



**Benevia<sup>®</sup>**  
INSECTICIDE

## Technical Information

**Active Constituent:**  
100 g/L CYANTRANILIPROLE

**Pack Sizes:**  
5 L



GROUP	<b>28</b>	INSECTICIDE
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### CAUTION

#### KEEP OUT OF REACH OF CHILDREN

#### READ SAFETY DIRECTIONS BEFORE OPENING OR USING

For the control of insect pests in certain Vegetables and Strawberries, as per the Directions for Use

#### SAFETY DIRECTIONS

May irritate the eyes and skin. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin. When opening the container and preparing spray and using the prepared spray, wear chemical resistant gloves. Wash hands after use. After each day's use wash gloves and contaminated clothing.

#### FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26.

#### SAFETY DATA SHEET

Additional information is listed in the Safety Data Sheet that can be obtained from [www.fmccrop.com.au](http://www.fmccrop.com.au)

#### GENERAL INSTRUCTIONS

Benevia<sup>®</sup> insecticide is an anthranilic diamide insecticide in the form of an oil dispersion, to be mixed with water and applied as a foliar spray. Benevia<sup>®</sup> is particularly active on both sucking and chewing (Lepidopteran) insect pests, and is specially formulated for maximum performance by foliar applications in fruit and vegetables.

Before application monitor insect populations to determine whether or not there is a need for application of Benevia<sup>®</sup> based on locally determined economic thresholds. More than one treatment of Benevia<sup>®</sup> may be required to control a population of pests.

Benevia<sup>®</sup> primarily intoxicates insect pests by ingestion, but may also have some minimal contact activity. The product also shows ovi-larvicidal and adulticide efficacy, depending upon the pest species. Exposure of the pest species typically results in rapid feeding cessation within a few hours of exposure. However, the time to death and economic levels of population control may be 3 to 6 days depending upon the species. Benevia<sup>®</sup> is effective at reducing both direct damage and also the transmission of some insect transmitted diseases.

#### INTEGRATED PEST MANAGEMENT

Benevia<sup>®</sup> insecticide has been specifically designed for use in Integrated Pest Management (IPM) schemes. Application of Benevia<sup>®</sup> according to this label is expected to be safe to predatory mites, and spiders, but may have adverse effects on parasitoid wasps, ladybird beetles, lacewings and rove beetles in the treated field and parasitoid wasps in downwind areas reached by spray drift. While these beneficial arthropods cannot be relied upon to control pests, they are of potential value and can be monitored along with pests in pest management programs on these crops. According to the standards of Good Agricultural Practices and stewardship, Benevia<sup>®</sup> should not be applied when honeybees are actively foraging

#### INSECTICIDE RESISTANCE WARNING

For insecticide resistance management Benevia<sup>®</sup> insecticide is a Group 28 insecticide.

Some naturally occurring insect biotypes resistant to Benevia<sup>®</sup> and other Group 28 insecticides may exist through normal genetic variability in any insect

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population. The resistant individuals can eventually dominate the insect population if Benevia® and other Group 28 insecticides are used repeatedly. The effectiveness of Benevia® on resistant individuals could be significantly reduced.

Since the occurrence of resistant individuals is difficult to detect prior to use FMC accepts no liability for any losses that may result from the failure of Benevia® to control resistant insects.

Benevia® may be subject to specific resistance management strategies. To help prevent the development of resistance to Benevia® observe the following instructions:

- Use Benevia® in accordance with the current Insecticide Resistance Management (IRM) strategy for your region.
- Apply Benevia® or other Group 28 insecticides using a “window” approach to avoid exposure of consecutive insect pest generations to the same mode of action. Multiple successive applications of Benevia® or other Group 28 insecticides are acceptable if they are used to treat a single insect generation.
- Following a “window” of Benevia® or other Group 28 insecticides, rotate to a “window” of applications of effective insecticides with a different mode of action.
- The total exposure period of all “Group 28-active windows” applied throughout the crop cycle (from seedling to harvest) should not exceed 50% of the crop cycle.
- Incorporate IPM techniques into the overall pest management program.
- Monitor insect populations for loss of field efficacy.

For further information contact your farm chemical supplier, consultant, local Department of Agriculture or Primary Industries, or local FMC Representative.

For additional information on insect resistance, modes of action and monitoring visit the Insecticide Resistance Action Committee (IRAC) on the web at [www.irac-online.org](http://www.irac-online.org)

#### MIXING

Spray equipment must be clean and free of previous pesticide deposits before applying Benevia®. Fill spray tank to ¼ to ½ full of water. Shake the container well immediately before decanting. Measure the amount of Benevia® required for the area to be sprayed. Add Benevia® insecticide directly to the spray tank with the agitation engaged. Mix thoroughly to disperse the insecticide. Top up the tank with clean water to the required volume. Once dispersed, the material must be kept in suspension at all times by continuous agitation. Use mechanical or hydraulic means, **DO NOT** use air agitation, premix or slurry.

If spray solution is left standing, ensure thorough re-agitation of the spray mix until fully re-suspended. **DO NOT** allow spray mix to sit overnight, as re-suspension may be difficult.

#### SURFACTANT/WETTING AGENT

**DO NOT** use *Activator*® or *BS1000*® (or equivalents) as it may cause crop phytotoxicity.

The addition of *Hasten*® has shown to maximise control of some sucking pest species e.g. Silverleaf whitefly. However, *Hasten*® may increase the risk of leaf staining (crop phytotoxicity), particularly on capsicums. The use of a horticultural non-ionic surfactant lessens the risk of leaf staining, without over compromising pest control.

#### Bulb vegetables and Strawberry:

- Use a horticultural non-ionic surfactant at 15 gai/100 L, such as *Agral*® at 25 mL/100 L

#### Fruiting vegetables (including cucurbits) and Potato:

Use:

- an ethylated seed oil (such as *Hasten*®) at 200 mL/100 L, up to a maximum of 1 L/ha; or
- a horticultural non-ionic surfactant at 15 gai/100 L, such as *Agral*® at 25 mL/100 L.

**DO NOT** add a surfactant/wetting agent if:

- mixing with another product which already contains a surfactant and/or the product label advises not to add a surfactant.
- mixing with a liquid fertiliser.

#### ACIDIFICATION OF THE SPRAY TANK

If the pH of the spray tank after all products have been added and mixed is above pH 8, adjust to pH 8 or less using a registered acidifying agent. If the spray tank pH is 8 or less no adjustment of the spray tank pH is necessary. Spray tanks of pH 8 or less can be held for up to 8 hours before spraying. **DO NOT** store the spray mixture overnight in the spray tank.

#### COMPATIBILITY

Benevia® is compatible with many commonly used fungicides, liquid fertilisers, herbicides, insecticides, and biological control products. However, since the formulations of products are always changing, it is advisable to test the physical compatibility of desired tank mixes and check for adverse effects like settling out or flocculation. To determine the physical compatibility, add the recommended proportions of the tank mix products to water, mix thoroughly and allow to stand for 20 minutes. If the combination remains mixed, or can be re-mixed readily, it is considered physically compatible. Avoid complex tank mixtures of several products or very concentrated spray mixtures.

The crop safety of all potential tank-mixes, including additives and other pesticides, on all crops under all

environmental conditions has not been fully tested. Before applying any tank-mixture not specifically recommended on this label or other FMC supplemental labelling, the safety to the target crop must be confirmed. To test for crop safety, apply the combination to a small area of the target crop in accordance with the label instructions to ensure that a phytotoxic response will not occur.

Tomato and Cucurbit: **DO NOT** tank mix;

- Benevia® + *Amistar*\* (or azoxystrobin based compounds).

Strawberries: **DO NOT** tank mix;

- Benevia® + captan based compounds.
- Benevia® + *Flint*\* (or trifloxystrobin based compounds).
- Benevia® + *Omite*\* (or propargite based compounds).

Contact your local FMC Territory Manager to obtain more specific recommendations regarding tank mixtures and spray rotation programs with various products.

**The mixing sequence recommended is:** water soluble bags, dry flowable or water-dispersible granules, wettable powders, water-based suspension concentrates, water-soluble concentrates, suspo-emulsions, oil-based suspension concentrates (e.g. Benevia®), emulsifiable concentrates, adjuvants and surfactants, soluble fertilisers and drift retardants.

#### APPLICATION

Use enough water to ensure thorough coverage of the crop. Adjust water volumes to crop stage. Droplet VMD should be of MEDIUM spray quality according to ASAE S572 Standard or the BCPC Guideline.

#### Ground application

Use a boom sprayer fitted with high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size, DOES NOT improve canopy penetration and may increase drift potential. WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE. Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. When applying Benevia® by ground application, keep the boom low to avoid spray drift.

#### Aerial application

Benevia® must only be applied with aircraft fitted with accurately calibrated equipment. Apply a minimum total spray volume of 30 L/ha with nozzles (e.g. Micronaire rotary atomisers, CP nozzles or conventional hydraulic nozzles) set to medium spray quality according to ASAE S572 definition for standard nozzles. A spray

drift minimisation strategy should be employed at all times when applying this product. **DO NOT** apply Benevia® using Ultra Low Volume (ULV) methods.

#### SPRAY EQUIPMENT CLEANOUT

Prior to application, start with clean, well-maintained application equipment. Immediately following application, thoroughly clean all spray equipment to reduce the risk of forming hardened deposits which might become difficult to remove. Drain spray equipment. Thoroughly rinse sprayer and flush hoses, boom, and nozzles with clean water.

Clean all other associated application equipment. Take all necessary safety precautions when cleaning equipment. **DO NOT** clean near wells, water sources or desirable vegetation. Dispose of waste rinse water in accordance with local regulations.

#### PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS

**DO NOT** apply under weather conditions, or from spraying equipment, that may cause spray to drift onto near-by non-target plants/crops, cropping lands or pastures.

**IMPORTANT:** Not all crops within a crop group, and not all varieties, cultivars or hybrids of crops, have been individually tested for crop safety. To test for crop safety, apply the product in accordance with the label instructions to a small area of the target crop to ensure that a phytotoxic response will not occur, especially where the application is a new use of the product by the applicator.

#### PROTECTION OF LIVESTOCK

Toxic to bees. Will kill foraging bees directly exposed through contact during spraying and while spray droplets are still wet. May harm bees in hives which are over-sprayed or reached by spray drift. Beekeepers who are known to have hives in, or nearby, the area to be sprayed should be notified no less than 48 hours prior to the time of the planned application so that bees can be removed or otherwise protected prior to spraying.

#### PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Very toxic to aquatic life. Drift and run off from treated areas may be hazardous to aquatic organisms in neighbouring areas. **DO NOT** contaminate wetlands or watercourses with the product or used containers.

#### STORAGE AND DISPOSAL

Store in the closed, original container in a cool, well-ventilated area. **DO NOT** store for prolonged periods in direct sunlight.

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. **DO NOT** dispose of undiluted chemicals on site. 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 for appropriate disposal at 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.

#### **NOTICE TO BUYER**

To the extent permitted by the Competition and Consumer Act (2010) or any relevant legislation of any State or Territory (the "Legislation") all conditions and warranties and statutory or other rights of action, whether arising in contract or tort or whether due to the negligence of FMC or Seller, which buyer or any other user may have against FMC or Seller are hereby excluded provided however that any rights of the buyer pursuant to non excludable conditions or warranties of the Legislation are expressly preserved. FMC hereby gives notice to buyer and other users that to the extent permitted by the Legislation it will not accept responsibility for any indirect or consequential loss of whatsoever nature arising from the storage, handling or use of this Product. Where permitted by the Legislation FMC's liability shall in all circumstances be limited to the replacement of the product, or a refund of the purchase price paid therefor.

The Product must be used and applied strictly in accordance with the label instructions and other directions for use. It is impossible to eliminate all risks associated with the use of this product. Such risks may arise from factors such as weather conditions, soil factors, off target movement, unconventional technique, presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of FMC or the Seller. Buyer accepts these risks.

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**DIRECTIONS FOR USE****RESTRAINTS:**

DO NOT apply if heavy dew is present on crops, if rainfall is expected within 2 hours of application, or if heavy rainfall likely to generate run-off is expected within 48 hours of application.

DO NOT treat plants grown for transplanting. Not for use in nurseries, plant propagation houses, or greenhouses by commercial transplant producers on plants being grown for transplanting.

DO NOT use on container or hydroponic grown crops.

**SPRAY DRIFT RESTRAINTS**

**DO NOT** apply with spray droplets smaller than a MEDIUM spray droplet size category according to nozzle manufacturer specifications that refer to the ASAE S572 Standard or the British Crop Protection Council guideline.

**DO NOT** apply during surface temperature inversion conditions at the application site.

**DO NOT** apply when wind speed is less than 3 or more than 20 km per hour are measured at application site.

Users of this product **MUST** make an accurate written record of the details of each spray application within 24 hours following application and **KEEP** this record for a minimum of 2 years.

The spray application details that must be recorded are:

1. date with start and finish times of application;
2. location address and paddock/s sprayed;
3. full name of this product;
4. amount of product used per hectare and number of hectares applied to;
5. crop/situation and weed/pest;
6. wind speed and direction during application;
7. air temperature and relative humidity during application;
8. nozzle brand, type, spray angle, nozzle capacity and spray system pressure measured during application;
9. name and address of person applying this product.

(Additional record details may be required by the state or territory where this product is used.)

**MANDATORY NO-SPRAY ZONES**

**DO NOT** apply if there are aquatic or wetland areas including aquacultural ponds downwind from the application area and within the mandatory no-spray zones shown in the table below:

No-Spray zones for Protection of the Aquatic Environment		
FOR USE ON FRUITING VEGETABLES		
AERIAL APPLICATION		
Wind Speed Range at Time of Application	Downwind No-Spray Zone	
	Fixed-Wing	Helicopter
From 3 to 8 kilometres per hour	160 metres	100 metres
From 8 to 14 kilometres per hour		140 metres
From 14 to 20 kilometres per hour		
GROUND APPLICATION		
From 3 to 20 kilometres per hour	5 metres	

**FOR USE IN ALL STATES WHERE APPROPRIATE FOR THE CROP AND/OR INSECT PEST.**

CROP	PEST	RATE/HA	WHP	CRITICAL COMMENTS
<b>CRITICAL COMMENTS - ALL CROPS</b> Lepidoptera (chewing pests) - regularly scout crops to monitor for eggs and larvae. Target sprays against eggs and newly hatched larvae before they become entrenched. Apply as egg and larvae reach threshold numbers. Benevia® may cause some minor leaf staining/burning, however flowers and fruit are not affected. Use in accordance with AIRAC Insecticide Resistance Management Strategy guidelines. Note: Benevia® has the same mode of action (Group 28) as Coragen® insecticide. Use enough water to ensure thorough coverage of the crop. Adjust water volumes to crop stage (300 – 1000 L/ha). Target a minimum of 300 L/ha by ground rig and a minimum of 30 L/ha by aircraft. <b>Fruiting vegetables including cucurbits, and Strawberries</b> - a maximum of two (2) applications are to be applied to any one crop per season. Apply on a 7 - 10 day spray interval. Further treatments should be made with alternative mode of action insecticides. <b>Bulb vegetables and Potatoes</b> - a maximum of three (3) applications are to be applied to any one crop per season. For bulb vegetables, it is recommended to apply three (3) consecutive applications whereas for potatoes no more than two (2) consecutive applications are recommended. Apply on a 7 - 10 day spray interval.				
Bulb vegetables, including; Chives, Fennel bulb, Garlic, Leeks, Onions, Shallots, Spring Onions	<u>Rasping pests;</u> [Suppression only] Onion thrips ( <i>Thrips tabaci</i> )	750 mL + non-ionic surfactant (refer Surfactant/Wetting agent section)	7 days	Benevia® is more active on thrips nymphs than adults. Apply treatment to a newly developing infestation. To maximise efficacy apply sequential treatments on a 7 day spray interval .  To be used in conjunction with a spray program incorporating other mode of action thripicides.
Fruiting vegetables (excluding Cucurbits), including; Capsicum, Egg plant, Peppers, Tomato (trellis and field)	<u>Sucking pests;</u> Silverleaf whitefly ( <i>Bemisia tabaci</i> ) <u>Chewing pests;</u> Cotton bollworm ( <i>Helicoverpa armigera</i> ) Native budworm ( <i>Helicoverpa punctigera</i> ) Tomato leaf miner ( <i>Phthorimaea operculella</i> )	500 mL + ethylated seed oil or non-ionic surfactant (refer Surfactant/Wetting agent section)	1 day	Benevia® is primarily active on the early nymph stages of Silverleaf whitefly. Apply treatment to eggs and early instar stages of a newly developing pest infestation. To maximise efficacy apply sequential treatments.
	<u>Sucking &amp; rasping pests;</u> [Suppression only] Green peach aphid ( <i>Myzus persicae</i> ) Tomato thrips ( <i>Frankliniella schultzei</i> ) Western flower thrips ( <i>Frankliniella occidentalis</i> )	750 mL + ethylated seed oil or non-ionic surfactant (refer Surfactant/Wetting agent section)		Benevia® is more active on thrips nymphs than adults. To maximise efficacy apply treatment to a newly developing infestation. Apply sequential treatments .
Fruiting vegetables (Cucurbits), including; Cucumbers, Melons, Pumpkin, Squash, Zucchini	<u>Sucking pests;</u> Melon aphid ( <i>Aphis gossypii</i> ) Silverleaf whitefly ( <i>Bemisia tabaci</i> ) <u>Chewing pests;</u> Cotton bollworm ( <i>Helicoverpa armigera</i> ) Cucumber moth ( <i>Diaphania indica</i> ) Native budworm ( <i>Helicoverpa punctigera</i> )	500 mL + ethylated seed oil or non-ionic surfactant (refer Surfactant/Wetting agent section)		Benevia® is primarily active on the early nymph stages of Silverleaf whitefly. Apply treatment to eggs and early instar stages of a newly developing pest infestation.  To maximise efficacy apply sequential treatments.
	<u>Rasping pests;</u> [Suppression only] Western flower thrips ( <i>Frankliniella occidentalis</i> )	750 mL + ethylated seed oil or non-ionic surfactant (refer Surfactant/Wetting agent section)		Benevia® is more active on nymphs than adults. Apply treatment to a newly developing infestation. To maximise efficacy apply sequential treatments.

CROP	PEST	RATE/HA	WHP	CRITICAL COMMENTS
Potatoes	<u>Sucking pests:</u> Silverleaf whitefly ( <i>Bemisia tabaci</i> ) <u>Chewing pests:</u> Cotton bollworm ( <i>Helicoverpa armigera</i> ) Native budworm ( <i>Helicoverpa punctigera</i> ) Potato tuber moth ( <i>Phthorimaea operculella</i> )	500 mL + ethylated seed oil or non-ionic surfactant (refer Surfactant/Wetting agent section)	Not required	Benevia® is primarily active on the early nymph stages of Silverleaf whitefly. Apply treatment to eggs and early instar stages of a newly developing pest infestation. To maximise efficacy apply sequential treatments.
	<u>Sucking pests:</u> [Suppression only] Green peach aphid ( <i>Myzus persicae</i> ) <u>Rasping pests:</u> [Suppression only] Plague thrips ( <i>Thrips imaginis</i> )	750 mL + ethylated seed oil or non-ionic surfactant (refer Surfactant/Wetting agent section)		Benevia® is more active on thrips nymphs than adults. Apply treatment to a newly developing infestation. To maximise efficacy apply sequential treatments.
Strawberries	<u>Chewing pests:</u> Cluster caterpillar ( <i>Spodoptera litura</i> ) Cotton bollworm ( <i>Helicoverpa armigera</i> ) Light brown apple moth ( <i>Epiphyas postvittana</i> ) Native budworm ( <i>Helicoverpa punctigera</i> )	500 mL + non-ionic surfactant (refer Surfactant/Wetting agent section)	1 day	Apply treatment to eggs and early instar stages of a newly developing pest infestation. To maximise efficacy apply sequential treatments.
	<u>Sucking pests:</u> Green peach aphid ( <i>Myzus persicae</i> ) Melon aphid ( <i>Aphis gossypii</i> ) Strawberry aphid ( <i>Chaetosiphon fragaefolii</i> ) <u>Rasping pests:</u> [Suppression only] Onion thrips ( <i>Thrips tabaci</i> ) Plague thrips ( <i>Thrips imaginis</i> ) Western flower thrips ( <i>Frankliniella occidentalis</i> )	750 mL + non-ionic surfactant (refer Surfactant/Wetting agent section)		Benevia® is more active on thrips nymphs than adults. Apply treatment to a newly developing infestation. To maximise efficacy apply sequential treatments.

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

#### **WITHHOLDING PERIODS**

##### **HARVEST**

**POTATOES: DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION.**

**FRUITING VEGETABLES (INCLUDING CUCURBITS), STRAWBERRIES: DO NOT HARVEST FOR 1 DAY AFTER APPLICATION.**

**BULB VEGETABLES: DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION.**

##### **GRAZING**

**FRUITING VEGETABLES (INCLUDING CUCURBITS): DO NOT GRAZE OR CUT FOR STOCK FOOD.**

**EXPORT OF TREATED PRODUCE:** Suitable Maximum Residue Limits (MRLs) or import tolerances for produce treated with Benevia® insecticide may not be established in some countries. Consult with your exporter or FMC before applying Benevia® insecticide to crops from which produce is to be exported.

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