

POISON

KEEP OUT OF REACH OF CHILDREN

READ SAFETY DIRECTIONS BEFORE OPENING OR USING



Alpha 100 Duo

INSECTICIDE

ACTIVE CONSTITUENT: 100 g/L ALPHA-CYPERMETHRIN
SOLVENT: 755 g/L LIQUID HYDROCARBON

GROUP 3A INSECTICIDE

For the control of certain insect pests, including Heliothis (Helicoverpa spp) on various crops, Blue Oat Mite and Redlegged Earth Mite on certain field crops and pastures, and certain insect pests on fruit and vegetable crops as per the Directions for Use

IMPORTANT: Read the attached booklet before use

5, 20-1000 LITRES

Syngenta Crop Protection Pty Limited
Level 1, 2-4 Lyon Park Road, Macquarie Park NSW 2113

In a transport emergency dial 000, Police or Fire Brigade
For specialist advice in an emergency only, call 1800 033 111 (24 hours)

APVMA Approval No: 61528/5 or 20-1000/0208
xxxxx

The Syngenta logo, consisting of a stylized, flowing black and white wave shape that curves upwards from left to right. Below the wave, the word "syngenta" is written in a lowercase, sans-serif font, followed by a registered trademark symbol (®).

syngenta®

STORAGE AND DISPOSAL

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

Refillable containers

Empty contents fully into application equipment. Close all valves and return to (point of supply/ designated collection point/ other specific collection details) for refill or storage.

Other containers

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 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

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
- washable hat
- elbow-length PVC gloves
- 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

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone 131 126. If swallowed, DO NOT induce vomiting. Give a glass of water.

MATERIAL SAFETY DATA SHEET

If additional hazard information is required refer to the Material Safety Data Sheet. For a copy visit our website at www.syngenta.com

MANUFACTURER'S WARRANTY AND EXCLUSION OF LIABILITY

Syngenta has no control over storage, handling and manner of use of this product. Where this material is not stored, handled or used correctly and in accordance with directions, no express or implied representations or warranties concerning this product (other than non-excludable statutory warranties) will apply. Syngenta accepts no liability for any loss or damage arising from incorrect storage, handling or use.

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APVMA Approval No: 61528/5 or 20-1000/0208

XXXXX

Batch No	
Date of Manufacture	

BARCODE

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DIRECTIONS FOR USE

Restraint: DO NOT apply if rain is expected within 6 hours of application

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 Insecticide Resistance Warning under General Instructions.

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

Crop	Pest	State	Rate	WHP	Critical Comments
Asparagus Not White Asparagus	Garden Weevil (<i>Phlyctinus callosus</i>)	WA only	100 mL/100 L	1 day (H)	Apply in spring after weevil emergence at up to 500 L spray solution/ha. Daytime spraying is effective but superior control may be achieved if spray is applied at night. Repeat applications as required, depending on pest pressure. Application to fern after spear harvest may reduce carryover of Garden Weevil for the following season. DO NOT apply more than 6 times per season. Caution: Not for use on White Asparagus, there have been reports of some phytotoxicity when using alpha-cypermethrin.
Banksias, Ornamentals	Banksia Moth (<i>Danima banksiae</i>)		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.
Broccoli, Brussels Sprouts, Cabbages, Cauliflowers, Chinese Cabbages, Kale, Kohlrabi, Turnips	Cabbage Moth (<i>Plutella xylostella</i>), Cabbage White Butterfly (<i>Pieris rapae</i>), Cotton Bollworm (<i>Helicoverpa punctigera</i>), Native Budworm (<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 (ULV) 400 mL/ha	1 day (H)	Apply according to pest incidence. When reinfestation is continuous, treatment every 7 to 10 days may be required. Add a non ionic surfactant at registered label rates. Low volume Ground rig application: Apply in 100 to 600 L water/ha as a fine spray (ie droplet size of 100 to 200 µm). Aerial application: Apply in 20 to 60 L water/ha as a spray of 100 to 150 µm droplet size. High volume: Gradually increase spray volume as plants grow from 600 L/ha just after transplanting to 1,000 L/ha at maturity. Apply as a medium spray (droplet size of 200 to 400 µm VMD). Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. NSW, Qld (<i>Helicoverpa armigera</i>): Follow application directions for the pest above. Apply as required according to pest incidence. Thorough and frequent crop checks are essential. Preferably apply to eggs. Apply to larvae only if they are less than 5 mm long.

Crop	Pest	State	Rate	WHP	Critical Comments
Canola	Blue Oat Mite (<i>Penthaleus major</i>), Redlegged Earth Mite (<i>Halotydeus destructor</i>)	NSW, Vic, Tas, SA, WA, ACT only	50 mL/ha	21 days (H/G/cut for stock food)	Post-emergence: Apply when mite numbers reach damaging levels. DO NOT apply as a pre-emergence treatment.
	Cabbage Moth (<i>Plutella xylostella</i>), Cabbage White Butterfly (<i>Pieris rapae</i>)		400 mL/ha		Apply according to pest incidence.
	Native Budworm (<i>Helicoverpa punctigera</i>), Tobacco Looper (<i>Chrysodeixis argentifera</i>)		200 or 300 mL/ha		DO NOT apply more than a total of 400 mL/ha per season to any 1 crop. Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Inspect crop regularly during and immediately after flowering. Apply when damaging pest numbers first appear on crop and repeat if necessary. Aerial application: Use a total volume of 30 to 35 L/ha and apply in cooler part of the day. Use the higher rate if larvae longer than 10 mm are present.
	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 retreat if necessary. DO NOT apply as a ULV application.
	Vegetable Weevil (<i>Listroderes difficilis</i>)		400 mL/ha		Crops should be inspected as they emerge. Border sprays are required to control invading adults. Apply when cotyledons and leaves are being eaten or the plant lopped. Repeat as necessary.
Cereals Winter	Aphids (<i>Rhopalosiphum</i> spp) (Barley Yellow Dwarf Virus vectors)	NSW, Vic, Tas, SA, WA, ACT only	125 mL/ha	7 days (H) 14 days (G) stubble	To control aphids sprays should be applied at 3 and 7 weeks after emergence to reduce Aphid colonisation and spread of Barley Yellow Dwarf Virus. This will also reduce effect of feeding aphid damage.
	Blue Oat Mite (<i>Penthaleus major</i>), Redlegged Earth Mite (<i>Halotydeus destructor</i>)		50 mL/ha		Apply when mite numbers reach damaging levels. Spray seedling crops if silvering or whitening (bleaching) of 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 a pre-emergent treatment. DO NOT use as a ULV application.
	Common Armyworm (<i>Mythimna convecta</i>), Southern Armyworm (<i>Persectania ewingii</i>)	All States	240 mL/ha		Apply before head lopping occurs and when there are 2 or more larvae/m ² . Spray in cool of the day (usually late afternoon) when larvae are most active. Ensure spray penetrates crop. This rate is effective on larvae up to 20 mm in length. Monitor crop closely and retreat if necessary. Poor control may occur in crops that have lodged. Refer to Application under General Instructions for correct water rates.

Crop	Pest	State	Rate	WHP	Critical Comments
Cereals Winter <i>continued</i>	Cutworm (<i>Agrotis</i> spp)	Qld, NSW, ACT only	75 or 150 mL	7 days (H) 14 days (G) stubble	Use higher rate when infestation is severe, when there are larvae longer than 10 mm or when longer residual activity is required.
		Vic, SA, WA only	75 mL/ha		DO NOT apply more than a total of 540 mL/ha per season to any 1 crop. Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. 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 late afternoon or evening.
	Redlegged Earth Mite (<i>Halotydeus destructor</i>)	NSW, Vic, Tas, SA, WA, ACT 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 Redlegged Earth Mite numbers and retreat if necessary. DO NOT apply as a ULV application.
	Webworm (<i>Hednota</i> spp)	NSW, Vic, SA, WA, ACT only	75 mL/ha		DO NOT use as a ULV application. Pre-planting: May be applied with knockdown herbicides prior to planting. Apply from last week in 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 water/ha. Repeat as required. Post crop emergence: Inspect crop regularly from emergence and apply at first sign of pest activity. Repeat as required.
Chickpeas	Blue Oat Mite (<i>Penthaleus major</i>), Redlegged Earth Mite (<i>Halotydeus destructor</i>)	NSW, Vic, Tas, SA, WA, ACT only	50 mL/ha	21 days (H) 5 weeks (G/cut for stock food)	Apply when mite numbers reach damaging levels. DO NOT apply as a pre-emergence treatment. DO NOT use as a ULV application.
			Cutworm (<i>Agrotis</i> spp)		75 mL/ha
	Native Budworm (<i>Helicoverpa punctigera</i>)	Qld, NSW, Vic, Tas, SA, WA, ACT only	200 or 300 mL/ha		Apply when pest numbers reach damaging levels and repeat if necessary. Use higher rate if larvae longer than 10 mm are present. Best results will be obtained by spraying at egg hatch.
			WA only		160 mL/ha
	Redlegged Earth Mite (<i>Halotydeus destructor</i>)	NSW, Vic, Tas, SA, WA, ACT 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 Redlegged Earth Mite numbers and retreat if necessary. DO NOT apply as a ULV application.

Crop	Pest	State	Rate	WHP	Critical Comments		
Cotton	Apple Dimpling Bug (<i>Campylomma liebknechti</i>), Green Mirid (<i>Creotia dilutus</i>)	Qld, NSW, WA, NT only	300 or 400 mL/ha	14 days (H)	Apply at recommended levels indicated by field checks. Use higher rate when pest pressure is high and when increased residual protection is required.		
	Cotton Bollworm (<i>Helicoverpa armigera</i>)		300 mL/ha		Preferably apply to eggs. Apply to larvae only if they are less than 5 mm long.		
			400 mL/ha		Apply when there are up to 75 eggs and/or up to 5 larvae less than 5 mm long/100 terminals.		
			500 mL/ha		Apply when there are up to 150 eggs and/or up to 10 larvae less than 5 mm long/100 terminals		
	Native Budworm (<i>Helicoverpa punctigera</i>)		300 mL/ha		Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Apply as indicated by field checks using rates appropriate for infestation level determined. Application should be timed to coincide with egg hatching and before larvae are in protected feeding sites.		
			400 mL/ha		Apply when there are up to 75 eggs and/or up to 5 larvae less than 5 mm long/100 terminals.		
			500 mL/ha		Apply when there are up to 150 eggs and/or up to 10 larvae less than 5 mm long/100 terminals and/or when larvae between 5 and 10 mm are present.		
	Rough Bollworm (<i>Earias huegeli</i>)				300 or 400 mL/ha		Apply when there are more than 150 eggs and/or more than 10 larvae less than 5 mm long/100 terminals and/or when larvae longer than 10 mm are present.
							Apply when an average of 2 or more larvae are present/100 bolls. It is essential to detect and treat infestations in early stages before larvae are established or concealed in bolls deep in canopy. Use higher rate if larvae longer than 10 mm are present. Best results will be obtained by applying at egg hatch.
	Eucalypt plantations		Adults and larvae of Autumn Gum Moth (<i>Mnesampela</i> spp), Bronzed Field Beetle (<i>Adelium</i> spp), Chrysomelid Leaf Beetle / Eucalyptus Leaf Beetle (<i>Chrysopharta</i> spp), Eucalyptus Weevil (<i>Gonipterus</i> spp) Adults of <i>Liparetrus</i> spp, <i>Cadmujs</i> spp		All States	250 to 300 mL/ha	-

Crop	Pest	State	Rate	WHP	Critical Comments
Faba Beans	Blue Oat Mite (<i>Penthaleus major</i>), Redlegged Earth Mite (<i>Halotydeus destructor</i>)	NSW, Vic, Tas, SA, WA, ACT only	50 mL/ha	4 weeks (H) 5 weeks (G/cut for stock food)	Post-emergence: Apply when mite numbers reach damaging levels. DO NOT apply as a pre-emergence treatment. DO NOT use as a ULV application.
	Cutworm (<i>Agrotis</i> spp)		75 mL/ha		Check emerging or establishing crops in late afternoon and evening for caterpillars crawling on soil surface and feeding on seedlings. Spray in late afternoon and evening.
	Native Budworm (<i>Helicoverpa punctigera</i>)		200 or 300 mL/ha		Apply when pest numbers reach damaging levels and repeat if necessary. Use higher rate if larvae longer than 10 mm are present. Best results will be obtained by spraying at egg hatch.
		WA only	160 mL/ha		Apply to open, less dense crops when damaging numbers of newly hatched larvae first appear on crop. Repeat as necessary.
	Redlegged Earth Mite (<i>Halotydeus destructor</i>)	NSW, Vic, Tas, SA, WA, ACT 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 Redlegged Earth Mite numbers and retreat if necessary. DO NOT apply as a ULV application.
Field Peas	Blue Oat Mite (<i>Penthaleus major</i>), Redlegged Earth Mite (<i>Halotydeus destructor</i>)		50 mL/ha	4 weeks (H)	Post-emergence: Apply when mite numbers reach damaging levels. DO NOT apply as a pre-emergence treatment. DO NOT apply as a ULV application.
	Cutworm (<i>Agrotis</i> spp)		75 mL/ha		Check emerging or establishing crops in late afternoon and evening for caterpillars crawling on soil surface and feeding on seedlings. Spray in late afternoon and evening.
	Native Budworm (<i>Helicoverpa punctigera</i>)		200 or 300 mL/ha		Apply when pest numbers reach damaging levels and repeat if necessary. Use higher rate if larvae longer than 10 mm are present. Best results will be obtained by spraying at egg hatch.
		WA only	160 mL/ha		Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Apply to open, less dense crops when damaging numbers of newly hatched larvae first appear on the crop. Repeat as necessary.
	Pea Weevil (<i>Bruchus pisorum</i>)	NSW, Vic, SA, WA, ACT only	160 or 200 mL/ha		Apply during flowering prior to egg laying when adult weevil population reaches 1 or more/25 sweeps of a sweep net. Use higher rate for longer residual protection.
	Redlegged Earth Mite (<i>Halotydeus destructor</i>)	NSW, Vic, Tas, SA, WA, ACT 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 Redlegged Earth Mite numbers and retreat if necessary. DO NOT apply as a ULV application.

Crop	Pest	State	Rate	WHP	Critical Comments
Grapevines Non bearing	Apple Weevil / Curculio Beetle (<i>Otiorhynchus</i> <i>cribricollis</i>), Garden Weevil (<i>Phlyctinus</i> <i>callosus</i>), Pink Cutworm (<i>Agrotis munda</i>)	NSW, Vic, Tas, SA, WA, ACT only	Dilute spraying 100 mL/100 L Concentrate spraying Refer to Application under General Instructions	-	Monitor young vines during spring and early summer and apply at first sign of leaf damage. Spray 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 same total amount of product to 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 (H)	Thoroughly and regularly check crop. Apply at fist sign of pest activity. Preferably apply to eggs. Apply to larvae only if they are less than 5 mm long. Repeat according to pest incidence.
Linola	Native Budworm (<i>Helicoverpa</i> <i>punctigera</i>)	NSW, Vic, Tas, SA, WA, ACT only	160 or 200 mL/ha	12 weeks (H)	DO NOT apply more than a total of 400 mL/ha per season to any 1 crop. Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Inspect crop regularly during and immediately after flowering. Apply when damaging pest numbers first appear on crop. Aerial application: Apply during cooler part of day in a total volume of 30 to 35 L/ha. Use higher rate if larvae longer than 10 mm are present. Refer to Application under General Instructions for correct water rates.
Linseed	Cutworm (<i>Agrotis</i> spp)		75 mL/ha	14 days (H)	Check emerging and establishing crops in late afternoon and evening for caterpillars crawling on soil surface and feeding on seedlings. Spray in late afternoon and evening.
	Native Budworm (<i>Helicoverpa</i> <i>punctigera</i>)		200 or 300 mL/ha		Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Inspect crop regularly during and immediately after flowering. Apply when damaging pest numbers first appear on crop and repeat if necessary. Use higher rate if larvae longer than 10 mm are present. Best results will be obtained by spraying at egg hatch. Refer to Application under General Instructions for correct water rates.
Lucerne Forage, seed crops	Green Mirid (<i>Creontiades</i> <i>dilutus</i>)	NSW, Vic, Tas, SA, WA, ACT only	160 mL/ha	14 days (G/cut for stock food)	DO NOT apply more than 1 application per cut or grazing for animal feed. Apply when pest populations reach economically damaging levels.
	Native Budworm (<i>Helicoverpa</i> <i>punctigera</i>)				Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. DO NOT apply more than 1 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.

Crop	Pest	State	Rate	WHP	Critical Comments	
Lupins	Blue Oat Mite (<i>Penthaleus major</i>), Redlegged Earth Mite (<i>Halotydeus destructor</i>)	NSW, Vic, Tas, SA, WA, ACT only	50 mL/ha	4 weeks (H)	Apply when mite numbers reach damaging levels. DO NOT apply as a pre-emergence treatment. DO NOT use as a ULV application.	
	Common Armyworm (<i>Mythimna convecta</i>), Southern Armyworm (<i>Persectania ewingii</i>)	NSW, WA, ACT only	240 mL/ha		Spray in cool of day (late afternoon) when larvae are most active.	
	Cutworm (<i>Agrotis</i> spp)	NSW, Vic, Tas, SA, WA, ACT only	75 mL/ha		Check emerging and establishing crops in late afternoon and evening for caterpillars crawling on soil surface and feeding on seedlings. Spray in late afternoon and evening.	
	Native Budworm (<i>Helicoverpa punctigera</i>)	NSW, Vic, SA, ACT only	200 or 300 mL/ha		DO NOT apply more than a total of 600 mL/ha per season to any 1 lupin crop. Ultra low volume: Refer to ULV application by aircraft under General Instructions. Apply when damaging pest numbers first appear on crop and repeat if necessary. Use higher rate if larvae longer than 10 mm are present. Best results will be obtained by spraying at egg hatch.	
		WA only	120 or 200 mL/ha			Spraying should be timed to precede first visible damage to pods. Use higher rate when infestation is severe or when residual activity is required.
	Redlegged Earth Mite (<i>Halotydeus destructor</i>)	NSW, Vic, Tas, SA, WA, ACT 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 Redlegged Earth Mite numbers and retreat if necessary. DO NOT apply as a ULV application.
Maize	Corn Earworm (<i>Helicoverpa armigera</i>)	Qld, NSW, Vic, WA, ACT, NT only	300 or 400 mL/ha	7 days (H)		Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Thoroughly and regularly check crop. Apply from early silking according to pest incidence. Use higher rate if larvae longer than 10 mm are present. Qld, NSW, NT: Preferably apply to eggs or apply to larvae only if they are less than 5 mm long.
						Native Budworm (<i>Helicoverpa punctigera</i>)

Crop	Pest	State	Rate	WHP	Critical Comments
Mung Beans, Navy Beans	Corn Earworm (<i>Helicoverpa armigera</i>)	Qld, NSW, WA, ACT, NT only	300 or 400 mL/ha	7 days (H)	Thoroughly and regularly check crop. Apply when infestation reaches an economically damaging level and repeat as required. Preferably apply to eggs. Qld, NSW: Apply to larvae only if they are less than 5 mm long. Use higher rate when pest pressure is high.
	Native Budworm (<i>Helicoverpa punctigera</i>)				Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Crop checking should be aimed to detect larvae as they hatch. Small larvae are easier to kill than large larvae. Apply when number of larvae feeding on flowers or pods reaches 1 to 2/m of row. Repeat as required. Use higher rate when larvae larger than 10 mm are present or when canopy is dense. Best results will be obtained by spraying at egg hatch.
Pastures Grass, legume based	Blackheaded Pasture Cockchafer (<i>Aphodius tasmaniae</i>)	NSW, Vic, Tas, SA, WA, ACT only	100 mL/ha	3 days (G) 14 days (cut for stock food)	Spraying is most effective when larvae are detected and treated early. Suspect paddocks should be dug after first substantial rain in April or May and inspected to ensure grubs are present in sufficient numbers to warrant treatment. Spraying after June will give poorer results.
	Blue Oat Mite (<i>Penthaleus major</i>), Redlegged Earh Mite (<i>Halotydeus destructor</i>)		50 mL/ha		Pre-emergence: Apply when mite numbers reach damaging levels. DO NOT use as a ULV application. Autumn/winter: Apply 4 to 7 weeks after opening rains in late autumn to early winter when RLEM are present (2 to 3 weeks after egg hatch occurs). Product is rainfast after spray deposits have dried on leaf surface. Product can be mixed with herbicides used for winter cleaning of Sub Clover pastures. Refer to Compatibility under General Instructions for details. Spring: If RLEM/BOM numbers increase in spring, spray when damage is observed and again before diapause egg production begins. Product can be mixed with herbicides used for spray topping pastures if timing coincides. Refer to Compatibility under General Instructions for details. DO NOT apply as a pre-emergence treatment.
	Brown Pasture Looper (<i>Ciampa arietaria</i>)		50 mL/ha	Apply when pest infestation reaches an economically damaging level.	
	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 retreat if necessary. DO NOT apply as a ULV application.	

Crop	Pest	State	Rate	WHP	Critical Comments
Pastures Grass, legume based <i>continued</i>	Wingless Grasshopper (<i>Phaulacridium vittatum</i>)	All States	160 mL/ha	3 days (G) 14 days (cut for stock food)	DO NOT apply more than a total of 320 mL/ha per season. Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Apply to infested areas and repeat as necessary. Spraying is most effective on newly emerged hoppers before they begin dispersing. Spray in warmer parts of day when hoppers are exposed. Later sprays should be applied before the start of egg laying. Good coverage is essential.
Pome Fruit Apples, Pears	Apple weevil (<i>Otiorhynchus cribricollis</i>), Garden weevil (<i>Phlyctinus callosus</i>)	NSW, Vic, SA, WA only	Dilute spraying 100 mL/100 L Concentrate spraying Refer to Application under General Instructions	14 days (H)	Spray approximately 1 to 2 L solution onto crotch, trunk and soil at base of each tree at peak weevil emergence. Usually late October to late November for Garden Weevil and late November to 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 to 4 weeks later. Apply the same total amount of product to target crop whether applying this product by dilute or concentrate spraying methods.
Rice Aerial, drill sown	Bloodworm	NSW, WA only	100 mL/ha	7 days (H)	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 off farm until retention period specified by local irrigation authorities have been met.
	Common Armyworm (<i>Mythimna convecta</i>)		200 mL/ha		DO NOT apply more than a total of 400 mL/ha per season to any 1 crop. Inspect crops regularly for presence of grubs from flowering onwards. Apply when rice damaging pest numbers first appear. Apply by aircraft in 20 to 30 L water/ha to drained fields only. Spray in cool of day (early morning or late afternoon) when larvae are most active. Monitor crop closely and retreat if necessary. Poor control may occur in crops that have lodged. Refer to Application under General Instructions for correct water rates.

Crop	Pest	State	Rate	WHP	Critical Comments
Sorghum	Corn Earworm (<i>Helicoverpa armigera</i>), Native Budworm (<i>Helicoverpa punctigera</i>)	Qld, NSW, WA, ACT, NT only	300 or 400 mL/ha	7 days (H)	Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Crop checking should commence when head emerges from boot and continue at weekly intervals until maturity for <i>Helicoverpa armigera</i> . DO NOT apply to tight headed varieties. Apply when there are 2 or more actively feeding larvae/head, or when numbers are sufficient to cause economic damage. Use higher rate if longer residual control is required. Preferably apply to eggs. Apply to 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 numbers reach 1 to 2/head, between head emergence and end of flowering. Repeat as required. Use higher rate for increased residual protection.
Soybeans	Corn Earworm (<i>Helicoverpa armigera</i>)	Qld, NSW, WA, ACT, NT only	300 or 400 mL/ha		Thoroughly and regularly check crop. Apply when numbers are sufficient to cause economic damage. Preferably apply to eggs. Qld, NSW: Apply to larvae only if they are less than 5 mm long. Repeat as required. Use higher rate when pest pressure is high.
	Native Budworm (<i>Helicoverpa punctigera</i>)				Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Thoroughly and regularly check crop. Apply when number of larvae feeding on flowers plus pods reaches 1 to 2/m row. Repeat as required. Use higher rate if larvae longer than 10 mm are present. Best results will be obtained by applying at egg hatch.
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 Concentrate Spraying Refer to Application under General Instructions	14 days (H)	Spray approximately 1 to 2 L solution onto crotch, trunk and soil at base of each tree at peak weevil emergence. This is usually late October to late November for Garden Weevil and late November to mid December for Apple Weevil. Monitor weevil emergence using a single sided cardboard trunk band. Continue monitoring after spraying as a second spray 3 to 4 weeks later may be needed. Apply the same total amount of product to the target crop whether applying this product by dilute or concentrate spraying methods.

Crop	Pest	State	Rate	WHP	Critical Comments
Sunflowers	Corn Earworm (<i>Helicoverpa armigera</i>)	Qld, NSW, Vic, WA, ACT, NT only	300 or 400 mL/ha	21 days (H)	Thoroughly and regularly check crop. Apply when numbers are sufficient to cause economic damage. Preferably apply to eggs. NSW, Qld: Apply to larvae only if they are less than 5 mm long. Repeat as required. Use 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/plant reach 10 to 15 in dryland crops and 20 to 25 in irrigated crops. After flowering apply when adult numbers on the face of heads reach 20 to 25. Repeat as required. Higher rate should be used when numbers are very high.
	Native Budworm (<i>Helicoverpa punctigera</i>)				Bees: 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. Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Crop checking should be aimed to detect larvae as they hatch. Small larvae are easier to kill than large larvae. Apply when infestation reaches an average of 2 to 3 larvae/head or when economic damage is occurring. Repeat as required. Apply before heads turn downwards to ensure adequate coverage. Use higher rate if larvae longer than 10 mm are present. Best results will be obtained by applying at egg hatch.
	Rutherglen Bug (<i>Nysius vinitor</i>)	Vic, Tas, WA only	250 mL/ha		Apply from budding when adult numbers/plant reach 10 to 15 in dryland crops and 20 to 25 in irrigated crops. After flowering, apply when adult numbers on face of heads reach 20 to 25. Repeat as required.
Sweet Corn	Corn Earworm (<i>Helicoverpa armigera</i>), Native Budworm (<i>Helicoverpa punctigera</i>)	All States	300 or 400 mL/ha	7 days (H)	Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Thoroughly and regularly check crop. The level of cob damage tolerated varies with market requirements. Fresh market corn: Apply at 5 to 8 day intervals, according to pest incidence, from tassel emergence until the silks wither. Processing corn: Apply from early silking according to pest incidence. Larvae in protected feeding sites within cob are not effectively controlled. Apply before this situation occurs. Best results will be obtained by applying at egg hatch. Use higher rate if larvae longer 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.

Crop	Pest	State	Rate	WHP	Critical Comments	
Tobacco	Native Budworm (<i>Helicoverpa punctigera</i>), Tobacco Budworm (<i>Helicoverpa armigera</i>)	Qld, Vic, WA only	30 or 40 mL/100 L	7 days (H)	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. Spray volume should be gradually increased as plants grow, from 200 L/ha just after transplanting to 1,000 L/ha at maturity. Use higher rate when larvae longer than 10 mm are present or when egg laying is intense.	
Tomatoes Bush, trellis	Cluster Caterpillar (<i>Spodoptera litura</i>)	Qld, NSW, WA, ACT, NT only	Ultra low volume 300 or 400 mL/ha Low volume 200, 300 or 400 mL/ha High volume 20, 30 or 50 mL/100 L	1 day (H)	DO NOT apply to trellis tomatoes by aircraft. Apply on a 7 to 10 day schedule while pests are active. Use middle rate when pest activity is high and/or when larvae between 10 and 20 mm in length are present. Use highest rate when larvae longer than 20 mm are present and/or when interruption of schedule enables a very severe infestation to develop. Ultra low volume: Refer to <i>ULV application by aircraft</i> under General Instructions. Low volume Aerial application: Apply in a minimum of 10 L water/ha as a spray of 100 to 150 µm VMD. Ground rig application: Apply in 100 to 400 L water/ha as a fine spray. High volume: Apply as a medium to fine spray. Gradually increase spray volume as plants grow, from 200 L/ha just after transplanting establishment to 1,000 L/ha at maturity.	
	Native Budworm (<i>Helicoverpa punctigera</i>)	All States				
	Plague Thrips (<i>Thrips imaginis</i>)	All States	Ultra low volume 130 mL/ha Low volume 130 mL/ha High volume 18 mL/100 L			The crop should be frequently checked when it is flowering for presence of pest. Apply when infestation reaches an economically damaging level, using application methods described for Cluster Caterpillar above.
	Tomato Grub (<i>Helicoverpa armigera</i>)	Vic, Tas, SA, WA only	Ultra low volume 300 or 400 mL/ha Low volume 200, 300 or 400 mL/ha High volume 20, 30 or 50 mL/100 L			DO NOT apply to trellis tomatoes by aircraft. Apply on a 7 to 10 day schedule while pests are active. Use middle rate when pest activity is high and/or when larvae between 10 and 20 mm in length are present. Use highest rate when larvae longer than 20 mm are present and/or when interruption of schedule enables a very severe infestation to develop. Apply using the methods described for Cluster Caterpillar above.
		Qld, NSW, NT only	Ultra low volume 300 mL/ha Low volume 300 mL/ha High volume 30 mL/100 L		Thoroughly check the crop at 2 to 3 day intervals from transplanting/emergence. Apply according to pest incidence. Preferably apply to eggs. Apply to larvae only if they are less than 5 mm long. Apply using the methods described for Cluster Caterpillar above.	

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

WITHHOLDING PERIODS

Harvest

Linola: DO NOT HARVEST FOR 12 WEEKS AFTER APPLICATION

Faba Beans, Field Peas, Lupins

DO NOT HARVEST FOR 4 WEEKS AFTER APPLICATION

Chickpeas, Sunflowers:

DO NOT HARVEST FOR 21 DAYS AFTER APPLICATION

Canola: DO NOT CUT AND WINDROW FOR HARVEST FOR 21 DAYS AFTER APPLICATION

Cotton, Linseed, Pome Fruit, Stone Fruit:

DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION

Maize, Mung Beans, Navy Beans, Rice, Sorghum, Soybeans, Sweet Corn, Tobacco, Winter cereals:

DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION

Lettuce: DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION

Asparagus, Broccoli, Brussels Sprouts, Cabbages, Cauliflowers, Chinese Cabbage, Kale, Kohlrabi, Tomatoes, Turnips:

DO NOT HARVEST FOR 1 DAY AFTER APPLICATION

Grazing

Chickpeas, Faba Beans:

DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 5 WEEKS AFTER APPLICATION

Canola: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 21 DAYS AFTER APPLICATION

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

Winter cereals:

DO NOT GRAZE TREATED STUBBLE FOR 14 DAYS AFTER APPLICATION

Pastures: DO NOT CUT FOR STOCK FOOD FOR 14 DAYS AFTER APPLICATION

DO NOT GRAZE FOR 3 DAYS AFTER APPLICATION

GENERAL INSTRUCTIONS

INNOVA ALPHA-CYPERMETHRIN 100 DUO 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 infestations.

Mixing

INNOVA ALPHA-CYPERMETHRIN 100 DUO can be applied mixed either with a water carrier or oil based bulking agents such as D-C-TRON* Cotton Spray Oil or compatible ULV products.

Low volume and high volume applications by ground rig or aircraft when applied with water: Add the required quantity of product to water in the spray tank and mix thoroughly. Maintain agitation during mixing and application.

Ultra low volume (ULV) application by aircraft when applied with oil based bulking agents: The product can be mixed with D-C-TRATE*, D-C-TRON Cotton Spray Oil, Synertrol*, Ulvapron* or other compatible products (refer to Compatibility).

First add the mixing partner to the spray tank and then, with the agitator in motion, add the required quantity of product direct to the spray tank. DO NOT mix with water and ensure that no water is in the spraying system.

Compatibility

Low volume and high volume applications by ground rig or aircraft when applied with water

carrier: This product is compatible with 2,4-D amine and ester, 2,4-DB, chlorpyrifos, clopyralid, copper hydroxide, Coptrel*, D-C-TRATE, D-C-TRON Cotton Spray Oil, dicamba, dimethoate, diquat, Dithane* M45, Fusilade Forte® 128 EC Herbicide, Fusion*, glyphosate, Jaguar*, Kelthane* MF, Kocide*, Lannate* L, MCPA, mepiquat chloride, Nudrin* Insecticide, Nudrin 225, parathion methyl, paraquat, Phosdrin*, profenofos, propargite, Ridomil® Gold 25 G Systemic Granular Fungicide, Ridomil® Gold 480 EC Systemic Fungicide, Ridomil® Gold MZ WG Systemic and Protective Fungicide, Ridomil® Gold Plus Systemic Fungicide, Select*, simazine, Spinnaker*, Synertrol, Tigrex*, Ulvapron, Wuxal*, DO NOT mix INNOVA ALPHA-CYPERMETHRIN 100 DUO with wettable powders and water dispersible granules BEFORE addition to the spray tank.

INNOVA ALPHA-CYPERMETHRIN 100 DUO can be mixed with Dithane WDG providing the mixture is agitated efficiently and used immediately.

Ultra low volume (ULV) application by aircraft: This product should be mixed only with specific ULV formulations of other insecticides, eg chlorpyrifos, Nudrin 225 and PBO synergists, when mixed according to the directions on the PBO synergist labels.

Application

Grapevines, Pome and Stone Fruit

Dilute spraying: Use a sprayer designed to apply high volumes of water up to the point of runoff and matched to the crop being sprayed. Set up and operate the sprayer to achieve even coverage throughout the crop canopy. Apply sufficient water to cover the crop to the point of runoff. Avoid excessive runoff. 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 for each 100 L of water. Spray to the point of runoff. 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 runoff) 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 (refer to *Dilute spraying*) 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 1,500 L/ha
2. Your chosen concentrate spray volume: For example 500 L/ha
3. The concentration factor in this example is: $3 \times$ (ie $1,500 \text{ L} \div 500 \text{ L} = 3$)
4. If the dilute label rate is 100 mL/100 L, then the concentrate rate becomes 3×100 , ie is 300 mL/100 L of concentrate spray.

The chosen spray volume, amount of product/100 L water and the sprayer set up and operation may need to be changed as the crop grows. Use a spray volume of at least 200 L/ha. For further information on concentrate spraying, users are advised to consult relevant industry guidelines, undertake appropriate competency training and follow industry Best Practices.

Crops other than Grapevines, Pome and Stone Fruit

Low volume and high volume applications by ground rig or aircraft when applied with water

carrier: INNOVA ALPHA-CYPERMETHRIN 100 DUO can be applied by ground or aircraft with a water carrier. Thorough coverage is essential to ensure adequate control. Always apply with a non ionic surfactant unless detailed on the label of a tank mix partner. Apply during the cooler parts of the day or night.

Ground application with water carrier: For low volume spraying of field crops with ground rigs, use a total volume of 50 to 200 L/ha except for sweet corn, tobacco and tomatoes where higher volumes should be used. Drop arms should be used on ground rigs in row crops taller than 30 cm (0.3 m). The application should be made as a fine spray, preferably using hollow cone nozzles, unless otherwise directed in the Critical Comments.

Aerial application with water carrier: DO NOT apply to trellis tomatoes by aircraft. Use a minimum spray volume of 20 L/ha. For spring/early summer application to cereals, canola, linola, rice and other dense crops apply in a total spray volume of 30 to 35 L/ha. If possible, spray in a crosswind. Avoid spraying in calm conditions or when wind is light and variable in direction. Apply as a spray of 100 to 150 μm VMD.

Ultra low volume (ULV) application by aircraft: INNOVA ALPHA-CYPERMETHRIN 100 DUO mixed with D-C-TRATE, D-C-TRON Cotton Spray Oil, Synertrol, Ulvapron 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 to 100 μm 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.

Insecticide Resistance Warning

GROUP	3A	INSECTICIDE
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For insecticide resistance management INNOVA ALPHA-CYPERMETHRIN 100 DUO INSECTICIDE is a Group 3A insecticide. Some naturally occurring insect biotypes resistant to this product 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 this product or other Group 3A insecticides are used repeatedly. The effectiveness of this product on resistant individuals could be significantly reduced. Since the occurrence of resistant weeds is difficult to detect prior to use, Syngenta Crop Protection Pty Limited accepts no liability for any losses that may result from the failure of this product to control insects. INNOVA ALPHA-CYPERMETHRIN 100 DUO may be subject to specific resistance management strategies. For further information contact your local supplier, Syngenta representative or local agricultural department agronomist.

Qld, NSW: Application of INNOVA ALPHA-CYPERMETHRIN 100 DUO to *Helicoverpa armigera* larvae longer than 5 mm may not only be ineffective, but 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 an insecticide from another chemical group. Application of this product with an insecticide from another chemical group such as methanol+methomyl will assist with the management of synthetic pyrethroid resistant *Helicoverpa armigera*.

PROTECTION OF LIVESTOCK

Dangerous to bees. DO NOT spray on any plants in flower while bees are foraging. INNOVA ALPHA-CYPERMETHRIN 100 DUO 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 early morning and late evening while bees are not foraging.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Dangerous to fish and aquatic invertebrates such as yabbies. DO NOT contaminate fish ponds, dams, drains, rivers or streams with product or used containers. Drift and runoff from treated areas may be hazardous to fish or crustaceans in adjacent sites.

STORAGE AND DISPOSAL

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

Refillable containers

Empty contents fully into application equipment. Close all valves and return to (point of supply/ designated collection point/ other specific collection details) for refill or storage.

Other containers

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 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

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
- washable hat
- elbow-length PVC gloves
- 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

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone 131 126. If swallowed, DO NOT induce vomiting. Give a glass of water.

MATERIAL SAFETY DATA SHEET

If additional hazard information is required refer to the Material Safety Data Sheet. For a copy visit our website at www.syngenta.com.au

MANUFACTURER'S WARRANTY AND EXCLUSION OF LIABILITY

Syngenta has no control over storage, handling and manner of use of this product. Where this material is not stored, handled or used correctly and in accordance with directions, no express or implied representations or warranties concerning this product (other than non-excludable statutory warranties) will apply. Syngenta accepts no liability for any loss or damage arising from incorrect storage, handling or use.

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