

Product Name: GCS Alpha-Cypermethrin 100 Duo Insecticide

APVMA Approval No.: 80899/144419



Label Name:	GCS Alpha-Cypermethrin 100 Duo Insecticide
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Signal Headings:	POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
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Constituent Statements:	ACTIVE CONSTITUENT: 100 g/L ALPHA-CYPERMETHRIN SOLVENT: 735 g/L LIQUID HYDROCARBON
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Mode of Action:	GROUP 3A INSECTICIDE
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Statement of Claims:	For the control of insect pests including heliothis (<i>Helicoverpa</i> spp.) on various crops and red legged earth mite and blue oat mite on certain field crops and pastures and certain pests on fruit and vegetable crops as specified in the directions for use table.
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Net Contents:	1L 200L 20L 5L
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Restrains:	RESTRAINTS: DO NOT APPLY IF RAINFALL IS EXPECTED WITHIN 6 HOURS OF APPLICATION.
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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 PERIODS
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Asparagus, Broccoli, Brussels Sprouts, Cabbages, Cauliflowers, Chinese Cabbage, Kale, Kohl Rabi, Tomatoes, Turnips: DO NOT HARVEST FOR 1 DAY AFTER APPLICATION.

Chickpeas: DO NOT HARVEST FOR 21 DAYS AFTER APPLICATION.
DO NOT GRAZE OR CUT FOR STOCKFEED FOR 35 DAYS AFTER APPLICATION.

Faba Beans: DO NOT HARVEST FOR 4 WEEKS AFTER APPLICATION.
DO NOT GRAZE OR CUT FOR STOCKFEED FOR 35 DAYS AFTER APPLICATION.

Lettuce: DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION.

Maize, Mung Beans, Navy Beans, Rice, Sorghum, Soybeans, Sweet Corn, Tobacco: DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION.

Winter Cereals: DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION.
DO NOT GRAZE TREATED STUBBLE FOR 14 DAYS AFTER APPLICATION.

Lucerne: DO NOT GRAZE OR CUT FOR STOCK FEED FOR 14 DAYS AFTER APPLICATION.

Cotton, Linseed, Stone & Pome Fruit: DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION.

Canola: DO NOT CUT AND WINDROW FOR HARVEST FOR 21 DAYS AFTER APPLICATION.
DO NOT GRAZE OR CUT FOR STOCKFEED FOR 21 DAYS AFTER APPLICATION.

Sunflowers: DO NOT HARVEST FOR 21 DAYS AFTER APPLICATION.

Field Peas & Lupins: DO NOT HARVEST FOR 4 WEEKS AFTER APPLICATION. Linola: DO NOT HARVEST FOR 12 WEEKS AFTER APPLICATION.

Pastures: DO NOT GRAZE FOR 3 DAYS AFTER APPLICATION.

DO NOT CUT FOR STOCK FEED FOR 14 DAYS AFTER APPLICATION.

Trade Advice:

General Instructions:

This section contains file attachment.

Resistance Warning:

For insecticide resistance management GCS Alpha-Cypermethrin 100 Duo Insecticide is a Group 3A insecticide.

Some naturally-occurring insect biotypes resistant to GCS Alpha-Cypermethrin 100 Duo 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 GCS Alpha-Cypermethrin 100 Duo Insecticide or other Group 3A Insecticides are used repeatedly. The effectiveness of GCS Alpha-Cypermethrin 100 Insecticide on resistant individuals could be significantly reduced. Since the occurrence of resistant individuals is difficult to detect prior to use, General Crop Science accepts no liability for any losses that may result from the failure of GCS Alpha-Cypermethrin 100 Duo Insecticide to control resistant insects.

GCS Alpha-Cypermethrin 100 Duo Insecticide may be subject to specific resistance strategies. For further information contact your local supplier, General Crop Science representative or local department of agriculture agronomist.

In NSW and Qld, application of this product to *Helicoverpa armigera* larvae longer than 5mm may not only be ineffective but it may increase the level of synthetic pyrethroid resistance. This product should NOT be used to treat infestations that were not controlled

by an earlier application of it or another synthetic pyrethroid. Infestations not controlled by this product should be treated with another insecticide from another chemical group. Application of this product with an insecticide from another chemical group such as Nudrin1 will assist with the management of synthetic pyrethroid resistant *Helicoverpa armigera*.

Precautions:

Protections:

PROTECTION OF LIVESTOCK

Dangerous to bees. DO NOT spray on any plants in flower while bees are foraging. This product is known to have a deterrent effect on foraging bees for a short period of time after spraying. Risk to bees is reduced by spraying in the early morning and late evening when bees are not foraging.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Dangerous to fish and aquatic invertebrates such as yabbies. DO NOT contaminate streams, rivers or waterways with the chemical or the used container. Drift and run-off from treated areas may be hazardous to fish or crustaceans in adjacent sites. Water from treated rice fields must not be released off-farm until the retention period specified by local irrigation authorities has been met. DO NOT apply or allow spray drift onto adjacent non-target aquatic areas. Allow sufficient buffer distance between downwind non-target water bodies and the sprayed area. Run-off from areas must be prevented from entering drains or waterways.

Storage and Disposal:

STORAGE AND DISPOSAL

Store in the closed, original container, in a dry, cool, well-ventilated area out of direct sunlight. Triple 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 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.

Safety Directions:

SAFETY DIRECTIONS

Harmful if swallowed. Will irritate the eyes and skin. Facial skin contact may cause temporary facial numbness. Avoid contact with eyes and skin. Avoid inhaling vapour or spray mist. When preparing spray wear cotton overalls buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves and a face shield or goggles. If product in eyes, wash it out immediately with water. 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 or goggles and contaminated clothing.

First Aid Instructions:

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.

First Aid Warnings:

DIRECTIONS FOR USE

NOTE: This product is ineffective against synthetic pyrethroid-resistant *Helicoverpa armigera* larvae longer than 5 mm. All *Helicoverpa armigera* in NSW and Qld should be treated as being resistant to synthetic pyrethroids. Refer to Resistance Management under General Instruction.

This product is ineffective against pyrethroid-resistant *Plutella xylostella*.

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Asparagus (Not for use on white asparagus)	Garden weevil (<i>Phlyctinus callosus</i>)	WA only	100 mL/100 L	1 day	Caution: Not for use on white asparagus, there have been reports of some phytotoxicity when using Alpha-Cypermethrin. Apply in spring after weevil emergence, at up to 500 L spray solution per hectare. Day time spraying is effective but superior control may be achieved if spray is applied at night. Depending on pest pressure, repeat applications may be required. Application to fern, after spear harvest may reduce carry-over of Garden weevil for the following season.
Broccoli, Brussels Sprouts, Cabbages, Cauliflowers, Kale, Kohl Rabi, Chinese Cabbage, Turnips	Cabbage white butterfly (<i>Pieris rapae</i>), Cabbage moth (<i>Plutella xylostella</i>), <i>Helicoverpa punctigera</i> , <i>Helicoverpa armigera</i> Cluster caterpillar (<i>Spodoptera litura</i>)	All states	Low volume: 400 mL/ha High Volume: 50 mL/100 L Ultra Low Volume: 400 mL/ha	1 day (harvest)	Apply when pest populations indicate. When reinfestation is continuous, treatment every 7 - 10 days may be required. Add a non-ionic surfactant at its label rates. LOW VOLUME: Ground rig application: Apply in 100 to 600 L water per hectare as a fine spray with droplet size of 100 to 200 microns For aerial application, apply in 20 to 60 L water/ha with a droplet size of 100 to 150 microns HIGH VOLUME use a spray with a droplet size of 200 to 400 microns. Apply 600 L spray mixture per hectare just after transplanting and increase gradually to 1000 L/ha toward maturity. ULTRA LOW VOLUME: see ULV application section of this label. <i>Helicoverpa armigera</i> In Qld and NSW – follow the application directions for the pest above. Apply as required for pest incidence. Thorough and frequent crop checks are essential. Preferably apply to eggs. Apply to larvae only if they are less than 5mm long.
Canola	Native budworm (<i>Helicoverpa punctigera</i>) Tobacco lopper (<i>Chrysodexis argentifera</i>)	NSW, ACT, Vic, Tas, SA, WA only	200 mL/ha or 300 mL/ha	21 days (cutting for harvest or stock feed or grazing)	Do not use more than a total of 400 mL/ha per season to any one crop. For ULTRA LOW VOLUME use, see application section of this label. Inspect the crop regularly and immediately after flowering. Apply when damaging pest numbers first appear on the crop and repeat if necessary. For aerial application, use a total volume of 30 - 35 L/ha and apply in cooler part of the day. Use the higher rate if larvae larger than 10mm are present.
	Vegetable weevil (<i>Listroderes difficilis</i>)		400 mL/ha		Crops should be inspected as they merge. Border sprays are required to control invading adults. Apply when cotyledons and leaves are being eaten or the plant lopped. Repeat as necessary.

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Canola (cont.)	Cabbage white butterfly (<i>Pieris rapae</i>), cabbage moth (<i>Plutella xylostella</i>)	NSW, ACT, Vic, Tas, SA, WA only	400 mL/ha	21 days (cutting for harvest or stock feed or grazing)	Apply according to pest incidence.
	Red legged earth mite (<i>Halotydeus destructor</i>)		100 mL/ha		Pre-emergence: Apply by ground rig only. Treat infested paddocks after sowing but prior to crop emergence when soil is moist. Monitor red legged earth mite numbers and re-treat if necessary. Do NOT apply as a ULV application.
	Red legged earth mite (<i>Halotydeus destructor</i>), Blue oat mite (<i>Penthaleus major</i>)		50 mL/ha		Apply when mite numbers reach damaging levels. Do NOT apply as pre-emergence treatment. Do not use as a ULV application.
Chickpeas	Native budworm (<i>Helicoverpa punctigera</i>)	WA only	160 mL/ha	21 days (harvest) 35 days (grazing)	Apply to open, less dense crops when numbers of newly hatched larvae first appear on the crop and repeat as necessary.
		NSW, ACT, Vic, Tas, SA, WA, Qld only	200 or 300 mL/ha		Apply when pest numbers reach damaging levels and repeat if necessary. Use the higher rate if larvae larger than 10 mm are present. Best results will be obtained by spraying at egg hatch.
	Cutworm (<i>Agrotis spp.</i>)	NSW, ACT, Vic, Tas, SA, WA only	75 mL/ha		Check emerging and establishing crops in the late afternoon and evening for caterpillars crawling on the soil surface and feeding on the seedlings. Spray late afternoon or evening.
		Redlegged earth mite (<i>Halotydeus destructor</i>)	100 mL/ha		Pre-emergence: Apply by ground rig only. Treat infested paddocks after sowing but prior to crop emergence when soil is moist. Monitor redlegged earth mite numbers and re-treat if necessary. Do NOT apply as a ULV application.
			Redlegged earth mite (<i>Halotydeus destructor</i>) Blue oat mite (<i>Penthaleus major</i>)		50 mL/ha
Cotton	Native budworm (<i>Helicoverpa punctigera</i>),	NSW, WA, NT, Qld only		14 days (harvest)	For Ultra Low Volume use see ULV application section of this label. Apply as indicated by field checks using rates appropriate for the infestation level determined. Application should be timed to coincide with egg hatching and before larvae are in protected feeding sites.
			300 mL/ha		Apply when there are up to 75 eggs and/or up to 5 larvae less than 5 mm long per 100 terminals.
			400 mL/ha		Apply when there are up to 150 eggs and/or up to 10 larvae less than 5 mm long per 100 terminals and/or when larvae between 5 and 10 mm are present.
			500 mL/ha		Apply when there are up to 150 eggs and/or more than 10 larvae less than 5 mm long per 100 terminals and/or when larvae longer than 10 mm are present.

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS	
Cotton (cont.)	Cotton bollworm (<i>Helicoverpa armigera</i>)	NSW, WA, NT, Qld only	300 mL/ha	14 days (harvest)	Preferably apply to eggs. Apply to larvae only if they are less than 5 mm long. Apply when there are up to 75 eggs and/or up to 5 larvae less than 5 mm long per 100 terminals.	
			400 mL/ha		Apply when there are up to 150 eggs and/or up to 10 larvae less than 5mm long per 100 terminals.	
			500 mL/ha		Apply when there are more than 150 eggs and/or more than 10 larvae less than 5 mm long per 100 terminals.	
	Rough bollworm (<i>Earias huegeli</i>)		300 or 400 mL/ha		Apply when 2 or more larvae are present per 100 bolls. It is essential to detect and treat infestations in the early stages before larvae are established or concealed in bolls deep in the canopy. Use the higher rate if larvae greater than 10 mm are present. Best results are obtained by applying at egg hatch.	
			Green mirid (<i>Creontiades dilutus</i>) Apple dimpling bug (<i>Campylomma liebknechti</i>)		300 or 400 mL/ha	Apply at recommended threshold levels as indicated by field checks. Use higher rate when pest pressure is high and when increased residual protection is required.
Faba beans	Native budworm (<i>Helicoverpa punctigera</i>)	WA only		4 weeks (harvest) 35 days (grazing)	Apply to open, less dense crops when numbers of newly hatched larvae first appear on the crop and repeat as necessary.	
		NSW, ACT, Vic, Tas, SA, WA only	200 or 300 mL/ha		Apply when pest numbers reach damaging levels and repeat if necessary. Use the higher rate if larvae larger than 10 mm are present. Best results will be obtained by spraying at egg hatch.	
	Cutworm (<i>Agrotis</i> spp.)	NSW, ACT, Vic, Tas, SA, WA only	75 mL/ha		Check emerging and establishing crops in the late afternoon and evening for caterpillars crawling on the soil surface and feeding on the seedlings. Spray late afternoon or evening.	
			Redlegged earth mite (<i>Halotydeus destructor</i>)		100 mL/ha	Pre-emergence: Apply by ground rig only. Treat infested paddocks after sowing but prior to crop emergence when soil is moist. Monitor redlegged earth mite numbers and re-treat if necessary. Do NOT apply as a ULV application.
					Redlegged earth mite (<i>Halotydeus destructor</i>) Blue oat mite (<i>Penthaleus major</i>)	50 mL/ha

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Field peas	Native budworm (<i>H. punctigera</i>)	NSW, ACT, Vic, Tas, SA, WA only	160 mL/ha	4 weeks (harvest)	For Ultra Low Volume use, see ULV application section of this label. Apply to open, less dense crops when damaging numbers of newly hatched larvae first appear on the crop and repeat if necessary.
			200 or 300 mL/ha		Apply when damaging pest numbers first appear on the crop and repeat if necessary. Use the higher rate if larvae longer than 10 mm are present. Best results are obtained by applying at egg hatch.
	Pea weevil (<i>Bruchus pisorum</i>)	NSW, ACT, Vic, SA, WA only	160 or 200 mL/ha		Apply during flowering prior to egg laying when adult weevil population reaches 1 or more per 25 sweeps of a sweep net. Use the higher rate for longer residual protection.
	Cutworm (<i>Agrostis</i> spp.)		75 mL/ha		Check emerging and establishing crops in the late afternoon and evening for caterpillars crawling on the soil surface and feeding on the seedlings. Apply product in late afternoon or evening.
	Red legged earth mite (<i>Halotydeus destructor</i>)	NSW, ACT, Vic, Tas, SA, WA only	100 mL/ha		Pre-emergence: Apply by ground rig only. Treat infested paddocks after sowing but prior to crop emergence when soil is moist. Monitor red legged earth mite populations and re-treat as necessary. DO NOT use as a ULV application.
Red legged earth mite (<i>Halotydeus destructor</i>), blue oat mite (<i>Penthaleus major</i>)	50 mL/ha		Apply when mite numbers reach damaging levels. Do NOT apply as pre-emergence treatment. Do not use as a ULV application.		
Grapevines (non bearing)	Pink cutworm (<i>Agrostis munda</i>), apple weevil (Curculio beetle) (<i>Otiorynchus cribricollis</i>), garden weevil (<i>Phlyctinus callosus</i>)	NSW, ACT, Vic, Tas, SA, WA only	Dilute spraying: 100 mL/100 L Concentrate spraying – Refer to the application section	-	Monitor young vines during spring and early summer and apply at the first signs of leaf damage. Spray the leaves, canes and soil around each vine to a diameter of 30 cm. 70 to 80 mL of dilute spray should be sufficient for each vine. If pest infestation persists, a second application may be required after 3 weeks. Apply by dilute or concentrate spraying equipment. Apply the same total amount of product to the target crop whether applying this product by dilute or concentrate spraying methods.
Lettuce	<i>Helicoverpa</i> spp.	All States	Low volume: 400 mL/ha High volume: 50 mL/100 L	3 days (harvest)	Thoroughly and regularly check the crop. Apply at the first sign of pest activity. Preferably apply to eggs. Apply to <i>H. armigera</i> ONLY if larvae are less than 5 mm long. Repeat according to pest incidence.
Linola	Native budworm (<i>H. punctigera</i>)	NSW, ACT, Vic, Tas, SA, WA only	160 or 200 mL/ha	12 weeks (harvest)	DO NOT apply more than a total 400 mL/ha per season to any one crop. For Ultra Low Volume use, see ULV application section of this label. Inspect crop regularly during and immediately after flowering. Apply when damaging pest numbers first appear on the crop. For aerial application, apply during the cooler part of the day in a total volume of 30 – 35 L/ha. Use the higher rate if larvae longer than 10mm are present. Refer to application section for water rates.

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Linseed	Cutworms (<i>Agrostis</i> spp.)	NSW, ACT, Tas, SA, WA only	75 mL/ha	14 days (harvest)	Check emerging and establishing crops in the late afternoon and evening for caterpillars crawling on the soil surface and feeding on the seedlings. Apply product in late afternoon or evening.
	Native budworm (<i>H. punctigera</i>)	NSW, ACT, Vic, Tas, SA, WA only	200 or 300 mL/ha		For Ultra Low Volume use, see ULV application section of this label. Inspect the crop regularly and immediately after flowering. Apply when damaging numbers first appear on the crop and repeat if necessary. Use the higher rate if larvae larger than 10 mm are present. Best results will be obtained by spraying at egg hatch. Refer to application section for water rates.
Lucerne (seed and forage crops)	Native budworm (<i>H. punctigera</i>)	NSW, ACT, Vic, Tas, SA, WA only	160 mL/ha	14 days (grazing or cutting for stock feed)	For Ultra Low Volume use, see ULV application section of this label. Do NOT apply more than one application per cut or grazing for animal feed. Apply when pest populations reach economically damaging levels. Apply to larvae less than 5 mm in length.
	Green mirid (<i>Creontiades dilutis</i>)				Do NOT apply more than one application per cut or grazing for animal feed. Apply when pest populations reach economically damaging levels.
Lupins	Native budworm (<i>H. punctigera</i>)	NSW, ACT, Vic & SA only	200 or 300 mL/ha	4 Weeks (harvest)	DO NOT apply more than a total 600 mL/ha per season to any one lupin crop. For Ultra Low Volume use, see ULV application section of this label. Apply when damaging pest numbers first appear on the crop and repeat if necessary. Use the higher rate if larvae larger than 10 mm are present. Best results are obtained by spraying at egg hatch.
		WA only	120 or 200 mL/ha		Spraying should be timed to precede the first visible damage to the pods. Use the higher rate when the infestation is severe, or when residual activity is required.
	Cutworm (<i>Agrostis</i> spp.)	NSW, ACT, Vic, Tas, SA, WA only	75 mL/ha	Check emerging and establishing crops in the late afternoon and evening for caterpillars crawling on the soil surface and feeding on the seedlings. Apply product in late afternoon or evening.	
	Common armyworm (<i>Mythimna convecta</i>), Southern armyworm (<i>Persectania ewingii</i>)	NSW, ACT, WA only	240 mL/ha	Spray in the cool of the day (late afternoon) when larvae are most active.	
	Red legged earth mite (<i>Halotydeus destructor</i>)	NSW, ACT, Vic, Tas, SA, WA only	100 mL/ha	Pre-emergence: Apply by ground rig only. Treat infested paddocks after sowing but prior to crop emergence when soil is moist. Monitor red legged earth mite numbers and re-treat if necessary. Do NOT apply as a ULV application.	
	Red legged earth mite (<i>Halotydeus destructor</i>), Blue oat mite (<i>Penthaleus major</i>)		50 mL/ha	Apply when mite numbers reach damaging levels. Do NOT apply as pre-emergence treatment. Do not use as a ULV application.	

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Maize	Corn earworm (<i>H. armigera</i>)	NSW, ACT, Vic, WA, NT, Qld only	300 or 400 mL/ha	7 days (harvest)	For Ultra Low Volume use, see ULV application section of this label. Thoroughly and regularly check the crop. Apply from early silking according to pest incidence. Use the higher rate if larvae longer than 10 mm are present. In Qld, NSW & NT, preferably apply to eggs or apply to larvae only if they are less than 5 mm long.
	Native budworm (<i>H. punctigera</i>)	All States	300 or 400 mL/ha	7 days (harvest)	Thoroughly and regularly check the crop. Apply when the infestation reaches economically damaging levels and repeat as required. Best results will be obtained by applying at egg hatch. Use the higher rate if larvae longer than 10mm are present.
Mung Beans, Navy Beans	Native budworm (<i>H. punctigera</i>)	NSW, ACT, WA, NT, Qld only	300 or 400 mL/ha	7 days (harvest)	For Ultra Low Volume use, see ULV application section of this label. Thoroughly and regularly check the crop. Small larvae are easier to kill than large larvae. Apply when the number of larvae feeding on flowers or pods reaches 1 to 2 per metre of row. Repeat as required. Best results will be obtained by applying at egg hatch. Use the higher rate if larvae longer than 10 mm are present or when canopy is dense.
	Corn earworm (<i>H. armigera</i>)				Thoroughly and regularly check the crop. Apply when the infestations reach economically damaging levels and repeat as required. Preferably apply to eggs. In NSW & Qld, apply to larvae only if they are less than 5 mm long. Use the higher rate when pest pressure is high.
Pastures (legume and grass based pastures)	Wingless grasshoppers (<i>Phaulacridium vittatum</i>)	All States	160 mL/ha	3 days (grazing) 14 days (cut for stockfeed)	Do NOT apply more than a total of 320 mL/ha per season. For Ultra Low Volume use, see ULV application section of this label. Apply to infested areas and repeat as necessary. Spraying is most effective on newly emerged hoppers before they begin dispersing. Spray in the warmer parts of the day when hoppers are exposed. Later sprays should be applied before the start of egg laying. Good coverage is essential.
	Brown pasture looper (<i>Ciampa arietaria</i>)	NSW, ACT, Vic, Tas, SA, WA only	50 mL/ha		Apply when pest infestation reaches a commercially damaging level.
	Blackheaded pasture cockchafer (<i>Aphodius tasmaniae</i>)		100 mL/ha		Spraying is most effective when larvae are detected and treated early. Suspect paddocks should be dug after the first substantial rain in April/May and inspected to ensure grubs are present in sufficient numbers to warrant treatment. Spraying after June will give poorer results.

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Pastures (legume and grass based pastures) (cont.)	Red legged earth mite (<i>Halotydeus destructor</i>)	NSW, ACT, Vic, Tas, SA, WA only	100 mL/ha	3 days (grazing) 14 days (cut for stockfeed)	Pre-emergence: Apply by ground rig only. Treat infested paddocks after sowing but prior to crop emergence when soil is moist. Monitor red legged earth mite numbers and re-treat if necessary. Do NOT apply as a ULV application.
	Red legged earth mite (<i>Halotydeus destructor</i>), Blue oat mite (<i>Penthaleus major</i>)		50 mL/ha		Apply when mite numbers reach damaging levels. Do not use as a ULV application. Autumn/winter: Apply 4 to 7 weeks after the opening rains in late autumn/ early winter when RLEM are present (2 - 3 weeks after egg hatch occurs). This product is rain fast after spray deposits have dried on the leaf surface. This product can be mixed with herbicides used for winter cleaning of sub-clover pastures. See the "compatibility" section of this label. Spring: If RLEM/BOM numbers increase in the spring, spray when damage is observed and again before diapause egg production begins. This product can be mixed with herbicides used for winter cleaning of sub-clover pastures. See the "compatibility" section of this label. Do NOT use as a pre-emergence treatment.
Pome fruit: Apples, pears	Apple weevil (<i>Otiorynchus cribricollis</i>) Garden weevil (<i>Phlyctinus callosus</i>)	NSW, Vic, SA, WA only	Dilute spraying: 100 mL/100 L water Concentrate spraying – Refer to the application section	14 days (harvest)	Spray approximately 1 - 2 litres of solution onto the crotch, trunk and the soil at the base of each tree at peak weevil emergence. This usually occurs in late October – late November for garden weevil, and late November – mid December for apple weevil. Monitor weevil emergence using a single sided cardboard trunk band. Continue monitoring after spraying as a second spray may be needed 3 - 4 weeks later. Apply by dilute or concentrate spraying equipment. Apply the same total amount of product to the target crop whether applying this product by dilute or concentrate spraying methods.
Rice (both aerial and drill sown)	Common armyworm (<i>Mythimna convecta</i>)	NSW & WA only	200 mL/ha	7 days	Do NOT apply more than a total of 400 mL/ha per season to any one crop. Inspect crops regularly for the presence of grubs from flowering onwards. Apply when rice-damaging pest numbers first appear. Apply by aircraft in 20 - 30 litres of water per hectare to drained fields only. Spray in the cool of the day (early morning or late afternoon) when larvae are most active. Monitor crops closely and re-treat if necessary. Poor control may occur in crops that have lodged. See application section for correct water rates.

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Rice (both aerial and drill sown) (cont.)	Bloodworm	NSW & WA only	100 mL/ha	7 days	Apply to water immediately after sowing using helicopter or fixed-wing aircraft. A second treatment may be required approximately 10 to 14 days later. Plants are not vulnerable to bloodworm damage after secondary roots have developed. DO NOT release water from treated areas of farm until the retention period specified by local irrigation authorities has been met.
Soybeans	Native budworm (<i>H. punctigera</i>)	NSW, ACT, WA, NT, Qld only	300 or 400 mL/ha	7 days (harvest)	For Ultra Low Volume use, see ULV application section of this label. Thoroughly and regularly check the crop. Apply when flower or pod feeding numbers reach 1 - 2 per metre of row. Repeat as required. Use the higher rate if larvae longer than 10 mm are present. Best results are obtained by applying at egg hatch.
	Corn earworm (<i>H. armigera</i>)				Thoroughly and regularly check the crop. Apply when the numbers are sufficient to cause economic damage. Preferably apply to eggs. In NSW and Qld, apply to larvae only if they are less than 5 mm long. Repeat as required. Use the higher rate when pest pressure is high.
Stone fruit: Apricots, nectarines, peaches, plums	Apple weevil (<i>Otiorhynchus cribricollis</i>) Garden weevil (<i>Phlyctinus callosus</i>)	WA only	Dilute spraying: 100 mL/100 L water Concentrate spraying – Refer to the application section	14 days (harvest)	Spray approximately 1 - 2 litres of solution onto the crotch, trunk and the soil at the base of each tree at peak weevil emergence. This usually occurs in late October – late November for garden weevil, and late November – mid December for apple weevil. Monitor weevil emergence using a single sided cardboard trunk band. Continue monitoring after spraying as a second spray may be needed 3 - 4 weeks later. Apply by dilute or concentrate spraying equipment. Apply the same total amount of product to the target crop whether applying this product by dilute or concentrate spraying methods.
Sorghum	Native budworm (<i>H. punctigera</i>), Corn earworm (<i>H. armigera</i>)	NSW, ACT, WA, NT, Qld only	300 or 400 mL/ha	7 days (harvest)	For Ultra Low Volume use, see ULV application section of this label. Crop checking should commence when the head emerges from the boot and continue at daily intervals until the end of flowering for midge and at weekly intervals until maturity for <i>H. armigera</i> . DO NOT apply to tight headed varieties. Apply when there are 2 or more actively feeding larvae per head, or when numbers are sufficient to cause economic damage. Use the higher rate if longer residual control is required. Preferably apply to eggs. Apply to <i>H. armigera</i> larvae only if they are less than 5 mm long. Repeat as required.
	Sorghum midge (<i>Contarinia sorghicola</i>)		100 or 200 mL/ha		Apply when midge numbers reach 1 - 2 per head, from head emergence to completion of flowering. Repeat as required. Use the higher rate for longer residual protection.

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Sunflowers	Native budworm (<i>H. punctigera</i>)	NSW, Act, Vic, WA, NT, Qld only	300 or 400 mL/ha	21 days (harvest)	TO PROTECT BEES and ensure adequate pollination, application during flowering should be avoided. If application is necessary at flowering, apply early morning or late afternoon when bees are not actively foraging. For Ultra Low Volume use, see ULV application section of this label. Crop checking should be aimed to detect larvae as they hatch. Small larvae are easier to kill than large larvae. Apply when an average of 2 - 3 larvae are present per head or when economic damage is occurring. Repeat as required. Apply before the heads turn downwards to ensure adequate coverage. Use the higher rate when larvae larger than 10 mm are present. Best results will be obtained by applying at egg hatch.
	Corn earworm (<i>H. armigera</i>)				Thoroughly and regularly check the crop. Apply when numbers are sufficient to cause economic damage. Preferably apply to eggs. In NSW and Qld apply to larvae only if they are less than 5 mm long, repeat as required. Use the higher rate under heavy pest pressure.
	Grey cluster bug (<i>Nysius clevelandensis</i>), Rutherglen bug (<i>Nysius vinitor</i>)				Apply from budding when adult numbers per plant reach 10 - 15 in dryland crops and 20 - 25 in irrigated crops. After flowering, apply when adult numbers on the face of heads reaches 20 - 25. Repeat as required. The higher rate should be used when numbers are very high.
	Rutherglen bug (<i>Nysius vinitor</i>)	Vic, Tas, WA only	250 mL/ha	Apply from budding when adult numbers per plant reach 10 - 15 in dryland crops and 20 - 25 in irrigated crops. After flowering, apply when adult numbers on the face of heads reach 20 - 25. Repeat as required.	
Sweet corn	Native budworm <i>H. punctigera</i> , Corn earworm (<i>H. armigera</i>)	All States	300 or 400 mL/ha	7 days (harvest)	For Ultra Low Volume use, see ULV application section of this label. Thoroughly and regularly check the crop. Cob damage tolerated is variable according to market requirements. For fresh market corn spray at tassel emergence then at intervals of 5 - 8 days until silks wither. For processing corn and maize apply at early silking. Larvae in protected feeding sites within the cob are not effectively controlled. Apply before this situation occurs. Best results will be obtained by applying at egg hatch. Use the higher rate if larvae larger than 10 mm are present. To help contain pyrethroid resistance in <i>Helicoverpa armigera</i> in summer crops, do NOT apply to corn earworm longer than 5 mm.
Tobacco	Native budworm (<i>Helicoverpa punctigera</i>) Tobacco budworm (<i>H. armigera</i>)	Vic, WA, Qld only	30 or 40 mL/100L	7 days (harvest)	Apply from just after transplanting on a 7 to 10 day schedule, according to pest incidence. Apply as a medium to fine spray using hollow and/or solid cone nozzles. The spray volume should be gradually increased as the plants grow, from 200 L/ha just after transplanting to 1000 L/ha at maturity. Use the higher rate when larvae longer than 10 mm are present or when egg laying is intense.

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Tomatoes (bush and trellis)	Native budworm (<i>H. punctigera</i>) Tomato grub (<i>H. armigera</i>)	All States	<u>Program Application</u> Ultra Low Volume: 300 mL/ha Low Volume: 200 or 300 mL/ha High Volume: 20 or 30 mL/100 L <u>Established Infestations</u>	1 day (harvest)	Do NOT apply to trellis tomatoes by aircraft. ULTRA LOW VOLUME: see ULV application section of this label. <u>PROGRAM APPLICATION:</u> Apply on a 7 to 10 day schedule while pests are active. Use the middle rate when pest activity is high and/or larvae between 10 and 20 mm in length are present. Use the highest rate when larvae longer than 20 mm are present and/or when interruption of the schedule enables a very severe infestation to develop. LOW VOLUME: By ground rig: apply in 100 to 400 L of water per hectare as a fine spray. By aircraft: apply in a minimum of 10 L of water per hectare as a fine spray of 100 to 150 microns VMD. HIGH VOLUME: Apply as a medium to fine spray. Gradually increase the spray volume as the plants grow, from 200 L/ha just after transplanting establishment to 1000 L/ha at maturity. <u>ESTABLISHED INFESTATIONS:</u> Apply these rates to established infestations or escape situations. Do not apply to Tomato Grub larvae >5 mm in length.
	Cluster caterpillar (<i>Spodoptera litura</i>)	NSW, ACT, WA, NT, Qld only	Low Volume & Ultra Low Volume: 400 mL/ha High Volume: 50 mL/100 L		
	Plague thrips (<i>Thrips imaginis</i>)	NSW, ACT, Vic, Tas, WA, NT, Qld only	UTLRA LOW VOLUME: 130 mL/ha LOW VOLUME: 130 mL/ha HIGH VOLUME: 18 mL/100 L		

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Winter cereals	Cutworms (<i>Agrostis</i> spp.)	NSW, ACT, Vic, SA, WA only	75 mL/ha	7 days (harvest) 14 days (stubble grazing)	Do NOT apply more than a total of 540 mL/ha per season to any one crop. For Ultra Low Volume use, see ULV application section of this label. Check emerging and establishing crops in the late afternoon and evening for caterpillars crawling on the soil surface and feeding on the seedlings. Spray in the late afternoon or evening.
		Qld only	75 or 150 mL/ha		In Qld use the higher rate when the infestation is severe, or when the larvae are larger than 10 mm long, or when the residual activity is required.
	Webworm (<i>Hednota</i> spp.)	NSW, ACT, Vic, SA, WA only	75 mL/ha		Do NOT use as a ULV application. Pre-planting: May be applied pre-planting with knockdown herbicides. Apply from the last week of May when larvae have emerged. Do NOT apply to dense pasture. All pasture should be closely grazed prior to application to ensure adequate spray penetration. Apply in a minimum of 100 L of water per hectare. Apply at first sign of pest infestation. Repeat as necessary. Post Crop Emergence: Inspect crop regularly from emergence and apply at the first sign of pest activity. Repeat as required.
	Red legged earth mite (<i>Halotydeus destructor</i>)	NSW, ACT, Vic, Tas, SA, WA only	100 mL/ha		Pre-emergence: Apply by ground rig only. Treat infested paddocks after sowing but prior to crop emergence when soil is moist. Monitor red legged earth mite numbers and re-treat if necessary. Do NOT apply as a ULV application.
	Red legged earth mite (<i>Halotydeus destructor</i>), blue oat mite (<i>Penthaleus major</i>)		50 mL/ha		Apply when mite numbers reach damaging levels. Spray seedling crops if silvering or whitening (bleaching) of the leaves is causing a reduction in crop growth. If possible spray on a calm, mild morning when mites are actively feeding on crop leaves. Do NOT apply as pre-emergence treatment. Do not use as a ULV application.
	Aphids (<i>Rhopalosiphum</i> spp.) (barley yellow dwarf virus vectors)		125 mL/ha		To control aphids, sprays should be applied at 3 and 7 weeks after emergence to reduce aphid colonization and spread of Barley Yellow Dwarf virus. This will also reduce the effect of feeding aphid damage.
	Common armyworm (<i>Mythimna convecta</i>), Southern armyworm (<i>Persectania ewingii</i>)	All States	240 mL/ha		Apply before "head lopping" occurs when larval numbers exceed 2 or more per square metre. Spray in the cool of the day (late afternoon) when the larvae are most active. Spray to achieve good crop penetration. This rate is effective against larvae up to 20 mm in length. Monitor crops regularly and re-treat if necessary. Poor control may occur in crops that have lodged. See application section for correct water rates.

Trees & Ornamentals

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Eucalyptus	Adults and larvae of Chrysomelid leaf beetle or Eucalyptus leaf beetle (<i>Chrysophtharta</i> spp), Eucalyptus weevil (<i>Gonipterus</i> spp), Autumn gum moth (<i>Mnesampela</i> spp), Bronzed field beetle (<i>Adelium</i> spp), Adults of <i>Liparetrus</i> spp, <i>Cadmus</i> spp.	All states	250 - 300 mL/ha	-	Apply by fixed wing aircraft or by helicopter using hydraulic nozzles or micronair equipment, to the crowns of eucalypt trees. Micronair application in 5 litres of water/ha of water has proved effective. Apply before insect damage causes severe defoliation. Treatment will control small and large larvae as well as adult beetles. For ULV application, see ULV application section of this label.
Banksias Ornamentals	Banksia moth (<i>Danima banksiae</i>)	WA only	20 mL/100 L	-	Apply on a regular program at 2 week intervals at early flower development. Commence spraying when blooms are immature and continue until flowers are fully developed.

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

GENERAL INSTRUCTIONS

This product is a contact and residual insecticide. It can be used as a protective treatment when applied at regular intervals or as a knockdown treatment to control existing larvae. Best results will be obtained by spraying at egg hatch. Thorough coverage is essential to ensure adequate control. Apply during the cooler parts of the day.

The product can be applied in two ways:

1. mixed with water OR
2. mixed with oil based bulking agents such as D-C-Tron Cotton Spray Oil or other compatible ULV products.

MIXING

Low Volume and High volume applications by ground rig or when the product is applied with water as a carrier

Add the required quantity to water in the spray tank and mix thoroughly. Maintain agitation during mixing and application.

Ultra Low Volume (ULV) application by aircraft when the product is applied with oil based bulking agents.

This product can be mixed with D-C-Tron Cotton Spray Oil or other compatible products (see Compatibility Section).

Add the mixing partner to the spray tank first, engage agitation system and add the required amount of GCS Alpha-Cypermethrin 100 Insecticide direct to the spray tank. DO NOT mix with water to ensure there is no water in the spraying system.

APPLICATION – Grapevines, pome and stone fruit

Dilute Spraying:

- Use a sprayer designed to apply high volumes of water up to 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. 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 Directions for Use table for each 100 L of water. Spray to the point of run-off.
- The required dilute spray volume will change and the 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 applies 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 an appropriate dilute spray volume (See Dilute Spraying above) for the 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

1. Dilute spray volume as determined above: For example 1000 L/ha.
2. Your chosen concentrate spray volume: For example 500 L/ha.
3. The concentration factor in this example is: 2 X (i.e. $1000 \text{ L} \div 500 \text{ L} = 2$).
4. If the dilute label rate is 50 mL/100 L, then the concentrate rate becomes 2 x 50, that is 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 relevant industry guidelines, undertake appropriate competency training and follow industry Best Practices.

For concentrate application, use a spray volume of at least 200 litres per hectare.

APPLICATION – Crops other than grapevines, pome and stone fruit

Low volume and High Volume by ground rig or aircraft when GCS Alpha-Cypermethrin 100 Insecticide is applied with water as the carrier

This product can be applied by ground or aircraft with water as the carrier. Thorough coverage is essential to ensure adequate control. Always apply with a non-ionic surfactant at its labelled rate, unless detailed on the label of the tank mix partner. Apply in cooler parts of the day or night.

Ground Application – water carrier: For low volume spraying of field crops with ground rigs, use a total volume of 50 - 200 L/ha except for sweet corn, tomatoes and tobacco where higher volumes should be used. Drop arms should be used on ground rigs in row crops taller than 300 mm. The application should be made as a fine spray, preferably using hollow cone nozzles and a droplet size of 150 - 200 microns unless otherwise recommended in the Critical Comments.

Aerial Application – water carrier:

DO NOT apply to trellis tomatoes by aircraft.

Use at least 20 L/ha of total spray volume.

For spring/early summer applications to cereals, linola, canola, rice and to other dense crops, apply in a total spray volume of 30 to 35 L/ha. If possible, spray in a cross wind. Avoid spraying in calm conditions or when wind is light and variable in direction. Apply as a spray of 100 - 150 microns VMD.

Ultra Low Volume (ULV) application by aircraft

GCS Alpha-Cypermethrin 100 Insecticide mixed with D-C-Tron Cotton Spray Oil or other compatible products should be applied in a minimum total spray volume of 1.5 L/ha. It should only be applied by aircraft with suitable equipment to provide a droplet size of approximately 80 - 100 microns VMD. Applications should be made during the cooler parts of the day or at night. Avoid application in calm or very windy conditions. Preferably apply in light to moderate cross winds.

COMPATIBILITY

Low Volume and High Volume Application by ground rig or aircraft when GCS Alpha-Cypermethrin 100 Insecticide is applied with water as a carrier

This product is compatible with Azodrin*, D-C-Tron Cotton Spray Oil, Dithane* M-45, dicamba, Kocide*, Nudrin* 225, Parathion 500EC, Parathion* M500, Predator* 300, Ridomil*, Wuxal*, Select*, dimethoate, diquat, glyphosate, Tigrex*, Jaguar*, simazine, Spinnaker*, 2,4-D Amine, 2,4-D Ester, 2,4-DB, MCPA, paraquat.

Do NOT mix this product with wettable powders and water dispersible granules BEFORE addition to the spray tank.

This product can be mixed with Dithane WDG providing the mixture is agitated efficiently and used immediately.

Ultra Low Volume by aircraft

This product should only be mixed with specific ULV formulations of other insecticides eg Azodrin¹, Predator 300, and PBO synergists, when mixed according to the directions on the PBO synergist labels.