

Chlorpyrifos 500

INSECTICIDE

DIRECTIONS FOR USE

1. TREE AND VINE CROPS

RATE						CRITICAL COMMENTS
This table shows rates for dilute spraying. For concentrate spraying, refer to the Mixing/Application section.						
CROP	INSECT	STATE	Rate		WHP	CRITICAL COMMENTS
			Vol/ha	Vol /100 L		
This table shows rates for dilute spraying. For concentrate spraying, refer to the Mixing/Application section.						For all uses in this table: 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.
Apples, Pears	San Jose scale	NSW, SA, WA, Qld only	-	100 mL (2% miscible winter oil may be added to the dormant spray)	14 days	Dormant period: Apply as late as possible ensuring thorough coverage of limbs and branches. Seasonal period: Apply to coincide with crawler activity in mid- late November and later as necessary. Ensure thorough coverage of branches, foliage and fruit. Apply when infestation build-up is first noticed ensuring thorough coverage. Apply initially at petal fall and then 10-14 days later. Apply a follow-up application if necessary, 2-3 weeks prior to harvest. Ensure thorough coverage of all branches, foliage and fruit.
	Woolly aphid	SA, WA only	-	-		
	Mealy bugs					
Avocado	Avocado leaf roller, Ivy leaf roller	Qld only	1 or 2 L	50 or 100 mL	7 days	Use this rate in tank mix with 1L/ha (500 mL/100 L of water) of dichlorvos (500 g/L). For low volume spray equipment use L/ha rate. Apply at first sign of pest activity before larvae move to fruit. Use higher rate when populations are high.
	Ivy leaf roller	NSW only	-	-		
	Latania scale, Hairy caterpillars, Light brown apple moth, Red shouldered leaf beetle	NSW, Vic, SA, WA only				
Citrus	California red scale (<i>Aonidiella aurantii</i>)	NSW, Vic, SA, WA only	-	100 mL alone or 50 mL + 1L miscible summer spraying oil	14 days	Apply during November-March period. Two sprays may be required under conditions of heavy scale infestation. Apply with high volume sprayer to point of runoff. Note: DO NOT use on citrus in areas where integrated control programmes are in operation.
		Qld only	-	100 L alone or 100 mL + 1L miscible summer spraying oil		
Citrus, Pome fruit	Wingless grasshopper	NSW, Vic, Tas, SA, WA only	500 mL	50 mL		Spray areas of crop infested with grasshoppers. Apply also as a barrier across the line of advance, when grasshoppers are invading the crop.
Grape Vines	Light brown apple moth	All States	-	50 mL		Apply initial spray just after berry set (early October). Later schedule sprays should be made as required.
	Grapevine moth (<i>Phalaenoides glyciniae</i>)	Qld, Tas, NSW, SA, WA only	-	100 mL alone or 50 mL plus 1L miscible winter oil		Apply as a dormant spray, post pruning (July).
	Grapevine scale (<i>Parthenolecanium corni</i>)		-	50 mL		Apply at green tip at least 10 days after dormant lime sulphur application and at pre-blossom. DO NOT apply post blossom.
Kiwifruit	Common armyworm, Southern armyworm, Light brown apple moth	NSW, Vic, WA, SA, Tas, Qld only	-	50 mL		Apply to coincide with crawler activity. Ensure thorough coverage of all branches, foliage and fruit.
Mango	Common mango scale	Qld only	-	100 mL	21 days	Spray Application: Apply in spring. Bait Application: Apply 5kg of bait/ha in spring by fertiliser spreader. See General Instructions on preparation of cracked wheat or cracked sorghum bait.
Stonefruit	European earwig	NSW only	2L	100 mL	14 days	Dormant Period: Apply as late as possible ensuring thorough coverage of all branches. Seasonal Period: Apply to coincide with crawler activity in mid- late November and later if necessary. Ensure thorough coverage of all branches, foliage and fruit. Note: Some fruit marking may occur if spraying is carried out under hot, dry conditions.
		NSW, Tas, SA, WA only	200 mL + 250 mL sunflower oil/5kg cracked wheat or cracked sorghum	100 mL (2% miscible winter oil may be added to the dormant spray)		

2. FRUIT AND VEGETABLES

RATE						CRITICAL COMMENTS
This table shows rates for dilute spraying. For concentrate spraying, refer to the Mixing/Application section.						
CROP	INSECT	STATE	Rate		WHP	CRITICAL COMMENTS
			Vol/ha	Vol/100 L		
This table shows rates for dilute spraying. For concentrate spraying, refer to the Mixing/Application section.						For all uses in this table: 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.
Bananas	Banana scab moth (<i>Nacoleia octasema</i>)	Qld, WA only	Aerial 1 or 2L in a minimum of 10 L water	200 mL in a minimum of 500 L water /ha	14 days	Apply from the first appearance of flower bell and repeat as populations indicate until fingers are exposed. Use high rate with onset of wet weather and/or heavy insect pressure. Note: Burning of young fruit may occur under poor drying conditions.
	Banana weevil borer	Qld, NSW, WA only	-	1 or 1.8 L		
	Caterpillars	NSW only	-	200 mL		
Vegetables including asparagus, beans, beetroot, broccoli, Brussels sprouts, cabbage, cauliflower, capsicum, carrot, celery, eggplant, onion, peas, potato, radish, rhubarb, shallot, sweet potato, tomato, turnip	Wingless grasshopper	NSW, Vic, Tas, SA, WA only	500 mL	50 mL	Tomatoes 3 days	Spray areas of crop infested with grasshoppers. Apply also as a barrier across the line of advance when grasshoppers are invading the crop.
	Cutworm (<i>Agrotis</i> spp.)	All States	700 mL	70 mL	Cole Crops Cucurbits 5 days	Apply immediately infestation is observed. Increase concentration to compensate if application is below 1000 L spray/ha. Spray should cover soil out to at least 20 cm on both sides of row crop. Re-treat as necessary.
	Field crickets (<i>Teleogryllus commodus</i>), Mole crickets (<i>Gryllotalpa</i> spp.)	Qld, WA only	100 mL /10 kg bran	-	Asparagus Celery 14 days	Apply as pest populations indicate. See General Instructions on preparation of bran baits.
	Vegetable weevil	NSW only	800 mL	-		Apply immediately infestation is observed. Apply as a band over the young plants and adjacent soil along the row. One treatment should be sufficient if plants are sprayed at the seedling stage or soon afterwards.

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This table shows rates for dilute spraying. For concentrate spraying, refer to the Mixing/Application section.						
CROP	INSECT	STATE	Rate		WHP	CRITICAL COMMENTS
			Vol/ha	Vol/100 L		
This table shows rates for dilute spraying. For concentrate spraying, refer to the Mixing/Application section.						For all uses in this table: 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.
Cabbage, Cauliflower	African black beetle	NSW only	2L (Boom Spray)	300 mL (Drench)	5 days	Boom Spray: Apply in 500-1000 L of water/ha at or soon after planting as a 10-15 cm band spray. Drench: Apply 100 mL of diluted spray to base of each plant. Treat as soon as the first signs of infestation are observed. Note: If attack is prolonged follow-up boom spray or drench treatment may be necessary.
Carrots	Light brown apple moth	All States	500 or 700 mL	-	-	Apply when moths are first detected. Repeat at the higher rate if there is a recurrence of infestation.
Cassava	Cutworm (<i>Agrotis</i> spp.)	Qld, WA only	700 mL	-	-	Apply to seedlings and soil at base of seedlings when cutworm activity is observed.
Cole Crops including Cabbage, Cauliflower, Brussel Sprouts, Broccoli	Cabbage moth, Cabbage white butterfly, Cabbage aphid, Cluster caterpillar, Cabbage cluster caterpillar	NSW, Vic, Tas, SA, WA only	1.5 or 2 L	150 or 200 mL	5 days	Spray at 10-14 day intervals. Use high rate under heavy pressure. Large plants: Use 1,000 L spray/ha. To improve spray coverage add non-ionic wetting agents as recommended.
	Corn earworm, Native budworm (<i>Helicoverpa</i> spp.)	Qld, WA only	1.5 L	150 mL		Apply as pests indicate, commencing when pests first appear. Large plants: Use 1,000 L spray/ha.
	Corn earworm	NSW, Vic, SA, WA only	1.5 - 2 L	150 or 200 mL		Apply at 10-14 day intervals. Use high rate under heavy pest pressure. Large plants: Use 1,000 L spray/ha.
	Native budworm (<i>Helicoverpa punctiger</i>)	NSW, Vic, Tas, SA, WA only	-	-		Apply at 10 day intervals commencing when pests first appear. Apply at 7 day intervals under heavy pest pressure. Large plants: Use 1,000 L spray/ha.
	Wingless grasshopper	NSW, Vic, Tas, SA only	500 mL	50 mL		Spray areas of crop infested with grasshoppers. Also apply as a barrier across the line of advance, when grasshoppers are invading the crop.
	Red legged earth mite, Blue oat mite	NSW only	140 or 300 mL	-		Use higher rate for severe infestations. Headlands and vegetation surrounding the crop may also need to be sprayed.
Cucurbits	White flies	NSW only	-	50 mL		Apply when pest is first detected. If required repeat application every 10-14 days.
Ginger	Cutworm (<i>Agrotis</i> spp.)	Qld, WA only	700 - 900 mL	-	-	Apply when pest population is evident from damage to the primary shoot at or below ground, or to the first leaf during growth.
Pineapples	Pineapple mealybug, Ants		-	50 - 100 mL		Apply when pests are first seen and repeat at 90 day intervals or as necessary. Use a minimum of 3000 L of spray/ha. Use higher rate under heavy pest pressure.
	White grubs		5 L	-		Apply as a pre-plant spray to a freshly cultivated soil surface. Incorporate immediately by rotary hoeing to a depth of 10-20 cm.
Potatoes	African black beetle	NSW, WA only	3 - 6 L	-		Apply the spray to the soil immediately prior to planting, ensuring thorough incorporation to a depth of 15 cm. Use high rate under heavy pest pressure.
			900 mL	-		Apply as a second spray as bands on either side of plants at final hilling-up. Ensure good incorporation of the spray immediately into the soil in the hill.
	White fringed weevil	NSW, Vic, WA only	6 L	-		Apply pre-plant and incorporate into the soil immediately after application.
	Wireworms	Vic only	6 L	-		Apply at hilling-up or 7 weeks after planting as a follow-up to pre-plant incorporation.
Strawberries	Field crickets (<i>Teleogryllus commodus</i>), Mole crickets (<i>Gryllotalpa</i> spp.)	Qld, WA only	100 mL/10 kg bran	-		Apply as a band spray to the soil surface incorporating immediately. Use before planting in areas where wireworms are a known problem.
Silver Beet	Redlegged earth mite, Blue oat mite	NSW only	140 or 300 mL	-		Apply in recently ratooned strawberry patches or newly planted runners when damage or pest populations indicate. Broadcast, preferably in the late afternoon to base of plants and inter-row space. See General Instructions for preparation of bran baits
Tomatoes	Tomato grub (<i>Helicoverpa armigera</i>)	Qld, Vic, NSW, WA only	1.5 or 2 L	150 or 200 mL	3 days	Use higher rate for severe infestations. Headlands and vegetation surrounding the crop may also need to be treated.
	Native budworm (<i>Helicoverpa punctiger</i>)	Tas, WA only	-	-		Spray on 7-10 days schedule commencing at flowering. Use high rate under heavy pest pressure.
	Green Vegetable Bug	Tas, SA, WA only	-	-		Spray at first sign of bug activity. Use higher rate under heavy pest pressure.
	Green peach aphid	Qld, Vic, Tas, SA, WA only	1 L	100 mL		Spray when aphids are seen. Large Plants: Use 1,000 L spray/ha.
	Wingless grasshopper	NSW, Vic, Tas, SA only	500 mL	50 mL		Spray areas of crop infested with grasshoppers. Also apply as a barrier across the line of advance, when grasshoppers are invading the crop.
	African black beetle	NSW only	2 L (Boom spray)	300 mL (Drench)		Boom Spray: Apply in 500-1000 L of water/ha at or soon after planting as a 10-15 cm band spray. Drench: Apply 100 mL of diluted spray to base of each plant. Treat as soon as the first sign of infestation is noticed. Note: If attack is prolonged follow up boom spray or drench treatment may be necessary.
Vegetables including asparagus, beans, beetroot, broccoli, Brussels sprouts, cabbage, cauliflower, capsicum, carrot, celery, eggplant, onion, peas, potato, radish, rhubarb, shallot, sweet potato, tomato, turnip	Wingless grasshopper	NSW, Vic, Tas, SA, WA only	500 mL	50 mL	Tomatoes 3 days	Spray areas of crop infested with grasshoppers. Apply also as a barrier across the line of advance when grasshoppers are invading the crop.
	Cutworm (<i>Agrotis</i> spp.)	All States	700 mL	70 mL	Cole Crops Cucurbits 5 days	Apply immediately infestation is observed. Increase concentration to compensate if application is below 1000 L spray/ha. Spray should cover soil out to at least 20 cm on both sides of row crop. Re-treat as necessary.
	Field crickets (<i>Teleogryllus commodus</i>), Mole crickets (<i>Gryllotalpa</i> spp.)	Qld, WA only	100 mL /10 kg bran	-	Asparagus Celery 14 days	Apply as pest populations indicate. See General Instructions on preparation of bran baits.
	Vegetable weevil	NSW only	800 mL	-		Apply immediately infestation is observed. Apply as a band over the young plants and adjacent soil along the row. One treatment should be sufficient if plants are sprayed at the seedling stage or soon afterwards.

3. FIELD CROPS AND PASTURE

Crop	Insect	State	Rate Volume/ha	With-holding Period	Critical Comments
Cereals	Pasture webworm (<i>Hednota</i> spp.)	NSW, Vic, Tas, SA only	700 mL		Spray at first sign of damage. Apply from the ground with boom or mister or apply by air.
		WA only	300 mL		Preplant: Apply with the label rate of an approved tillage herbicide to foliage prior to any cultivation. Post-emergence: Apply at first sign of damage. Apply with ground-riig boom or mister or by air.
Cereals, Pasture, Young Plants of Oilseeds	Cutworm (<i>Agrotis</i> spp.)	Qld, Tas, NSW, WA only	900 mL in a minimum of 100 L water		Apply immediately infestation is observed. Apply follow-up treatments as required.
Cereals, Pasture, Oil Seeds	Cutworm (<i>Agrotis munda</i> and <i>A. infusa</i>)	SA, WA only	700 mL in a minimum of 100 L water		
			120 mL/100 kg seed		Apply as a seed dressing, through an accurately calibrated applicator just prior to sowing. Note: A sowing rate of 95 kg/ha (min.) is necessary to ensure economic responses are achieved.
Cereals, Pasture, Forage Crops	Spur-throated locust	Qld, Vic, NSW, WA only	1.25 or 1.5 L	Cereals 10 days (Harvest) 2 days (Grazing)	Spray areas of crop or pasture infested with locusts. Apply spray to trees or roosting sites to control swarming adult locusts. Late stage hoppers and adults: Use higher rate.
		Australian plague locust	Vic only	560 mL	Adults: Spray areas of crop or pasture infested with locusts.
			350 mL	Hoppers: Spray a swath in advance of marching band and then spray along the dense marching front. Continue spraying until all hoppers have been contacted.	
		SA only	560 mL	Adults: Spray areas of crop or pasture infested with locusts.	
		Qld, Vic, NSW, WA only	350 mL	Hoppers: Spray a swath in advance of marching band and then spray along the dense marching front. Continue spraying until all hoppers have been contacted.	
	Migratory locust	Qld, WA only	350 mL	Spray areas of crop, trees and roosting sites infested with locusts.	
	Blue oat mite	All states	140 mL	Spray when pests appear in large numbers, 3-6 weeks after autumn rains. Re-spray as necessary. Avoid spraying when pests are sheltering. Spray when at least 2.5 cm cover of pasture or crop is present. DO NOT spray if rain is imminent.	
Cereals, Pasture, Oil Seeds	Wingless grasshopper	NSW, Vic, Tas, SA, WA only	70 mL		Spray areas of crop or pasture infested with grasshoppers. Apply also as a barrier across the line of advance, when grasshoppers are invading the crop.
			140 mL		
			500 mL		
Field peas, Broad beans, Chickpeas, Lupins, Lucerne, Lucerne Pastures, Clover Seed Crops, Rapeseed/ Canola, Linseed, Safflower, Wheat, Oats, Barley, Rye, Triticale, Improved Annual Pastures, Established Perennial Pastures	Blue oat mite, Redlegged earth mite	NSW only	140 or 300 mL		Apply as a ground spray immediately prior to seedling emergence using sufficient water to give good coverage. If mite activity is severe also spray headlands and surrounding vegetation prior to seedling emergence.
Cotton (Young Plants)	Cutworm (<i>Agrotis</i> spp.)	Qld, NSW, WA only	900 mL in a minimum of 100 L water	4 weeks (Harvest)	Apply immediately infestation is observed. Apply follow-up treatments as required.
			700 or 900 mL	4 weeks (Grazing)	Spray over total crop area when infestation is widespread. When pests are moving as an 'army' treat a broad strip over and in advance of the infestation. Late stage instar: Use higher rate when larvae 3 cm in length. Apply follow-up treatments as required.
	Southern armyworm (<i>Persectania ewingii</i>), Common armyworm (<i>Mythimna convecta</i>)				
	Pink spotted boll worm moth	Qld, WA only	1 L		Apply when 10-15 moths are trapped on two consecutive nights. This prevents infestation of bolls by larvae.
	Spur-throated locust	Qld, WA, NSW only	1.25 or 1.5 L		Spray areas of crop infested with locusts. Apply spray to trees or roosting sites to control swarming adult locusts. Late stage hoppers or adults: Use higher rate.
	Wingless grasshopper		500 mL		Spray areas of crop infested with grasshoppers. Apply also as a barrier across the line of advance when grasshoppers are invading the crop.
	Cotton aphid		300 or 400 mL		Apply when pests first appear. Re-spray as indicated by field inspection. Use higher rate for higher populations.
Hops	Common armyworm (<i>Mythimna convecta</i>), Southern armyworm (<i>Persectania ewingii</i>)		900 mL or 1.5 L		Apply when pests are present. Use higher rate under heavy pest pressure.
			300 mL		Spray when large numbers of pests occur and damage is evident. Re-spray as necessary.
	Migratory locust	Qld, WA only	350 mL		Spray areas of crop, trees and roosting sites infested with locusts.
			160 mL /100 L water		Apply as pests indicate, commencing when they first appear.
Lucerne (Young Plants)	Cutworm (<i>Agrotis</i> spp.)	Qld, Tas, NSW, WA only	900 mL in a minimum of 100 L water	2 days (grazing)	Apply immediately infestation is observed. Apply follow-up treatments as required.
		Vic only	700 mL in a minimum of 100 L water		
Lucerne	Cutworm (<i>Agrotis munda</i> and <i>A. infusa</i>)	NSW, WA, Qld only	700 mL		Spray when pests appear.
			300 or 400 mL		Apply when pests first appear. Late stage instar: Use higher rate when larvae 1.5cm in length are present and/or under heavy pest pressure.
Lucerne and Medics in Pasture and Forage Crops	Web spinner caterpillar (<i>Loxostege</i> spp.)	NSW, WA, Qld only	700 mL		
			300 or 400 mL		
		Lucerne leaf roller (<i>Merophyas divulsana</i>)			
	Spotted alfalfa aphid	NSW only	200 or 300 mL		Spray when aphids first appear. Use the higher rate when large numbers of aphids are invading the crop. Seeding Lucerne, Medics: Apply when 1-2 aphids/plant are observed.
	Bluegreen aphid	Qld, Tas, SA, WA only			Established Lucerne, Medics: Apply when 20-40 aphids/stem are observed.
	Pea aphid	Qld, Vic, NSW, Tas, SA, only			Apply October to December or in autumn when adults occur in damaging numbers.
	Sitona weevil	NSW, Vic, Tas, SA, WA only	350 mL		

Crop	Insect	State	Rate Volume/ha	With-holding Period	Critical Comments	
Maize, Soybeans Sunflower	False wireworm, Cockroaches, Field crickets	Qld only	100 mL plus 125 mL sunflower oil/2.5 kg cracked wheat or cracked sorghum ²	-	Apply at planting of crop. See General Instructions on preparation of cracked wheat or sorghum bait.	
Pasture	Lawn armyworm (<i>Spodoptera mauritia</i>)	Qld, NSW, WA only	700 mL	2 days (Grazing)	Spray over total crop area when infestation is widespread. When pests are moving as an 'army' treat a broad strip over and in advance of the infestation. Apply follow-up treatments as required.	
	Sod webworm (<i>Herpetogramma licarsalis</i>)	Qld, WA only	700 mL		Spray as early as possible once pests appear. Apply from the ground with boom or mister. Respray as necessary.	
	Blackheaded pasture cockchafer	NSW, Tas, Vic, SA, WA only	900 mL		Treat when larvae are actively foraging as indicated by numerous piles of fresh soil, or casts on the surface. This usually occurs after showers of rain following short dry spells. Apply by ground-rig boom.	
	Winter Corbie (<i>Oncopera rufobrunnea</i>)	Tas only				
	Corbie (<i>Oncopera intricata</i>)				Apply May to June for Winter Corbie and August to September for Corbie; when and where examination of pasture shows damaging numbers of grubs.	
Pasture, Forage Crops	Underground grass grub (<i>Oncopera fasciculatus</i>)	NSW, SA, Vic, WA only	900 mL		Apply when caterpillars are actively feeding. Spray before noticeable damage has occurred. Spray pasture prior to spraying to ensure penetration of graze into the pasture sward.	
	Brown pasture looper (<i>Ciampa arietaria</i>)	NSW, Vic, Tas, SA, WA only	700 mL		Spray at first sign of pasture infestation.	
	Pasture webworm (<i>Hednota</i> spp.)				Spray at first sign of damage. Apply from the ground with boom or mister or apply by air.	
Rapeseed/ Canola	Wireworm, False wireworm	Qld only	1 or 1.5 L	-	Apply as a broadcast application. Use higher rate with extreme population numbers. See General Instructions on soil application.	
Rice	Bloodworm	NSW, WA only	60 or 150 mL	10 days	Use higher rate when water more than 15 cm or amount of decaying plant material is high.	
	Brown plant hopper	Qld, WA only	1.5 L		Apply when pest numbers reach 1-2 per tiller and repeat as necessary.	
Sorghum NOTE: DO NOT use on Sugar Drip or Alpha Sorghum. Check new varieties before applying to entire crop	Southern armyworm (<i>Persectania ewingii</i>), Common armyworm (<i>Mythimna convecta</i>)	NSW, Qld only	700 or 900 mL	2 days (Harvest) 2 days (Grazing)	Spray over total crop area when infestation is widespread. When pests are moving as an 'army' treat a broad strip over and in advance of the infestation. Late stage instar: Use higher rate when larvae 3 cm in length. Apply follow-up treatments as required.	
	Cutworm (<i>Agrotis</i> spp.)		900 mL in a minimum of 100 L water		Apply immediately infestation is observed. Apply follow-up treatments as required.	
	Spur-throated locust		1.25 or 1.5 L		Spray areas of crop infested with locusts. Apply spray to trees or roosting sites to control swarming adult locusts. Late stage hoppers and adults: Use higher rate.	
	Australian plague locust		350 mL		Adults: Spray areas of crop infested with locusts. Hoppers: Spray a swath in advance of marching band and then spray along the dense marching front. Continue spraying until all hoppers have been contacted.	
	Migratory locust	Qld only	350 mL		Spray areas of crop, trees and roosting sites infested with locusts.	
	Sorghum midge	Qld, NSW only	500 mL		Check regularly (preferably in the morning) and apply when 1-2 midge per head are present from first emergence of boot to pollen shedding. With repeated attack spray at intervals of 5 days or less.	
	Corn aphid (<i>Rhopalosiphum maidis</i>)				Apply when damaging populations of aphids occur.	
	False wireworm, Cockroaches, Field crickets	Qld only	100 mL/ha plus 125 mL sunflower oil/2.5 kg cracked wheat or cracked sorghum ²	2 days (Grazing) 2 days (Harvest)	Apply at planting of crop. See General Instructions on preparation of cracked wheat or cracked sorghum bait.	
	Sugarcane	Southern armyworm (<i>Persectania ewingii</i>), Common armyworm (<i>Mythimna convecta</i>)	Qld, WA only	700 or 900 mL	7 days (Harvest) 2 days (Grazing)	Spray over total area when infestation is widespread. When pests are moving as an 'army' treat a broad strip overhead in advance of the infestation. Late stage instar: Use higher rate when larvae 3 cm in length. Apply follow-up treatments as required.
		Spur-throated locust		1.25 or 1.5 L		Spray areas of crop infested with locusts. Apply spray to trees or roosting sites to control swarming locusts. Late stage hoppers & adults: Use higher rate.
Australian plague locust, Migratory locust		Qld only	350 mL		Adults: Spray areas of crop infested with locusts. Hoppers: Spray a swath in advance of marching band and then spray along the dense marching front. Continue spraying until all hoppers have been contacted. Spray areas of crop, trees and roosting sites infested with locusts.	
Sugarcane wireworm		Qld, WA, NSW only	1.5 L		Apply as a low pressure (less than 35kPa) or gravity feed spray onto the plant sett and adjacent soil, at the point of exit from the rear of the planting machine, immediately prior to soil cover being brought in over the sett.	
	Symphylids	Qld, WA only	2 L			
	African black beetle, Black beetle	NSW, WA only	1.5 L		Apply at planting or ratooning. Apply as a low pressure (less than 35kPa) or gravity feed spray onto the plant sett and adjacent soil through a nozzle placed above the planter boards. Repeat treatment within 12 weeks of planting if black beetles re-occur.	
Tobacco	Wireworm, False wireworm, Cutworm	Vic, WA only	3 L		Apply as a pre-plant spray to cultivated soil surface. Incorporate immediately by rotary hoeing to a depth of 10 cm.	

Situation	Insect	State	Rate Volume/ha	With-holding Period	Critical Comments
Turf	Crickets	Qld, WA only	2.5 kg bran bait ¹	2 days (Grazing)	Baits should only be used on turf farms not on recreational turf. See General Instructions for Bait Preparation.
	Funnel Ant	Qld, WA, NSW only	Field Application: 2 L per ha Spot Spraying: 5 mL/5 L water		For spot spraying apply 30 mL spray to each mound. In areas of high density repeat application may be necessary to ensure thorough mound coverage.
	African Black Beetle	Qld, NSW, Vic, WA only	6 L/ha or 60 mL/100 m ²		Apply to lawn when pests appear. Water in immediately after application.
	Argentine Stem Weevil	NSW, Vic, Tas, SA, WA only	4 L/ha or 40 mL/100 m ²		Lightly water following application. Apply as late in the day as possible.
	Blackheaded Pasture Cockchafer		900 mL/ha or 9 mL/100 m ²		Use sufficient water to give even coverage. Apply as late in the day as possible.
	Brown pasture looper	NSW, Vic, Tas, SA, WA only	700 mL/ha or 7 mL/100 m ²		Apply when pests first appear.
	Pasture webworm				Spray at first sign of damage. Apply with ground-rig boom or mister. Apply as late in the day as possible.
	Lawn armyworm	Qld, NSW, Vic, SA, WA only			Spray over total lawn area when infestation is present. When pests are moving treat strip over and in advance of infestation. Apply follow-up treatments as required.
	Sod webworm	All States			Apply as soon as pests appear. Repeat as required.
	Underground grass grub (<i>Oncopera fasciculatus</i>)	NSW, Vic, SA, WA only	900 mL/ha or 9 mL/100 m ²		Apply when caterpillars are actively feeding. Spray before noticeable damage has occurred. Apply as late in the day as possible.
	Winter Corbie (<i>Oncopera rufobrunnea</i>) Corbie (<i>Oncopera intricata</i>)	Tas only	900 mL		Apply May to July for Winter Corbie and August to September for Corbie.
Crickets	Qld only	20 mL/20 L water/ha		Apply as required preferably late in the day.	

4. MISCELLANEOUS RESTRAINTS
DO NOT spray polycarbonate surfaces/roof sheeting or aged vinyl wall cladding as solvent may cause etching.

Situation	Insect	State	Rate/Volume/ha	Critical Comments	
Domestic and public places. Commercial and industrial areas	Cockroaches (residual control and/or heavy infestations) Spiders	All States	95 mL/10 L water/ha	Apply as a coarse, low pressure spray to the point of run-off, to cracks, crevices, harbourages and other places where pests may occur. For optimum control of webbing spiders, use a 2-part treatment. After applying as a coarse, low pressure spray to harbourages where the spiders may occur, apply a light spray over the surfaces of the building.	
	Silverfish, Cockroaches (light infestations)		50 mL/10 L water/ha		
	Ants		95 mL/10 L water Use at least 1L of spray/10 m ² infested area	Locate ant nests and treat appropriately. Spray ant tracks, nests or where ant activity is noticed. Apply to paths in continuous 30 cm bands. Apply to base of buildings, walls, fences, rockworks, trunks of shrubs and trees and other hard surfaces to a height of 30 cm. Note: Argentine ants in WA: for domestic use only. All occurrences of Argentine ants are to be reported to the WA Department of Agriculture. Note: DO NOT apply inside buildings except as a crack and crevice treatment. DO NOT apply to surface areas such as interior floors and walls.	
	Argentine ants	NSW, Vic, Tas, SA, WA only			
	Fleas (outdoor use only)	Qld, NSW, Tas, SA, WA, NT only	90 mL/10 L water	Apply as a fine particle spray. Outdoors: Treat where animals rest and/or where pests have been seen. Remove animals during treatment and until spray deposits dry. DO NOT treat pets with this product. Pets should be treated with a product registered for application to animals.	
	Light vegetation	Mosquito larvae	Qld, NSW, Vic, WA, NT only	30 mL	Apply diluted in water as a spray to areas infested with mosquitoes.
	Medium vegetation			60 mL	
Heavy vegetation			105 mL		
Light to Medium vegetation	Mosquito adults	All States	60 mL	Apply diluted in water as a spray to areas infested with mosquitoes.	
Medium to Heavy vegetation			105 mL		
Polluted Water Impoundments	Mosquitoes (larvae and adults)		2 mL/10,000 L water or 20 mL/100 m ²		
Hides/skins	Hide beetles		200 mL/100 L water. Use at least 30 mL of spray/skin	Apply spray to flesh side of skins or hides sufficient to moisten them. Ensure coverage of ears and lugs. To minimise the chance of later infestation, storage areas should be sprayed regularly. Repeat application every three months. Access through bales should be maintained for application of insecticides.	

- Refer to Mixing Instructions on preparation of bran bait.
- Refer to mixing instructions on preparation of cracked wheat or cracked sorghum bait.

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

WITHHOLDING PERIODS

Grain sorghum crops:	DO NOT HARVEST FOR 2 DAYS AFTER APPLICATION.
Tomatoes:	DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION.
Cole crops, cucurbits:	DO NOT HARVEST FOR 5 DAYS AFTER APPLICATION.
Sugarcane, Avocado:	DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION.
Cereal crops:	DO NOT HARVEST FOR 10 DAYS AFTER APPLICATION.
Bananas, Celery, Citrus, Grapevines, Pome fruit, Stone fruit, Kiwifruit, Asparagus:	DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION.
Mango:	DO NOT HARVEST FOR 21 DAYS AFTER APPLICATION.
Cotton:	DO NOT HARVEST FOR 4 WEEKS AFTER APPLICATION. DO NOT GRAZE OR CUT FOR STOCKFOOD FOR 4 WEEKS AFTER APPLICATION.
Cereal, grains, legumes, animal feeds, grasses, grass like plants & other forages/forage crops:	DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 2 DAYS AFTER APPLICATION.
Turf:	DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 2 DAYS AFTER TREATMENT.

GENERAL INSTRUCTIONS
Before opening, carefully read Directions for Use, Precautionary Statements, Safety Directions and First Aid Instructions. Thorough coverage is essential.

MIXING
Slowly add the required amount of this product to water in spray tank under agitation. The special formulation of this product ensures rapid mixing.

AERIAL APPLICATION
For application by aircraft apply in 10 - 15 L water per hectare.

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

- Dilute spray volume as determined above: For example 1500 L/ha
 - Your chosen concentrate spray volume: For example 500 L/ha
 - The concentration factor in this example is: 3X (i.e. 1500 L ÷ 500 L = 3)
 - If the dilute label rate is 10 mL/100 L, then the concentrate rate becomes 3 x 10 that is 30 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.

CONDITIONS OF SALE

eChem (Australia) Pty Ltd. accepts responsibility for the consistent quality of the product however since the use and application of the product is beyond control, the company accepts no responsibility whatsoever for any loss, damage or other result following the use of the product whether used in accordance with directions or not; other than those mandatorily imposed by statutes, the liability is limited to the replacement of the goods and is conditional upon a claim made in writing and, where necessary, a sufficient part of the goods being returned for proper examination by the company within thirty days of sale.

eChem (Australia) Pty Ltd ACN 089 133 095
Level 4, Lantos Place,
80 Stamford Road, Indooroopilly, Qld, 4068
Phone: 1300 781 649
Fax: 1300 781650

APVMA Approval No: 83426/108241

SOIL APPLICATION

Preparation of Bran Bait: Mix 10 mL of this product per kg of bran using sufficient water to give a moist crumb structure. Allow to stand for 2-3 hours before application. When preparing the bait wear chemical resistant clothing buttoned to the neck and wrist, washable hat, elbow-length PVC gloves and goggles and chemical resistant footwear and half face-piece respirator with combined dust and gas cartridge.
Preparation of Cracked Wheat Or Cracked Sorghum Bait: Mix the required volume of this product and sunflower oil together. Then, add to the wheat or sorghum, mixing thoroughly. When preparing the bait wear chemical resistant clothing buttoned to the neck and wrist, washable hat, elbow-length PVC gloves and goggles and chemical resistant footwear and half face-piece respirator with combined dust and gas cartridge.

SPRAY DRIFT MINIMISATION

Spray drift may occur under adverse meteorological conditions or from certain spray equipment. DO NOT allow spray to drift onto sensitive areas including, but not limited to, natural streams, rivers or waterways and human dwellings. A spray drift management strategy such as those in the "Best Management Practices Manual for Cotton Growers" or the "Pilots and Operators Manual" should be applied. Options for minimising drift to sensitive areas include not spraying within a certain distance of sensitive areas when the wind is blowing towards them (see table for guidance) or ensuring that drifting spray will be intercepted by a catching surface such as a row of shelter trees, an unsprayed row of orchard trees, or hail netting.

Situation	Recommended buffer distance (m)
Orchard (dormant trees, citrus, large trees)	30
Cotton (aerial application)	300
Other crops (aerial application)	100

INSECTICIDE RESISTANCE WARNING

For insecticide resistance management eChem Chlorpyrifos 500 Insecticide is a **GROUP 1B INSECTICIDE**.
Chlorpyrifos 500 Insecticide is a Group 1B insecticide. Some naturally occurring insect biotypes resistant to eChem Chlorpyrifos 500 Insecticide and other Group 1B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if eChem Chlorpyrifos 500 Insecticide or other Group 1B insecticides are used repeatedly. The effectiveness of eChem Chlorpyrifos 500 Insecticide on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, eChem (Australia) Pty Ltd accepts no liability for any losses that may result from the failure of eChem Chlorpyrifos 500 Insecticide to control resistant insects. eChem Chlorpyrifos 500 Insecticide may be subject to specific resistance management strategies. For further information contact your local supplier, eChem (Australia) Pty Ltd representative or local agricultural department agronomist.

COMPATIBILITY

This product is compatible with the following:
Herbicides: atrazine, bromoxynil, chlorsulfuron, diclofop-methyl, diuron, flamprop-methyl, flumetramin, paraquat, paraquat + diquat, pendimethalin, trifluralin.
Insecticides and Miticides: acephate, azinphos-methyl, carbaryl, cypermethrin, deltamethrin, demeton-s-methyl, diazinon, dichlorvos, dicofol, dimethoate, endosulfan, ethion, fenvalerate, malidison, methidathion, methomyl, monocrotophos, oils, oxythioquinox, parathion, phosalone, phosmet, tetradifion, trichlorfon.
Fungicides: benomyl, chorothalonil, thiram, tridemefon, zineb*, ziram*.
Fertilisers: diammonium phosphate, limestone, miloreanite, monoammonium sulfate, potash, sulphur coated urea, triple superphosphate, urea.
Adjuvants: Activator® Surfactant, Chemwet 1000.

INCOMPATIBILITY

This product is incompatible with the following:
Herbicides: Dicamba, MCPA, Tordon® 75-D, picloram/MCPA, 2,4-D.
Fungicides: Fixed coppers, liquid and organic coppers, wettable sulphur.
Fertilisers: Iron sulphate, Manganese sulphate, Zinc oxysulphate.

RE-ENTRY PERIODS

Fields crops, tree crops and vines: DO NOT allow entry into treated crops until spray deposits have dried. If prior entry is required, limit duration of entry and wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves. Clothing must be laundered after each day's use.
Greenhouses: DO NOT allow entry into greenhouses until spray deposits have dried and treated areas are adequately ventilated. If prior entry is required, limit duration of entry and wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves and half face piece respirator. Clothing must be laundered after each day's use.
Cotton chippers: DO NOT allow entry into treated areas until spray deposits have dried.

After this time, wear shoes, or boots, socks, long trousers, long sleeved shirt, gloves and hat.

POISON
 KEEP OUT OF REACH OF CHILDREN
 READ SAFETY DIRECTIONS BEFORE OPENING OR USING
Chlorpyrifos 500
 INSECTICIDE
 ACTIVE CONSTITUENT: 500 g/L CHLORPYRIFOS
 (AN ANTI-CHOLINESTERASE COMPOUND)
 SOLVENT: 485 g/L LIQUID HYDROCARBONS
GROUP 1B INSECTICIDE
 For control of a wide range of insect pests on fruit, vegetables, oilseeds, cotton, cereals, pasture, turf and other situations as specified in the Directions for Use.

IMPORTANT: THIS LEAFLET IS PART OF THE LABEL ENCLOSED IN THE CONTAINER. READ THOROUGHLY BEFORE OPENING OR USING THIS PRODUCT.
 eChem (Australia) Pty Ltd ABN 95 134 353 245
 Level 4, Lantos Place, 80 Stamford Road, Indooroopilly, Qld, 4068

PROTECTION OF CROPS, NATIVE AND OTHER NON TARGET PLANTS

Care should be taken when applying this product to any released sorghum hybrid or variety. Treat a small area first and observe for 3-4 days.

PROTECTION OF LIVESTOCK

Dangerous to bees. DO NOT spray any plants in flower while bees are foraging.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Highly toxic to birds and reptiles. Very highly toxic to fish and aquatic invertebrates. DO NOT contaminate streams, rivers or waterways with the chemical or used containers. DO NOT apply if heavy rains or storms that are likely to cause surface runoff are forecast in the immediate area within two days of application. DO NOT reapply to the same crop within 7 days (unless specifically recommended in the Directions for Use). DO NOT apply when irrigating, or to waterlogged soil, or while water remains on the surface or in furrows, unless tail water is captured on farm. DO NOT allow contaminated runoff water from treated paddocks to enter adjacent areas or water bodies. Runoff contaminated by irrigation events (tail water) and a 25 mm rain storm should be captured on farm for two days after application.

STORAGE AND DISPOSAL

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

Triple 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 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 local of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulation. Do not burn empty containers or product.

110 L Mini Bulk Returnable Container: Store the original sealed 110 L Mini Bulk in a cool well ventilated area. DO NOT store for prolonged periods in direct sunlight. DO NOT tamper with the MicroMatic valve or the security seal. DO NOT contaminate the 110 L Mini Bulk with water or any foreign matter. After each use of the product, please ensure that the MicroMatic coupler, delivery system and hoses are disconnected, triple rinsed with clean water and drained accordingly. When the contents of the 110 L Mini Bulk have been used, please return the empty 110 L Mini Bulk to the point of purchase. **Refillable containers**

Store in the closed, original container in a cool well ventilated area. Do not store for prolonged periods in direct sunlight. Empty contents fully into application equipment. Close all valves and return to point of supply for refill or storage.

SMALL SPILL MANAGEMENT

Wear appropriate clothing and protective equipment whilst cleaning up small spills (see SAFETY DIRECTIONS). Apply absorbent material such as earth, sand, and cat litter or clay granules to spill. Sweep up material and contain in a refuse vessel for disposal. If spilled inside a building, wash contaminated surfaces to deactivate the chlorpyrifos with a dilute solution of bleach (sodium hypochlorite), prepared according to the bleach label instructions. Dispose of the contaminated material in accordance with STORAGE AND DISPOSAL instructions.

SAFETY DIRECTIONS

Product is poisonous if absorbed by skin contact, inhaled or swallowed. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. Will irritate the eyes and skin. Avoid contact with eyes and skin. DO NOT inhale vapour or spray mist. When opening the container and preparing spray and using the prepared spray wear chemical resistant clothing buttoned to the neck and wrist, washable hat, elbow-length PVC gloves and goggles and chemical resistant footwear and half face-piece respirator with combined dust and gas cartridge. If clothing becomes contaminated with product or wet with spray remove clothing immediately. If product on skin, immediately wash area with soap and water. 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, goggles and respirator, if rubber wash with detergent and warm water, and contaminated clothing.

FIRST AID

If swallowed, splashed on skin or in eyes, or inhaled, contact a Poisons Information Centre (Phone Australia 131126) or a doctor at once. Remove any contaminated clothing and wash skin thoroughly. If swallowed, activated charcoal may be advised. Give atropine if instructed. If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.

SAFETY DATA SHEET

Additional information is listed in the safety data sheet (SDS). A material safety data sheet for eChem Chlorpyrifos 500 Insecticide is available from the supplier.