



# POISON

KEEP OUT OF REACH OF CHILDREN  
 READ SAFETY DIRECTIONS BEFORE OPENING OR USING

eChem

# BIFENTHRIN 100 EC

INSECTICIDE

ACTIVE CONSTITUENT: 100 g/L BIFENTHRIN  
 SOLVENT: 763 g/L HYDROCARBON LIQUID

GROUP **3A** INSECTICIDE

For the control of *Helicoverpa* spp. in cotton, tomatoes, lucerne seed crops, navy beans; carpophilus beetle in stone fruit (except cherries); certain species of mites in bananas, cotton and tomatoes; longtailed mealy bug in pears; banana weevil borer and banana rust thrips in bananas; mirids in cotton; whitefly in tomatoes; redlegged earth mite, blue oat mite, bryobia mite, webworm and brown pasture looper in faba beans, subterranean clover, clover, canola, wheat, barley, field peas, lupins and lucerne; vegetable weevil in canola; and certain species of wireworms in cotton and sugarcane; fig longicorn in grapes and citrus leafeating weevil in citrus as per the Directions for Use.

IMPORTANT: READ THIS LEAFLET BEFORE USE.

APVMA Approval Number: 69549/61100

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## DIRECTIONS FOR USE

### RESTRAINTS:

DO NOT use as a foliar spray in banana plantations and orchards where mite predators and other beneficials are established and providing effective mite control and/or other pest control.

DO NOT apply as foliar treatment if rainfall is expected before spray deposits dry on leaf surfaces.

DO NOT apply to bananas by aircraft.

Crop	Pest	State	Rate	WHP	Critical Comments
Bananas	Banana weevil borer ( <i>Cosmopolites sordidus</i> ) Banana rust thrips ( <i>Chaetanaphothrips signipennis</i> )	QLD, NSW, WA, NT only	<b>Seasonal Program</b> Stool Treatment Method 250 - 330 mL/100 L twice per year OR 660 mL/100 L once per year <b>Band Treatment</b> Method 250 mL/100 L twice per year.  <b>Monitoring Program</b> Stool Treatment Method 330 mL/100 L <b>Band Treatment</b> Method 250 mL/100 L	1 day	<b>Seasonal Program</b> <b>Twice per year timing</b> - Apply in October/November (spring/early summer) and March/April (late summer/autumn). Use the higher rate (concentration) when borer pressure or damage is high. <b>Once per year Timing</b> - Apply in October/November OR March/April. <b>Monitoring Program</b> Monitor weevil borer populations carefully by trap counts and/or corm damage ratings, beginning in September when pest activity is on the increase and continue until April. Apply treatment when banana weevil borers reach or exceed acceptable threshold levels. Monitor borer control after application and re-treat as required. <b>Banana Weevil borer:</b> Application should be made <b>after rain or irrigation</b> during periods of high adult borer activity. <b>Banana rust thrips:</b> Application against banana weevil borer will give coincident rust thrips control, particularly when application is made when thrips activity is on the increase usually beginning September and into the summer months. <b>Application Method</b> <b>Stool Treatment Application</b> - Remove trash from the base of stools and apply 500 – 700 mL of spray solution to each stool, depending on stool size. Treat the bottom 30 cm of each stool as well as the soil in a 30 cm band around each stool, ensuring thorough treatment of both butt(s) and follower(s). Use the lower spray volume of 500 mL on small stools less than 50 cm across the entire base. <b>Band Treatment Application</b> - Apply as a band application with a side delivery boom and offset nozzles on both sides of the row with the spray pattern positioned to spray 30 cm of soil on either side of the row and 30 cm in height. Aim to apply a total spray volume of 1 L/stool area. For single sucker row configurations apply 28 L of solution per 100 meters of row in a band 0,5 m wide on each side of the row overlapping in the centre. For double sucker configurations apply 56 L of solution per 100 metres of row in a band 1 m wide on each side of the double row with the spray pattern overlapping between the rows.

## MATERIAL SAFETY DATA SHEET

Additional information is listed in the Material Safety Data Sheet, which is available from the supplier.

### NOTICE TO BUYER

Seller warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use. No warranty of merchantability for a particular purpose, express or implied, extends to the use of the product contrary to label instructions, or under abnormal conditions.

Crop	Pest	State	Rate	WHP	Critical Comments
Bananas	Strawberry spider mite ( <i>Tetranychus lambi</i> )	QLD & WA only	40 mL/100 L	8 days	Monitor mite population on old leaves particularly during hot dry conditions. Apply eChem Bifenthrin 100 EC Insecticide as a preventative rather than a curative treatment before damage occurs, and before mite numbers build up to damaging levels. Follow up applications may be required at 10 to 14 day intervals. Thorough coverage of the lower leaf surface is essential to ensure good control. Use a total spray volume of 300 – 500 L/ha.
Cotton	Native budworm ( <i>Helicoverpa punctigera</i> ) Cotton bollworm ( <i>Helicoverpa armigera</i> ) Two spotted mite ( <i>Tetranychus urticae</i> ) Green mired ( <i>Creontiades dilutus</i> ) Apple dimpling bug ( <i>Campylomma liebknehti</i> )	QLD, NSW, WA only	600 - 800 mL/ha	14days	Apply as indicated by field checks. Use the higher rate when pest pressure is high, conditions favour pest development and when increased residual protection is required. <b>Budworm and Bollworm:</b> Applications should be timed to coincide with egg hatch and when small larvae up to 5 mm are present. Do not apply this product to <i>Helicoverpa</i> (= <i>Heliiothis</i> ) <i>armigera</i> larvae larger than 5 mm in length. <b>Two spotted mite:</b> Applications against <i>Helicoverpa</i> spp will give good control of coincident two spotted mite, particularly when applied on low mite populations (around 10% leaf infestation). If conditions continue to favour mite development a second application may be required 14 - 20 days later. <b>Green mirid &amp; Apple dimpling bug:</b> Apply at recommended threshold levels as indicated by field checks. Use the higher rate for increased pest pressure and longer residual protection.
	False wireworm ( <i>Pterohlaeus alternatus</i> ) Sugarcane wireworm ( <i>Arypnus variabilis</i> )		375 mL/ha <sup>1</sup> or 3.8 mL/100 m of row		<b>DO NOT CUT OR GRAZE FOR STOCK FEED</b>  <b>DO NOT FEED COTTON TRASH TO LIVE-STOCK</b>  <b>Wireworms:</b> Apply as a spray into the furrow at planting. Use a spray nozzle which will deliver a coarse spray in a total volume of 60 - 100 L/ha in a 10 cm band over the seed before soil is brought in behind covering tyres in front of the press wheel. <sup>1</sup> The rate is based on a 1 metre row spacing. If row spacing varies from 1 m then apply at the use rate according to mL/100 m of row.
Canola, Faba beans, Subterranean clover, Clover, Barley, Field Peas, Lupins, Lucerne & Wheat	Redlegged Earth Mite ( <i>Halotydeus destructor</i> ) Brown pasture looper ( <i>Ciampa arietaria</i> )	All states	50 – 100 mL/ha	4 weeks (grazing)	Apply as a broadcast ground rig application in a total water volume of 50 – 200 L/ha or by air in a minimum total water volume of 20 L/ha. Apply to bare soil after conventional cultivation and sowing or onto well grazed or sprayed pasture after direct drilling. Treat infested paddocks after sowing and before or soon after seedling emergence. Use the higher rate on heavier infestations and for longer residual protection. eChem Bifenthrin 100 EC Insecticide is compatible with some herbicides. See compatibility statement for details.
	Blue oat mite ( <i>Penthaleus major</i> ) Pasture webworm ( <i>Hednota</i> spp.) Bryobia mites ( <i>Bryobia</i> spp.)		100 mL/ha		
	Vegetable weevil ( <i>Listroderes difficilis</i> )		200 mL/ha		
Canola	Vegetable weevil ( <i>Listroderes difficilis</i> )	All states	100 – 200 mL/ha		Use the 100 mL rate when pest pressure is low. Monitor adjacent habitat and edges of the field for the presence of vegetable weevil prior to making a decision whether to spray.
Peaches, Nectarines, Plums, Apricots	Carpophilus beetles ( <i>Carpophilus</i> spp.)	All states	Dilute spraying 50 mL/100 L  Concentrate spraying Refer to the mixing/ application section	1 day	Monitor stone fruit orchards for Carpophilus beetle as fruit approach maturity and becomes susceptible to attack. Apply eChem Bifenthrin 100 EC Insecticide as a dilute spray before beetles reach damaging levels. Apply to the foliage and fruit of trees. Continue to monitor beetle numbers and if necessary reapply eChem Bifenthrin 100 EC Insecticide up to 1 day before harvest or use another insecticide registered for this purpose. Apply no more than 2 applications per season. <b>There must be a minimum of 10 days between re-treatment and the initial application.</b> Apply the same total amount of product to the target crop whether applying this product by dilute or concentrate spraying methods. Do not use at rates greater than 100 mL per 100 L water when using concentrate spraying. Cultural methods (eg destruction of fallen fruit by mulching) should be used to prevent excessive build up of Carpophilus beetle.
Citrus	Leafeating weevil ( <i>Eutinophaea bicristata</i> )	All states	<b>Pre-emergence program</b> 12.5 or 25 mL/tree <b>Post-emergence monitoring program</b> 6 mL/tree	-	Apply as a high volume band application in a 1.5 to 2 metres wide swath, to the ground, sides of the row, under each tree. Aim to apply a total spray volume of 5 to 10 L/tree (eg at 250 trees/ha = 1250 to 2500 L/ha). <b>Pre-emergence program:</b> Apply just prior to, or at the first sign of major beetle emergence in mid-October. Use the higher rate in blocks with a history of high beetle numbers or when longer residual control is required. <b>Post-emergence monitoring program:</b> Apply at peak beetle emergence in October/ November as indicated by field monitoring. (Refer to monitoring statement on label). Follow up treatment may be necessary based on a threshold of 25 beetles per 10 sites per orchard in consecutive counts 1 - 2 weeks apart.
Grapes	Fig longicorn ( <i>Acalolepta vastator</i> )	NSW, ACT & WA only	1000 mL/100 L	-	The application MUST be made at late dormancy after pruning and before bud burst. Apply a single high volume spray, with nozzles directing the spray solution to the trunk and cordons (arms) of grape vines to achieve thorough wetting of the bark. Total spray volume should be about 500 mL/vine achieved by hand application.
Lucerne seed crops	Native budworm ( <i>Helicoverpa punctigera</i> )	All states	400 – 600 mL/ha	-	Do not treat lucerne seed crops for alfalfa sprout production. Apply as indicated by field checks after the commencement of flowering. Use the higher rate when pest pressure is high, conditions favour pest development and when increased residual protection is required. <b>Native Budworm:</b> Applications should be timed to coincide with egg hatch and when small larvae up to 5 mm are present.
Navy beans	Native budworm ( <i>Helicoverpa punctigera</i> ) Corn earworm ( <i>Helicoverpa armigera</i> )	All states	600 – 800 mL/ha	14 days (harvest and grazing)	Apply as indicated by field checks from flowering onwards. Use the higher rate when pest pressure is high, conditions favour pest development and when increased residual protection is required. <b>Budworm and Earworm:</b> Applications should be timed to coincide with egg hatch and when small larvae up to 5 mm are present. Do not apply this product to <i>Helicoverpa</i> (= <i>Heliiothis</i> ) <i>armigera</i> larvae larger than 5 mm in length.



Crop	Pest	State	Rate	WHP	Critical Comments
Pears	Longtailed mealy bug ( <i>Pseudococcus longispinus</i> )	VIC & WA only	25 mL/100 L plus Caltex DC Tron at 1 L/100 L	14 days	Examine wood for the presence of over wintering longtailed mealy bugs but do not spray until larger numbers of young nymphs emerge in spring. Apply this mixture to near the point of runoff to all above ground parts of the tree between green tip to commencement of flowering. Do not spray after flowering has commenced.
Sugarcane	Sugarcane wireworm ( <i>Agrypnus</i> spp.)	QLD, NSW & WA only	375mL/ha* or 5.6 mL/100 m of row	-	Apply as a spray into the furrow at planting. Use a spray nozzle which will deliver a coarse spray in a total volume of 60 – 100 L/ha in a band 20 – 30 cm wide over the base of the furrow on top of the setts and before covering soil is brought in by tynes. * The rate is based on a 1.5 m row spacing. If row spacing varies from 1.5 m then apply at the use rate according to mL/100 m of row.
Tomatoes	Native budworm ( <i>Helicoverpa punctigera</i> ) Corn earworm ( <i>Helicoverpa armigera</i> ) Two spotted mite ( <i>Tetranychus urticae</i> ) Tomato russet mite ( <i>Aculops lycopersici</i> )  Whitefly ( <i>Trialeurodes vaporariorum</i> )	All states	<b>High Volume</b> 40 – 60 mL/100 L or <b>Low Volume</b> 600 mL/ha   30 mL/100 L water	1 day	Do not use low volume ground or air application on trellis tomatoes. <b>Crop Monitoring Program</b> <b>Helicoverpa spp:</b> Apply as indicated by field checks. Applications should be timed to coincide with egg hatch and when small larvae up to 5 mm are present. Do not apply this product to <i>Helicoverpa</i> (= <i>Heliothis</i> ) <i>armigera</i> larvae larger than 5 mm in length. <b>Mites:</b> Applications against <i>Helicoverpa</i> spp will give good control of coincident mites, particularly when applied on low mite populations. If conditions continue to favour mite development, a second application may be required 14 - 20 days later. <b>Schedule Spray Program</b> If fields are not checked during pest infestation periods, apply on a 7 - 10 day alternating program with a non pyrethroid insecticide. Use the higher rate (high volume application) and shorter interval when pest infestation is more severe and when increased residual protection is required. Do not apply this product to <i>Helicoverpa armigera</i> larvae larger than 5 mm in length. Apply as indicated by pest incidence and repeat as necessary. Use a total spray volume of 2500 L/ha.

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

#### WITHHOLDING PERIODS

##### Bananas:

**For Ground Applications – DO NOT HARVEST FOR 1 DAY AFTER APPLICATION.**

**For Foliar Applications – DO NOT HARVEST FOR 8 DAYS AFTER APPLICATION.**

##### Cotton:

**DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION.**

**DO NOT GRAZE OR CUT FOR STOCKFEED.**

**DO NOT FEED COTTON TRASH TO LIVESTOCK.**

##### Pears:

**DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION.**

##### Navy Beans:

**DO NOT HARVEST, GRAZE OR CUT FOR STOCK FOOD FOR 14 DAYS AFTER APPLICATION.**

##### Canola, Subterranean Clover, Clover, Field Peas, Faba Beans, Wheat Barley, Lucerne and Lupins:

**DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 4 WEEKS AFTER APPLICATION.**

##### HARVEST WHP:

**NOT REQUIRED WHEN USED AS DIRECTED.**

##### Citrus, Grapes, Sugarcane: NOT REQUIRED WHEN USED AS DIRECTED.

#### GENERAL INSTRUCTIONS

eChem Bifenthrin 100 EC Insecticide is a contact and residual insecticide/miticide. It can be used as a protective treatment when applied at regular intervals or as a knockdown treatment to control existing pests. Best results are obtained when eChem Bifenthrin 100 EC Insecticide is applied before pest populations build up to damaging levels.

This product is not suitable for use in Integrated Pest Management (IPM) programs where mite or other insect predators or parasites are established and providing effective mite and other insect control.

#### APPLICATION

eChem Bifenthrin 100 EC Insecticide may be applied by either ground rig or aircraft. Thorough coverage is essential to ensure adequate control. Do not apply as a fog or mist.

#### Dilute Spraying:

- Use a sprayer designed to apply high volumes of water up to the point of run-off.
- Set up and operate the sprayer to achieve even coverage throughout the crop canopy. Apply sufficient water to cover the crop to 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 required amount of product specified in the Directions for Use for each 100 L of water. Spray to the point of run-off.
- The required dilute spray volume will change as sprayer set up and operation may also need to be changed, as the crop grows.

#### Concentrate Spraying:

- Use a sprayer designed and set up for concentrate spraying (that is a sprayer which applied water volumes less than those required to reach the point of run-off) and matched to the crop being sprayed.
- Set up and operate the sprayer to achieve even coverage throughout the crop canopy using your chosen water volume.
- Determine the appropriate dilute spray (see dilute spraying above) for crop canopy. This is needed to calculate the concentrate mixing rate.
- The mixing rate for concentrate spraying can then be calculated in the following way:  
**EXAMPLE ONLY:**
  - Dilute spray volume as determined above: e.g. 1000 L/ha;
  - Your chosen concentrate spray volume: e.g. 500 L/ha;
  - The concentration factor in this example is: 2 x (i.e. 1000 L ÷ 500 L = 2);
  - If the dilute label rate is 50 mL/100 L, then the concentrate rate becomes 2 x 50, i.e. 100 mL/100 L of concentrate spray.
- 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.
- For further information on concentrate spraying, users are advised to consult the relevant industry guidelines, undertake appropriate training and follow industry Best Practices.

#### Ground Application:

Applications should be made as a fine spray preferably using hollow cone nozzles and a droplet size of 150 to 200 microns. The application volume will depend on the type of crop to be treated. The following are suggested:

Low volume broadcast application to – e.g. cereals, canola, grain legumes, lucerne, subterranean clover: 50 – 200 L/ha.

Low volume row crops applications to cotton, tomatoes, navy beans: 50 – 200 L/ha.

High volume applications to row crops – e.g. trellised tomatoes: 200 – 1000 L/ha except as noted in critical comments. Use 200 L/ha from transplanting increasing to 1000 L/ha at maturity.

High volume directed spray:

Grapes: Apply by hand application, using a high volume coarse spray of 500 mL/vine. (e.g. at approx. 2500 vines/ha = 1250 L/ha).

Foliar sprays to bananas: 300 to 500 L/ha.

High volume application to stone fruit: 1000 to 2000 L/ha.

#### Soil Applied Sprays:

##### High volume application

Bananas:

Stool treatment: Apply as a coarse spray at 500 - 750 mL per stool.

Band treatment: Apply as a band application with a side delivery boom and offset nozzles – 1 L of spray solution per stool.

**Citrus:** Apply as a high volume, directed spray to the ground under each tree. For optimum control apply to both sides of the tree. Total spray volume should be 5 to 10 L/tree (e.g. at 250 trees/ha = 1250 to 2500 L/ha).

##### In furrow applications:

Cotton & Sugarcane: Use a coarse spray: 60 to 100 L/ha as a band over the seed or sett before covering with soil – refer to critical comments for details.

#### Aerial Application:

Use at least 20 L/ha of total spray volume. Spray during the cooler parts of the day or night. To reduce the possibility of drift avoid spraying in calm conditions or when wind is light and variable. Preferably, spray in a crosswind. Use suitable application equipment and/or nozzles to deliver a fine spray with a droplet size of 150 to 200 microns.

A spraydrift minimisation strategy should be employed at all times when aerially applying sprays to, or near, sensitive areas. The strategy envisaged is best exemplified by the cotton industry's Best Management Practice manual.

#### MONITORING

Post-emergence monitoring of Citrus leaf eating weevil populations: At first sign of major beetle emergence in mid October commence monitoring at 1 to 2 week intervals. Place polystyrene fruit box (330 x 480 mm) under tree, shake branches vigorously, repeat on ten randomly selected trees throughout orchard. If 25 beetles or more are recorded in consecutive counts, treatment is required.

#### MIXING

Add the required quantity of eChem Bifenthrin 100 EC Insecticide to water in the spray tank and mix thoroughly. Maintain agitation during mixing and application.

#### COMPATIBILITY

eChem Bifenthrin 100 EC Insecticide is compatible with commonly used fungicides such as Dithane M45, Antracol, Chlorothalonil 500 and the herbicides – Sprayseed, Broadstrike, Spinnaker, Simazine 900, Dual, Metribuzin, Chlorsulfuron, Triasulfuron and Pendimethalin.

#### SURFACTANTS

eChem Bifenthrin 100 EC Insecticide contains a surfactant. Additional surfactant may only be necessary on hard to wet plants and in high volume situations.

#### NOTICE

*Helicoverpa* (= *Heliothis*) *armigera* resistance in Northern NSW and Qld. To help contain pyrethroid resistance in *H. armigera*, the Summer Crop Insecticide Strategy as developed by the Qld Department of Primary Industries and NSW Agriculture should be adhered to. Failure to observe the strategy may result in widespread resistance affecting the future viability of summer cropping.

#### INSECTICIDE RESISTANCE WARNING

**GROUP 3A INSECTICIDE**

For insecticide resistance management eChem Bifenthrin 100 EC Insecticide is a Group 3A insecticide. Some naturally occurring insect biotypes resistant to eChem Bifenthrin 100 EC Insecticide and other Group 3A insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if eChem Bifenthrin 100 EC Insecticide or other Group 3A insecticides are used repeatedly. The effectiveness of eChem Bifenthrin 100 EC Insecticide on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, eChem (Australia) Pty Ltd accepts no liability for any losses that may result from the failure of eChem Bifenthrin 100 EC Insecticide to control resistant insects.

eChem Bifenthrin 100 EC Insecticide may be subject to specific resistance management strategies. For further information contact your local supplier, eChem (Australia) Pty Ltd representative or local agricultural department agronomist.

#### STONE FRUIT EXPORT ADVICE

Export of Treated Stone Fruit – some export markets do not have suitable Maximum Residue Limits or import tolerance in place. Please contact eChem (Australia) Pty Ltd or the Australian Fresh Stone Fruit Growers Association prior to using this product on fruit destined for export.

#### RE-ENTRY TO TREATED FIELDS/CROPS

DO NOT re-enter treated field/crop until spray deposits have dried, unless wearing suitable protective clothing (i.e. waterproof hat, overalls, boots and gloves).

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

Dangerous to fish and aquatic organisms. DO NOT contaminate dams, rivers, streams, waterways or drains with the product or the used container. Tail drains which flow from treated areas should be prevented from entering the river systems.

#### PROTECTION OF LIVESTOCK

Dangerous to bees. DO NOT spray any plants in flower when bees are foraging. Spray in the early morning when bees are not actively foraging.

#### STORAGE, SPILLAGE 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 or recycling. 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 bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should NOT be burnt.

#### SAFETY DIRECTIONS

Poisonous if swallowed. Will damage eyes. Will irritate the nose, throat and skin. Avoid contact with eyes and skin. DO NOT inhale spray mist. When preparing spray, wear cotton overalls buttoned to the neck and wrist and washable hat, elbow-length PVC gloves and goggles. When using the prepared spray wear cotton overalls buttoned to the neck and wrist and washable hat and elbow length PVC gloves. If product in eyes, wash it out immediately with water. Wash hands after use. After each day's use, wash gloves, goggles and contaminated clothing.

#### FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia: 13 11 26. If swallowed, DO NOT induce vomiting. Give a glass of water.