwise of no toxicological significance.

Based on the scientific argument, the proposed rate and application method, which is not directly applied to the produce, detectable residues are not expected in food. The active (Z, E)-7, 9, 11-dodecatrienyl formate has been shown to meet these criteria as described above and is therefore recommended for entry into Table 5 of the MRL Standard for Residues of Chemical Products.

## Residues in animal commodities

Significant residues are not expected to be present in crops. Therefore, further consideration of animal feeding is not required.

## Dietary risk assessment

Based on the available information, notably the negligible or limited expected consumer exposure to (Z,E)-7,9,11-dodecatrienyl formate, it is concluded that the dietary risk associated with the proposed use is small and acceptable.

## Recommendations

The following amendments are required to be made to the APVMA MRL Standard (Table 5).

**Table 5: Amendments to the APVMA MRL Standard**

Amendments to Table 5	
Substance	Use
Delete:	
(Z, E)-7, 9, 11-dodecatrienyl formate	{T} Pheromone for mating disruption of carob moth ( <i>Ectomyelois ceratoniae</i> )
Add:	
(Z, E)-7, 9, 11-dodecatrienyl formate	Pheromone

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## Assessment of overseas trade aspects of residues in food

Detectable residues are not expected to occur in almond trees from the proposed use. The risk to trade is low.

## Work health and safety assessment

### Health hazards

The estimated acute oral, dermal and inhalation toxicity of Semios EC Eco Aerosol Pheromone are classified as low. Additionally, the product is classified as a moderate eye irritant and a slight skin irritant in rabbits. It is likely to be a skin sensitiser based on results with the active constituent in the murine local lymph node assay (LLNA).

### Occupational exposure

#### Exposure during use

The product containing 12.5 g/kg (Z,E)-7,9,11-dodecatrienyl formate in aerosol canisters<sup>2</sup> (400 g), is deployed in the field and activated by a remote web-based system (metered release system) that controls each aerosol canister. The maximum amount of active constituent released from the canisters is approximately 60 g/ha per season. Once released, the active constituent quickly dissipates in air and is short-lived in the environment. No monitoring studies were provided for assessment.

The OECD Guidance for Registration Requirements for Pheromones (OECD 2002) suggests that the natural background concentration of straight chain lepidopteran pheromones (SCLPs) is up to 375 g/ha. As such, APVMA concludes that risks from inhalation of (Z,E)-7,9,11-dodecatrienyl formate are negligible. Similarly, as the aerosol spray cannot be activated manually, risks from dermal exposure during use are also considered negligible.

#### Exposure during re-entry or rehandling

Exposure via inhalation and dermal contact with the product during re-entry are unlikely as the product is highly volatile.

Similarly, the aerosol canisters are not refillable, and the only rehandling activity will be the collection of spent cannisters. Gloves should be worn during this activity to mitigate risk of skin irritation or sensitisation from dermal exposure to product residues.

### Public exposure

The product is intended for professional use only. Therefore, risks from use are not relevant for the general public.

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<sup>2</sup> Oxy-phenolic lined steel aerosol cans with metered dose spray nozzle. The aerosol cans are manufactured with the specific dimensions required for insertion into the electronically controlled metered dosing equipment. The same canister design is used with other Semios pheromone products which have been used in the Australia, USA, Europe, Canada since early 2021.

Exposure to product residues is possible from ingestion of residues in crops treated with product. However, residues of (Z,E)-7,9,11-dodecatrienyl formate in tree nuts are highly unlikely due to the use pattern of the product. (Z,E)-7,9,11-Dodecatrienyl formate is currently covered by a temporary entry in Table 5 of the MRL standard for use as a 'Pheromone for mating disruption of carob moth (*Ectomyelois ceratoniae*)'. Table 5 lists the uses of substances for which MRLs are not necessary.

## Recommendations

The following first aid instructions, safety directions and precautionary statements are recommended for the product label.

### First aid instructions

The following First Aid Instructions apply to (Z,E)-7,9,11-dodecatrienyl formate:

- If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766
- If in eyes wash out immediately with water

### Safety directions

Will irritate the eyes. May irritate the skin. Repeated exposure may cause allergic disorders. Avoid contact with skin and eyes. Do not inhale spray mist. When using the product wear disposable gloves. Wash hands after use.

### Precautionary statements

When handling spent canisters, wear disposable gloves.

## Environmental assessment

The proposed use of Semios Carob Moth Aerosol involves aerosolized emission of (Z,E)-7,9,11-dodecatrienyl formate, a straight chain lepidopteran pheromones (SCLP) vapour from the tree canopy at up to 25 g SCLP/ha/year (using five dispenser units/ha/year). Dispersion of (Z,E)-7,9,11-dodecatrienyl formate vapour in air will occur via diffusion and air movement.

The APVMA follows OECD guidelines for pheromones, including SCLP and other semiochemicals. These guidelines state that application rates up to 375 grams per hectare per year are considered safe and similar to natural levels, posing no risk to other species<sup>3</sup>.

Since the Semios product uses much less than this threshold (25 grams vs 375 per hectare per year) which is considered negligible, and because pheromones are considered non-toxic and have minimal environmental impact, a detailed environmental assessment is not required.

## Recommendations

The registration of *Semios Carob Moth Aerosol Pheromone*, and approval of the active constituent (Z,E)-7,9,11-dodecatrienyl formate, are supported from an environment perspective.

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<sup>3</sup> <http://www.oecd.org/env/ehs/pesticides-biocides/33650707.PDF>

## Efficacy and safety assessment

### Proposed product use pattern

Semios Carob Moth Aerosol Pheromone is a novel mating disruption product containing 12.5 g/kg (Z,E)-7,9,11-dodecatrienyl formate, proposed for the control of carob moth (*Ectomyelois ceratoniae*) in almond orchards. Application is via electronically controlled aerosol dispensers integrated with a smart monitoring system.

### Efficacy and target crop/animal safety

Efficacy and crop safety field trials conducted in Australia were provided to support a label claim for the management of carob moth (*Ectomyelois ceratoniae*) in almonds using Semios Carob Moth Aerosol Pheromone. Two large-plot commercial trials were undertaken over two consecutive growing seasons (September–April, 2021–22 and 2022–23) in a 20-ha almond orchard at Loxton, South Australia, and a 28-ha almond orchard at Lake Powell, Victoria. Semios single-can dispensers (SCDs) loaded with canisters at low rate (1.2475% (Z,E)-7,9,11-dodecatrienyl formate) and high rate (2.0750% (Z,E)-7,9,11-dodecatrienyl formate) were deployed at a density of 1–2 dispensers per acre (approximately 2.5 dispensers per hectare) in each treatment block and were remotely activated prior to the first moth flight. The Semios Carob Moth Aerosol Pheromone treatments (low and high rates) were evaluated in conjunction with the industry-standard spray program and compared against the industry-standard spray program alone under commercial production conditions.

Trials were conducted according to acceptable scientific practices appropriate for measuring the efficacy of mating disruption, including regular trap-based monitoring (five traps per treated plot and five traps per corresponding control plot), assessment of trap captures and nut damage at harvest, and evaluation of crop safety as phytotoxicity. In Year 1 (2021–22), product performance was assessed based on trap captures, nut damage, and phytotoxicity. In Year 2 (2022–23), nut damage at harvest was further evaluated in both early and late maturing varieties (Nonpareil and Carmel) to provide additional context to the Year 1 outcomes. To ensure accurate attribution of damage to carob moth, the incidence of *Carpophilus* beetle was also monitored throughout the trials. All trial work examined both efficacy and crop safety over time under commercial orchard conditions, with remote activation and continuous monitoring to align deployment with pest flight phenology.

### Efficacy

Trials results indicate that Semios Carob Moth Aerosol Pheromone can achieve strong mating disruption under commercial conditions; however, consistent reductions in egg density and crop damage were not demonstrated. Accordingly, the available data do not support a stand-alone label claim for control of carob moth damage. A limited claim for mating disruption/management of adult activity may be considered only when used as part of an integrated pest management (IPM) program in conjunction with insecticides, with the expectation that efficacy would be greater over larger, contiguous treated areas. On this basis, the label claim for the use of Semios Carob Moth Aerosol Pheromone for the management of carob moth in almonds, when applied as an IPM tool in conjunction with insecticides, is accepted.

### Crop safety

The product is a pheromone analogue which is released in very low concentrations to the atmosphere rather than directly to the plant. It would not be expected to cause any phytotoxicity problems and none were found in any of the trials. The product was tested at high and low recommended application rates, but not at 2 x the highest rate. However, given the nature of the product it is highly unlikely that any crop safety issues will arise.

### Recommendations

Based on the trials and evidence provided, a label claim for the management of carob moth the management of carob moth in almonds, when applied as an IPM tool in conjunction with insecticides, is supported. The trial work also supported label claims for crop safety of Semios Carob Moth Aerosol Pheromone in almond.

## Spray drift assessment

The method of application will not lead to expected spray drift. In addition, Application rates of up to 25 g SCLP/ha/year are generally understood to result in exposure levels which are comparable to natural emissions and safe for human and non-target species.

## Labelling requirements

Product Name: Semios Carob Moth Aerosol Pheromone

APVMA Approval no: 93848 / 140698

Label Name:	Semios Carob Moth Aerosol Pheromone
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Signal Headings:	READ SAFETY DIRECTIONS BEFORE USING
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Constituent Statements:	ACTIVE CONSTITUENT: 12.5 g/kg (Z,E)-7,9,11-dodecatrienyl formate
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Statement of Claims:	A pheromone product for management of Carob Moth ( <i>Ectomyelois ceratoniae</i> ) in almond trees.
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Net Contents:	400 g
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Restrains:	
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Directions for Use:	This section contains file attachment.
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Other Limitations:	
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Withholding Periods:	WITHHOLDING PERIOD: NOT REQUIRED WHEN USED AS DIRECTED.
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Trade Advice:	
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<p>General Instructions:</p>	<p><b>GENERAL INSTRUCTIONS</b>                  Semios Carob Moth is an “auto-confusion” product containing a synthetic pheromone. This system disrupts mating and prevents successful egg laying without killing the insects.                  Semios Carob Moth Aerosol Pheromone should be used as part of an Integrated Pest Management (IPM) program to manage Carob Moth.</p> <p><b>APPLICATION INSTRUCTIONS</b>                  Use only with Semios automated aerosol dispensers. Load aerosol canister in Semios dispenser. Hang dispenser level with upper third of tree canopy with nozzle pointing away from foliage and fruit. Evenly place dispensers at an average density of 2.5 dispensers per hectare, placing up to 5 dispensers per hectare, and down to 1 dispenser per hectare, with standard dosing levels between 400g and 2000 g of Semios Carob Moth formulation per hectare per year. Use higher density under high pest pressure or along orchard/ vineyard edges and facing prevailing winds. Access Semios web-based user interface to commence operation of networked dispensers as moths begin mating/flight activity and turn off dispensers at the end of the season.</p>
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<p>Resistance Warning:</p>	
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<p>Precautions:</p>	<p>When handling spent canisters, wear disposable gloves.</p>
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<p>Protections:</p>	<p><b>PROTECTION OF HONEY BEES AND OTHER INSECT POLLINATORS</b>                  Low hazard to bees.</p> <p><b>PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT:</b>                  DO NOT contaminate streams, rivers or watercourses with chemical or used containers.</p>
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<p>Storage and Disposal:</p>	<p><b>STORAGE AND DISPOSAL</b>                  Keep in a cool place out of the sun, and out of the reach of children. Do not incinerate or puncture this can, even when empty. Dispose of can by putting in garbage or leaving it at an appropriate metal recycling collection point.</p>
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<p>Safety Directions:</p>	<p>Will irritate the eyes. May irritate the skin. Repeated exposure may cause allergic disorders. Avoid contact with skin and eyes. Do not inhale spray mist. When using product canisters wear disposable gloves. Wash hands after use</p>
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First Aid Instructions:	<p><b>FIRST AID</b>                  If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26, New Zealand 0800 764 766.                  If in eyes wash out immediately with water</p>
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First Aid Warnings:	
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**DIRECTIONS FOR USE:**

Crop	Pest	Rate	Critical Comments
Almonds	Carob Moth ( <i>Ectomyelois ceratoniae</i> )	1-5 dispensers per hectare applying equivalent to 400 g to 2000 g per hectare per year.	<p>Use higher number of dispensers under high pest pressure or along orchard/ vineyards edges and facing prevailing winds.</p> <p>For use only with Semios automated aerosol dispensers.                      This system must only be installed and operated by personnel who have been trained and authorized by Semios or its appointed agents.</p> <p>Monitor pest pressure nightly and adjust aerosol dispensing rates accordingly using the Semios web-based user interface. Higher frequency is required under higher pest pressure. When pests are not detected, minimise or suspend activation.</p> <p>Refer to Application Instructions below for detailed information.                      Semios Carob Moth Aerosol Pheromone should be used as an integrated pest management tool in conjunction with insecticides program aimed at reducing overall Carob Moth populations.</p>

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

## Acronyms and abbreviations

Shortened term	Full term
ac	Active constituent
ADI	Acceptable daily intake (for humans)
ai	Active ingredient
ARfD	Acute reference dose
bw	Bodyweight
d	Day
EI	Export interval
EGI	Export grazing interval
ESI	Export slaughter interval
EUP	End use product
g	Gram
h	Hour
ha	Hectare
Hct	Heamatocrit
Hb	Haemoglobin
HPLC	High pressure liquid chromatography or high performance liquid chromatography
id	Intradermal
im	Intramuscular
ip	Intraperitoneal
IPM	Integrated pest management
iv	Intravenous
<i>in vitro</i>	Outside the living body and in an artificial environment
<i>in vivo</i>	Inside the living body of a plant or animal
kg	Kilogram
K <sub>oc</sub>	Organic carbon partitioning coefficient
L	Litre

Shortened term	Full term
LC <sub>50</sub>	Concentration that kills 50% of the test population of organisms
LD <sub>50</sub>	Dosage of chemical that kills 50% of the test population of organisms
LOD	Limit of detection – level at which residues can be detected
Log K <sub>ow</sub>	Log to base 10 of octanol water partitioning co-efficient, synonym P <sub>ow</sub>
LOQ	Limit of quantitation – level at which residues can be quantified
mg	Milligram
mL	Millilitre
MRL	Maximum Residue Limit
MSDS	Material Safety Data Sheet
NEDI	National Estimated Daily Intake
NESTI	National Estimated Short-Term Intake
ng	Nanogram
NHMRC	National Health and Medical Research Council
NOEC/NOEL	No observable effect concentration level
NOAEL	No observed adverse effect level
OC	Organic carbon
OM	Organic matter
po	Oral
ppb	Parts per billion
PPE	Personal protective equipment
ppm	Parts per million
Q-value	Quotient-value
RAL	Regulatory Acceptable Level
RBC	Red blood cell count
REI	Re-entry interval
s	Second
sc	Subcutaneous

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Shortened term	Full term
SCLP	Straight chain lepidopteran pheromones
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
TGA	Therapeutic Goods Administration
TGAC	Technical grade active constituent
µg	Microgram
WHP	Withholding period

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## Glossary

Term	Description
Active constituent	The substance that is primarily responsible for the effect produced by a chemical product
Acute	Having rapid onset and of short duration
Carcinogenicity	The ability to cause cancer
Chronic	Of long duration
Codex MRL	Internationally published standard maximum residue limit
Desorption	Removal of a material from or through a surface
Efficacy	Production of the desired effect
Formulation	A combination of both active and inactive constituents to form the end use product
Genotoxicity	The ability to damage genetic material
Hydrophobic	Repels water
Leaching	Removal of a compound by use of a solvent
Metabolism	The chemical processes that maintain living organisms
Photodegradation	Breakdown of chemicals due to the action of light
Photolysis	Breakdown of chemicals due to the action of light
Subcutaneous	Under the skin
Toxicokinetics	The study of the movement of toxins through the body
Toxicology	The study of the nature and effects of poisons

## References

OECD (2002). Guidance for Registration Requirements for Pheromones and Other Semiochemicals Used for Arthropod Pest Control. OECD Environment, Health and Safety Publications Series on Pesticides No. 12. ENV/JM/MONO(2001)12 (updated Feb 2002). **[APVMA Data List No 255883]**.