

# Glyphosate 450

## HERBICIDE

### DIRECTIONS FOR USE

#### RESTRAINTS:

DO NOT spray if rainfall is expected as rainfall within 6 hours of treatment may reduce the effectiveness of the product. Heavy rainfall within 2 hours of treatment may wash the product from the leaf surface and retreatment may be necessary.  
DO NOT disturb treated weeds by grazing, cultivation, sowing etc after treatment for one day for annual weeds and 7 days for perennial weeds to ensure complete uptake of the herbicide.

DO NOT treat weeds under any stress from frost, cold, disease, waterlogging, lack of moisture or disease. Plants must be actively growing to ensure optimum uptake of the product.

SITUATION	WEEDS CONTROLLED	STATE	RATE /ha	CRITICAL COMMENTS		
SOUTHERN AUSTRALIA Before sowing a crop or pasture For weed control prior to sowing a crop or pasture with full soil disturbance by cultivation or sowing with a tined implement	Barley Grass ( <i>Hordeum leporinum</i> ), Brome Grass ( <i>Bromus unioloides</i> ), Volunteer Cereals, Wild Oats ( <i>Avena</i> spp.)	NSW, Vic, ACT, Southern WA, SA only	400 mL-800 mL pre tillering 800 mL-1.0 L post tillering	Use the Higher Rate when treating in cold/overcast conditions, when using late in the season. Use the lower rate on young weeds and the higher rate on mature weeds if fully tillered grasses or broadleaf weeds at budding or stem elongation.		
	Annual phalaris ( <i>Phalaris canariensis</i> ), Annual Ryegrass ( <i>Lolium rigidum</i> ), Silver Grass ( <i>Vulpia</i> spp.) Winter Grass ( <i>Poa annua</i> )		800 mL-1.0 L pre tillering 1.0 -1.2 post tillering	If weeds have been grazed heavily remove stock prior to spraying to ensure regrowth to 6-8 cm before treatment and use the higher rate.		
	Calomba daisy ( <i>Pentzia sufruticosa</i> ), Capeweed ( <i>Arctotheca calendula</i> ), Spiny Emex / Doublegee ( <i>Emex australis</i> )		400 mL-800 mL less than 8 cm diameter, 800 mL-1.0 L greater than 8 cm diameter	To allow for herbicide uptake do not begin sowing for 1 day after application for annual weeds and 7-10 days for perennial weeds. If cultivation or sowing does not take place within 21 days retreatment may be necessary.		
	Amsinka ( <i>Amsinika</i> ), Fumitory ( <i>Fumaria officinalis</i> , <i>F. muralis</i> ), Paterson's Curse/Salvation Jane ( <i>Echium plantagineum</i> ), Saffron Thistle ( <i>Carthamus lanatus</i> ), Scotch Thistle ( <i>Onopordum acanthium</i> ), Spear Thistle ( <i>Cirsium vulgare</i> ), Variegated Thistle ( <i>Silybum marianum</i> ), Volunteer Lupins ( <i>Lupinus angustifolius</i> ), Wild Turnip ( <i>Brassica tournefortii</i> )		800 mL-1.0 L less than 12 cm diameter 1.0-1.2 L greater than 12 cm diameter	Annual Ryegrass, Silver grass and Perennial grasses - It is recommended to use a water volume of 70 L/ha or more with low volume nozzles to improve control. Crop Establishment: Sowing should not proceed until conditions allow for the formation of a satisfactory seedbed. See Crop Establishment for directions. Tank Mixtures: For improved control of clover add dicamba. Read and follow all label directions for the tank mix product. For perennial weeds perennial phalaris, Soursob, Skeleton weed and Sorrel this product will provide knockdown, seasonal suppression and reduction in treated plant numbers.		
	Dock-seedling ( <i>Rumex</i> spp.)		800 mL-1.2 L			
	Seasonal suppression of: Perennial Phalaris ( <i>Phalaris</i> ), Sorrel ( <i>Rumex acetosella</i> ), Sub Clover ( <i>Trifolium subterraneum</i> ), Sour sob ( <i>Oxalis pes-caprae</i> ), Skeleton Weed ( <i>Chondrilla juncea</i> ) - fully emerged rosettes (NSW only), Sub Clover ( <i>Trifolium subterraneum</i> )		1.2 L			
	All the above weeds	Tas only	1.2 L-2.4 L	Tas ONLY: Use 1.2 L on annual weeds and 2.4 L on perennial weeds. The product may also be tank mixed with dicamba to improve control of sorrel, dock and white clover. Observe dicamba label directions and plant back periods.		
	SOUTHERN AUSTRALIA Before sowing a crop or pasture For weed control prior to sowing a crop or pasture with minimal or no soil disturbance.	Barley Grass ( <i>Hordeum leporinum</i> ), Volunteer Cereals, Wild Oats ( <i>Avena</i> spp.)	NSW, Vic, ACT, Southern WA, SA only	800 mL- 1.2 L	Use the Higher Rate when treating in cold/overcast conditions, when using late in the season. Use the lower rate on young weeds and the higher rate on mature weeds if fully tillered grasses or broadleaf weeds at budding or stem elongation.	
		Brome Grass ( <i>Bromus unioloides</i> ), Canary Grass ( <i>Phalaris</i> spp.), Capeweed ( <i>Arctotheca calendula</i> ), Variegated Thistle ( <i>Silybum marianum</i> ), Winter Grass ( <i>Poa annua</i> )		1.0 - 1.6 L	If weeds have been grazed heavily remove stock prior to spraying to ensure regrowth to 6-8 cm before treatment and use the higher rate.	
		Annual Ryegrass ( <i>Lolium rigidum</i> ), Paterson's Curse/Salvation Jane ( <i>Echium plantagineum</i> ), Saffron Thistle ( <i>Carthamus lanatus</i> ), Scotch Thistle ( <i>Onopordum acanthium</i> ), Silver Grass ( <i>Vulpia</i> spp.) Spear Thistle ( <i>Cirsium vulgare</i> ), Wild Mustard ( <i>Sisymbrium officinale</i> ), Wild radish ( <i>Raphanus raphanistrum</i> ), Wild Turnip ( <i>Brassica tournefortii</i> )		1.2 - 1.6 L	Annual Ryegrass, Silver grass and Perennial grasses - It is recommended to use water volumes of 70 L/ha or more with low volume nozzles to improve control. Do not sow if heavy trash is present. Seeding may proceed 1 day after spraying annual weeds and 7 days after spraying perennial weeds. Aerial Application: May be applied by air provided a good seed bed has been established. Always use the higher rates. Tank Mixtures: For improved control of dock, sorrel and sub-clover add dicamba. Read and follow all label directions for the tank mix product. Addition of ammonium sulphate 2 kg/100 L may improve control when treating under adverse environmental conditions.	
Erodium ( <i>Erodium cicutarium</i> ), Plantain ( <i>Plantago</i> spp.), Perennial Phalaris ( <i>Phalaris aquatica</i> ), Sorrel ( <i>Rumex acetosella</i> ), Sub Clover ( <i>Trifolium subterraneum</i> ), Yorkshire fog ( <i>Holcus lanatus</i> )			1.5 - 2.0 L	Pasture or Crop Establishment: Do NOT sow into excessive trash. Trash may be removed by grazing after treatment. Grazing may commence one day after treatment of annual weeds (small) and 7 days for perennial weeds. Delay grazing for 3 days where annual weeds are large. Sowing may proceed when excessive trash is removed, but not sooner than one day after treatment of annual weeds and 7 days for perennial weeds. See also Crop Establishment. Aerial (or Surface) Seeding: Delay seeding until trash is completely removed by grazing and/or plant decay. When establishing pasture, ensure application of fertiliser and insecticides and follow up management is under taken as required.		
Dock ( <i>Rumex</i> spp.), Flatweed ( <i>Hypochaeris radicata</i> )			2.0 L			
All the above weeds		Tas only	1.2 - 2.4 L	Tas ONLY: Use 1.2 L on annual weeds and 2.4 L on perennial weeds. The product may also be tank mixed with dicamba to improve control of sorrel, dock and white clover. Observe dicamba label directions and plant back periods.		
SOUTHERN AUSTRALIA For weed control to commence a fallow		Barley Grass ( <i>Hordeum leporinum</i> ), Volunteer cereals, Wild Oats ( <i>Avena</i> spp.)	NSW, Vic, ACT, Southern WA, SA only	800 mL-1.2 L	Use the Lower Rate on young weeds or where cultivation is to take place within 21 days.	
		Annual Ryegrass ( <i>Lolium rigidum</i> ), Brome Grass ( <i>Bromus unioloides</i> ), Silver Grass ( <i>Vulpia</i> spp.), Capeweed ( <i>Arctotheca calendula</i> ), Paterson's Curse/ Salvation Jane (rosette) ( <i>Echium plantagineum</i> ), Saffron Thistle ( <i>Carthamus lanatus</i> ), Scotch Thistle ( <i>Onopordum acanthium</i> ), Silver Grass ( <i>Vulpia</i> spp.), Spear Thistle ( <i>Cirsium vulgare</i> ), Wild Mustard ( <i>Sisymbrium orientale</i> ), Wild Radish ( <i>Raphanus raphanistrum</i> ), Wild Turnip ( <i>Brassica tournefortii</i> )		1.2-1.6 L	Use the Higher Rate where broadleaf weeds reach stem elongation/budding or where grasses are fully tillered. If weeds have been grazed heavily remove stock prior to spraying to ensure regrowth to 6-8 cm before treatment and use the higher rate.	
		Hoary Cress ( <i>Cardaria draba</i> ), Soursob ( <i>Oxalis pes-caprae</i> )		1.2 L	Soursob- Treat at tuber exhaustion	
		Couch ( <i>Cynodon dactylon</i> )		1.2 - 2.4 L		
	All the above weeds	Tas only	1.2 - 2.4 L	Tas ONLY: Use 1.2 L on annual weeds and 2.4 L on perennial weeds. The product may also be tank mixed with dicamba to improve control of sorrel, dock and white clover. Observe dicamba label directions and plant back periods.		
	NORTHERN AUSTRALIA For weed control prior to sowing a summer or winter crop or in a fallow	Annual Phalaris ( <i>Phalaris</i> spp.), Barley Grass ( <i>Hordeum vulgare</i> ), Volunteer cereals, Wild Oats ( <i>Avena</i> spp.)	Northern NSW, Qld only	400 mL-800 mL	Use the Lower Rate on young weeds or where cultivation is to take place within 21 days.	
		Barnyard Grass ( <i>Echinochloa crus-galli</i> ), Button grass ( <i>Dactyloctenium radicans</i> ), Columbus grass (seedling) ( <i>Sorghum xalunum</i> ), Liverseed grass, ( <i>Urchloa</i> spp.), Lovegrass/Stink Grass ( <i>Eragrostis cilianensis</i> ), Native millet ( <i>Panicum decompositum</i> ), Volunteer Sorghum ( <i>Sorghum halepense</i> )		800 mL-1.6 L	Use the Higher Rate where broadleaf weeds reach stem elongation/budding or where grasses are fully tillered. At more advanced stages certain broadleaf weeds may require the higher rate range or the addition of 2,4-D. In winter (cold) conditions, symptoms on Deadnettle may be slow to develop. If weeds have been grazed heavily remove stock prior to spraying to ensure regrowth to 6-8 cm before treatment and use the higher rate. Liverseed Grass and Barnyard Grass may be very sensitive to moisture stress. Dense stands may require re-treatment.	
		Aust Bluebell (Qld only), ( <i>Wahlenbergia gracilis</i> ), Cudweed ( <i>Gnaphalium luteo-album</i> ), Fumitory ( <i>Fumaria officinalis</i> ), Mexican Poppy ( <i>Argemone ochroleuca</i> ), New Zealand Spinach ( <i>Tetragonia tetragonioides</i> ), Saffron Thistle ( <i>Carthamus lanatus</i> ), Spear Thistle ( <i>Cirsium vulgare</i> ), Spurge ( <i>Euphorbia</i> spp.), Stinking goosefoot ( <i>Chenopodium vulvaria</i> )		800 mL-1.2 L	For aerial application see General Instructions. Do not apply by air if temperature is over 30°C. Crop Establishment: Sowing should not proceed until conditions allow for formation of a satisfactory seedbed. See Crop Establishment for directions. Tank mixtures: Read and follow label directions, restraints, plant back periods, withholding periods and safety directions for the tank mix products. DO NOT tank mix with atrazine when spraying barnyard grass or liverseed grass.	
		Black (giant) pigweed ( <i>Trianthema portulacastrum</i> ), Boggabri weed ( <i>Amaranthus macrocarpus</i> ), Caltrop ( <i>Tribulus terrestris</i> ), Indian Hedge Mustard ( <i>Sisymbrium orientale</i> ), Mintweed ( <i>Salvia reflexa</i> ), Summer grass ( <i>Digitaria ciliaris</i> )		400 - 800 mL up to 3 cm in height or diameter or up to 5 true leaves OR 800 mL- 1.2 L greater than 3 cm in height or diameter or 5 true leaves.		
		African turnip weed ( <i>Sisymbrium thellungi</i> ), Deadnettle ( <i>Lamium amplexicaule</i> ), Sweet summer grass ( <i>Digitaria sanguinalis</i> ), Variegated thistle ( <i>Silybum marianum</i> ), Volunteer sunflower ( <i>Helianthus annuus</i> )		600 - 800 mL up to 5 true leaves or 3 cm in height or diameter 800 mL - 1.6 L greater than 3 cm in height or diameter		
Annual ground cherry ( <i>Physalis iocarpa</i> ), Bladder ketmia ( <i>Hibiscus trionum</i> ), Camel melon ( <i>Citrullus lanatus</i> ), False castor oil plant ( <i>Datura</i> spp.), Noogoora burr ( <i>Xanthium occidentale</i> ), Turnip weed ( <i>Rapistrum rugosum</i> ), Wild lettuce ( <i>Lactuca saligna</i> ), Wild Turnip ( <i>Brassica tournefortii</i> ), Wireweed ( <i>Polygonum aviculare</i> )			800 mL - 1.2 L prior to stem elongation/budding. After that use 400 mL - 1.2 L plus 700 mL 2,4-D ester (800 g/L) or 1.2 - 1.6 L of this product alone			
COTTON APPLICATIONS		Cotton Pre Harvest Do not use on crops intended for seed production	Bathurst Burr ( <i>X. spinosum</i> ) Noogoora Burr ( <i>X. occidentale</i> ), Winter Annual Weeds including Sow Thistle/milk thistle ( <i>Sonchus oleraceus</i> )	Qld, NSW only	1 - 2 L	Use the lower rate on light infestations of small weeds, where the crop canopy allows adequate spray coverage of the weeds. Increase to the higher rate when the crop canopy may limit coverage, when treating dense infestations, or when treating large weeds. Apply alone or in tank mixtures with Harvade® or Dropp®. Apply when at least 60% of bolts are open and immature bolts cannot be easily cut with a sharp knife. Where a leafy canopy limits spray coverage, reduced weed control can be expected. For best results under these conditions, delay application until the canopy re-opens following initial conditioning treatment.
			Nutgrass (seasonal suppression only)		2 L	Where control of Nut grass or Noogoora burr is required, treatments should be applied prior to the onset of frosts. When tank mixed with defoliant, a slightly higher proportion of cotton leaf may be retained, particularly where the higher rate is used. Read and follow all the label instructions for the tank mix product.
		Cotton Shielded Sprayers	Refer to weeds controlled section NORTHERN AUSTRALIA: In fallows or prior to sowing a crop			Refer to weeds controlled section NORTHERN AUSTRALIA: In fallows or prior to sowing a crop
		<b>SUGAR CANE (RATOON CONTROL) FOR QLD AND NSW ONLY</b>				
	SITUATION	VARIETY		RATE /ha	CRITICAL COMMENTS	
	Sugar Cane Ratoon Control	Q63, Q87, Q90, Q102, Q117, Q120, Q129, Q130, H56-752, Pindar, Triton		2.4-3.2 L	Apply when ratoons are actively growing and are 60-100 cm tall. DO NOT apply if plants are under stress from water logging or low moisture. Use the Lower Rate for suppression or where control by cultivation is planned. Use the Higher Rate for control.	
		Q86, Q96, Q113		3.2-4 L		
		Cassius, Q115, Q122, Q94		4-4.8 L		
		NC0310, Q107		4.8-7.2 L	Boom height must allow for correct overlap of the spray pattern at the top of the crop canopy.	
	<b>RICE DIRECT DRILLING FOR NSW ONLY</b>					
SITUATION	WEEDS CONTROLLED		RATE /ha	CRITICAL COMMENTS		
Rice Direct Drilling	Annual Ryegrass ( <i>Lolium rigidum</i> ), Annual Phalaris ( <i>Phalaris canariensis</i> ), Barley Grass ( <i>Hordeum leporinum</i> ), Burr Medic ( <i>Medicago</i> spp.), Sub Clover ( <i>Trifolium subterraneum</i> ), Winter Grass ( <i>Poa annua</i> )		800 mL-1.0 L	If plants are drought stressed a pre watering must be applied. If the site has been grazed allow plants to regrow to 6-8 cm before treatment. For the control of Annual Ryegrass use the higher rate. Crop Sowing - Sow 1-14 days after treatment. Residual control will only be achieved by adding another suitable herbicide.		
<b>SORGHUM CONTROL</b>						
SITUATION	WEEDS CONTROLLED	STATE	RATE /ha	CRITICAL COMMENTS		
Sorghum control before harvest	Grain sorghum ( <i>Sorghum bicolor</i> )	Qld, ACT, NSW only	1.2 - 1.6 L	DO NOT apply to varieties intended for seed production or varieties prone to lodging. DO NOT apply to crop under stress from factors such as waterlogging, frost, disease, low moisture etc. Apply when grain moisture is less than 25%. The product can be applied when some browning has occurred. Use the Lower Rate for control of the crop, late tillers and ratoon regrowth. Use the Higher Rate for better suppression of ratoon regrowth. Treatment may increase potential for crop lodging especially if the crop has been stressed by low moisture. In this situation harvest as soon as possible after sufficient dry brown to prevent further lodging. CAUTION: Sorghum may be naturally toxic to stock.		
Sorghum control Post harvest	Sorghum stubble (grain sorghum) ( <i>Sorghum bicolor</i> )	Qld, ACT, NSW only	800 mL-1.2 L for new regrowth from slashed stubble	DO NOT apply if plants are stressed from such factors as waterlogging, frost, disease, low moisture, etc. For slashed stubble and spring regrowth apply when regrowth is at least 20 cm high. Standing Stubble - apply only if sufficient green leaf is present. Allow regrowth of at least 20 cm if grazing has occurred. Use the Lower Rate for knockdown and regrowth suppression where cultivation is to follow. Use the Higher Rate for better control of regrowth. It is important to note that variable results can occur if the crop has been under stress or grown under marginal conditions. The varieties Ruby, Trump, Nugget 2, Goldrush 2 and Prize are particularly susceptible if growing conditions are not ideal. CAUTION: Sorghum may be naturally toxic to stock.		
			1.2 - 1.6 L for standing green stubble	Use this rate for standing stubble if sufficiently green and for fresh spring regrowth.		

SITUATION	WEEDS	APPLICATION RATES			STATE	CRITICAL COMMENTS
		Boom-spray per ha	Handgun per 100 L Water	Knapsack per 15 L		
WOODY AND PERENNIAL WEEDS IN PASTURES, FORESTS AND NON-AGRICULTURAL AREAS. (Spot directed or wiper application is required for selectivity in established pastures and forests)	Bent Grass ( <i>Agrostis tenuis</i> )	2 L	400 mL	60 mL	Vic, Tas only	Apply to actively growing plants in late Spring but before Summer drought stress. Pasture should NOT be heavily grazed at spraying. Bent Grass should have full leaf growth and some seed head development. <b>Notes:</b> Bent Grass re-establishes vigorously from seed in the soil. Follow up management is required to limit seedling re-establishment. Application of this product may be followed by a Spring crop, and/or by re-seeding pasture or crop the following Autumn.
	Bitou Bush/Boneseed ( <i>Chrysanthemoides monnifera</i> )	-	800 mL	120 mL	Qld, NSW, ACT, Vic, Tas only	Apply to actively growing plants. Spray to wet all foliage. DO NOT apply during periods of drought stress. Further treatment may be necessary to restrict seedling re-establishment.
	Blackberry ( <i>Rubus fruticosus</i> )	-	800 mL-1 L	120 -160 mL	All States	Apply from flowering to leaf fall (generally January-May). Plants should not be under stress of high temperature, drought or frost. Spray to wet all foliage. Use the higher rate on old, dense infestations over 1.75 m high. Visible symptoms may not be fully apparent until the next season. Burning (after complete brownout), pasture improvement and/or further treatment are recommended to control seedlings and/or regrowth. Use of CDA equipment is not recommended. In Tasmania, do not treat bushes bearing mature fruit.
	Blady Grass ( <i>Imperata cylindrica</i> )	7.2 L	1.0 L	160 mL	Qld, NSW, ACT only	Apply to actively growing plants when most have reached the head stage.
	Boxthorn, African ( <i>Lycium ferocissimum</i> )	-	560 -800 mL	80-120 mL	All States	Use the lower rate for young bushes; increase to the higher rate for large, mature bushes. Spray to wet all foliage. DO NOT spray during hot, dry summer periods. Burning (after complete brownout), pasture improvement and/or further treatment is recommended to control seedlings and/or regrowth. Use of CDA equipment is not recommended.
	Bracken ( <i>Pteridium esculentum</i> )	-	1.2 L	180 mL	All States	Use of wiper equipment is recommended. Refer to Wiper Equipment under General Instructions. Multipurpose equipment is preferred. Double pass application is required for pipewick equipment. Bracken should be slashed in Spring/Summer prior to treatment. Apply in March/May to fully unfurled actively growing fronds but prior to frosts. Visible symptoms may be slow to develop and may not be fully apparent until the next season. Complete control will not be achieved from one application. Repeat treatment is recommended, preferably associated with pasture improvement.
	Brown Beetle Grass				NSW, ACT only	
	Carpet Grass ( <i>Axonopus</i> spp.)	2.4 L	400 mL	60 mL	All States	Apply to actively growing plants at the early head stage.
	Cocksfoot ( <i>Dactylis glomerata</i> )	2.4 L	560 mL	80 mL		
	Couch ( <i>Cynodon dactylon</i> )	7.2 L	1.0 L	160 mL		Apply to actively growing plants when most have reached the early head stage. In SA and WA apply to active plants during October-November for best results.
Crofton Weed ( <i>Eupatorium adenophorum</i> )	-	400 mL	60 mL	Qld, NSW, ACT only	Apply to actively growing plants with full foliage. Further treatment and/or pasture improvement are recommended to restrict seedling re-establishment.	
Cumbungi ( <i>Typha</i> spp.)	7.2 L	1.0 L	160 mL	All States	Apply to actively growing plants at the early head to full head stage (Summer-Autumn). Re-treatment may be required to restrict seedling re-establishment. For application by wiper equipment refer WIPER EQUIPMENT section under General Instructions. Use of wiper equipment is not recommended for Cumbungi in Tasmania.	
Flatweed (Cat's Ear) ( <i>Hypochaeris radicata</i> )	2.4 L	560 mL	80 mL		Apply to fully developed rosettes at the early flowering stage.	
Glyceria, Watermesadow Grass ( <i>Glyceria maxima</i> )	4.8 L	800 mL	120 mL	Tas only	Apply to actively growing plants at the mature head stage in late Summer-Autumn. Add a 600 g/L non-ionic surfactant at 200-250 mL/100 L. Control of Glyceria is only available in dry drains and channels and dry margins of dams, lakes and streams. Please refer to PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT.	
Gorse (Furze) ( <i>Ulex europaeus</i> )	-	800 mL plus Pulse® 200 mL	-	All States	Apply all year round, but only to actively growing plants. Always add PULSE, otherwise reduced results will occur. Spray to wet all foliage. Burning (after complete brownout), pasture improvement and/or further treatment are recommended to control seedlings and/or growth.	
Groundsel Bush ( <i>Baccharis halimifolia</i> )	-	560 - 800 mL	80 -120 mL	Qld only	Apply to actively growing plants. Do not apply during Winter, or during periods of Summer drought stress. Use the higher rate on bushes over 2 m tall. Spray to wet all foliage. Further treatment and/or pasture improvement are recommended to control seedlings and/or regrowth. <b>LOW VOLUME APPLICATION</b> (e.g. Splatter Gun and Gas Gun): Use 1-9 (10%) mixture of product:water. Apply 2 x 2 mL dose per 0.5 m bush height. Ensure spray contacts all foliage. Use of CDA equipment is not recommended.	
Guinea Grass ( <i>Panicum maximum</i> )	7.2 L	1.0 L	160 mL	All States	Apply to actively growing plants when most have reached the early head stage. For application by wiper equipment refer WIPER EQUIPMENT under General Instructions.	
Hawthorn ( <i>Crataegus</i> spp.)	-	800 mL-1.0L	120 -160 mL	NSW, ACT, Vic, SA, WA, Tas only	Apply to actively growing plants from flowering to leaf fall. Spray to wet all foliage. Use the higher rate on bushes over 2 m tall. Burning (after complete brownout), pasture improvement and/or further treatment are recommended to control seedlings and/or regrowth. <b>LOW VOLUME APPLICATION</b> (e.g. Splatter Gun and Gas Gun): Use 1-9 (10%) mixture of product:water. Apply 2 x 2 mL dose per 0.5 m bush height. Ensure spray contacts all foliage.	
Hoary Cress ( <i>Cardaria draba</i> )	1.2 L	400 mL	60 mL	NSW, ACT, Vic only	For maximum long term reduction apply from late July to September when plants are in late rosette to flowering stage. Plants should be actively growing and not under stress of drought, frost or waterlogging. Application may be integrated with long fallow. Cultivation may start 7 days after spraying. Wiper Equipment may be used where sufficient stem elongation occurs. Refer to WIPER EQUIPMENT section under General Instructions for application.	
Johnson Grass ( <i>Sorghum halepense</i> ), Kangaroo Grass ( <i>Themeda australis</i> ), Kikuyu Grass ( <i>Pennisetum clandestinum</i> )	4.8 L	800 mL	120 mL	All States	Apply to actively growing plants when most have reached the early head stage. For application by wiper equipment on Johnson Grass, off-type and volunteer sorghum refer to WIPER EQUIPMENT.	
Lantana ( <i>Lantana camara</i> )	-	800 mL	120 mL	Qld, NSW, ACT only	Apply to actively growing plants with full foliage. Ensure complete treatment of individual plants. DO NOT spray during periods of Summer drought stress. Burning (after complete brownout), pasture improvement and/or further treatment are recommended to control seedlings and/or regrowth. <b>LOW VOLUME APPLICATION</b> (e.g. Splatter Gun and Gas Gun): Use 1-9 (10%) mixture of product:water. Apply 2 x 2 mL dose per 0.5 m bush height. Ensure spray contacts all foliage. <b>SPRINKLER SPRAYER:</b> Apply 6 mL of a 10% solution to every square metre of treated area. Use of CDA equipment is not recommended.	
Mistflower ( <i>Eupatorium riparium</i> )	-	400 mL	60 mL		Apply to actively growing plants with full foliage. Spray to wet all foliage. Further treatment and/or pasture improvement are recommended to restrict seedling re-establishment. <b>SPRINKLER SPRAYER:</b> Apply 3 mL of a 10% solution to every square metre of treated area.	

SITUATION	WEEDS	APPLICATION RATES			STATE	CRITICAL COMMENTS
		Boom- spray per ha	Handgun per 100 L Water	Knapsack per 15 L		
WOODY AND PERENNIAL WEEDS IN PASTURES, FORESTS AND NON- AGRICULTURAL AREAS. (Spot directed or wiper application is required for selectivity in established pastures and forests)	Nutgrass ( <i>Cyperus rotundus</i> ) Does not refer to other <i>Cyperus</i> spp. which may be locally known as nutgrass	4.8 L	800 mL	120 mL	All States	Apply to growing plants in late Summer, i.e. February to mid April when at least 20-25% have reached the head stage. Apply in split application 4-8 weeks apart.
	Paragrass ( <i>Brachiara mutica</i> )	7.2 L	1 L	160 mL		Apply to actively growing plants when most have reached the early head stage.
	Paspalum ( <i>Paspalum dilatatum</i> )	4.8 L	800 mL	120 mL		
	Phalaris ( <i>Phalaris aquatica</i> )	2.4 - 4.8 L	400 - 800 mL	60 - 120 mL	NSW, ACT, Vic, SA only	Apply to actively growing plants during Winter-Spring. Use the lower rate where only knockdown is required e.g. prior to burning of firebreaks. Burning can usually start 14-21 days after spraying. For long term control increase to the higher rate.
	Phragmites, Common Reed ( <i>Phragmites australis</i> )	7.2 L	1 L	160 mL	All States	Apply to actively growing, fully developed plants approaching the early head stage. Visible symptoms of control may be slow to develop and may not be fully apparent until the next season. For application by wiper equipment refer to WIPER EQUIPMENTS under General Instructions.
	Plantain ( <i>Plantago</i> spp.)	2.4 L	1 L	80 mL		
	Prairie Grass ( <i>Bromus unioloides</i> ), Old Blue Grass ( <i>Dichanthium sericeum</i> ), Red-leg Grass ( <i>Bambinochloa ambigua</i> ), Rhodes Grass ( <i>Chloris gayana</i> )	4.8 L	800 mL	120 mL		Apply to actively growing plants when most have reached the early head stage.
	Rope Twitch ( <i>Agropyron repens</i> )	4.8 L	800 mL	120 mL	Vic, Tas only	Apply in late Summer-Autumn to actively growing plants with foliage at least 20 cm high. To ensure maximum shoot emergence the area should NOT be cultivated in the period from the preceding winter until the time of spraying.
	Rushes ( <i>Juncus</i> spp.)	-	-	-	All States	Apply by wiper equipment to actively growing plants. Where there is a large proportion of dead foliage, pre-slashing is recommended. Allow adequate regrowth before treatment. Refer WIPER EQUIPMENT for application instructions. Control of Rushes, Tall and Umbrella Sedge is only available in dry drains and channels and dry margins of dams, lakes and streams. Please refer to PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT.
	Sedge Tall, Umbrella ( <i>Carex</i> spp. and <i>Cyperus</i> spp.)	-	-	-	NSW, ACT, Vic, Tas only	Apply to actively growing plants in flowering to post-flowering period (Oct/ April). Use the lower rate only if the stand has been slashed prior to treatment. Re-treatment may be necessary. Visible symptoms may not be fully apparent for up to 3 months. Use of CDA equipment is not recommended.
	Silverleaf Nighthade ( <i>Solanum elaeagnifolium</i> )	-	1.6 L	240 mL	NSW, ACT, only	Use ONLY under good soil moisture conditions. Apply to actively growing plants at the late flowering to berry stage. Repeat spraying will be necessary to restrict growth and seedling re-establishment.
	Sorrel ( <i>Rumex acetosella</i> )	4.8 L	800 mL	120 mL	All States	Apply to actively growing plants when most have reached the early bud stage.
	Soursob ( <i>Oxalis pre-caprae</i> )	1.2 L	400 mL	60 mL	NSW, ACT, Vic, Tas, SA, WA only	For maximum long term reduction apply from late July to early September but before natural plant yellowing (senescence) occurs. Soursob should be actively growing and not under stress of drought or waterlogging. If heavy frosting has occurred allow recovery before spraying. If heavy grazing has occurred allow recovery of foliage to at least 5 cm before spraying. In Conservation Tillage (e.g. direct drilling) situations application in May-July immediately prior to sowing will give control of top growth and give partial reduction of plant numbers. Refer CONSERVATION TILLAGE USES table.
	St. John's Wort ( <i>Hypericum perforatum</i> )	2.4 L	400 mL	60 mL	All States	Apply to actively growing plants in the flowering to postflowering, procumbent stem stage (generally November-May). Re-treatment or oversowing with improved pasture species may be necessary to restrict seedling re-establishment.
	Sweet Briar ( <i>Rosa rubiginosa</i> )	-	1.2-1.6 L	180-200 mL	NSW, ACT, Vic, Tas, SA, WA only	Apply to actively growing plants from late flowering to leaf fall. Spray to wet all foliage. Use the higher rate on bushes over 1.5 m high. Burning (after complete brownout), pasture improvement and/or further treatment are recommended to control seedlings and/or regrowth. LOW VOLUME APPLICATION (e.g. Splatter Gun and Gas Gun): Use 1-9 (10%) mixture of product-water. Apply 2 x 5 mL dose per 0.5 m bush height. Ensure spray contacts all foliage.
	Thistle, Artichoke ( <i>Cynara cardunculus</i> )	2.4 L	400 mL	60 mL	Vic, SA only	Apply at the rosette-early head stage.
Thistle, Californian ( <i>Cirsium arvense</i> )	4.8 L	800 mL	120 mL	Vic, Tas only	Apply to actively growing plants at the flowering stage. To ensure maximum shoot emergence the area should NOT be cultivated prior to spraying. Re-treatment and/or pasture improvement may be necessary to restrict seedling re-establishment.	
Water Hyacinth	4.8 - 7.2 L	800 mL - 1 L	120-160 mL	All States	Apply when plants are actively growing and at or beyond the early bloom stage of growth. Use the higher rate on dense infestations. Control of Water Hyacinth is only available in dry drains and channels and dry margins of dams, lakes and streams. Please refer to PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT.	
Water Lettuce	-	800 mL - 1 L	120 - 160 mL		Best results are obtained from mid-Summer through to Winter. Use the higher rate on dense infestations. Control of Water Lettuce is only available in dry drains and channels and dry margins of dams, lakes and streams. Please refer to PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT.	
Waterlily, Yellow	4.8 L	800 mL	120 mL		Apply when there is a maximum emergence of floating leaves. Allow 2-3 weeks for symptoms to develop, then re-treat any unaffected plants. Use low volume sprayer. Control of Yellow Waterlily is only available in dry drains and channels and dry margins of dams, lakes and streams. Please refer to PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT.	
Water Couch ( <i>Paspalum distichum</i> , <i>Paspalum paspalodes</i> )	7.2 L	1 L	160 mL		Apply to actively growing plants in late Summer-Autumn (February-March). Do not treat after March because of the onset of winter dormancy. Full results may not be visible until the following spring. Not more than 1/4 of the weed should be submerged at the time of treatment. Control of Water Couch is only available in dry drains and channels and dry margins of dams, lakes and streams. Please refer to PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT.	
Yorkshire Fog ( <i>Holcus lanatus</i> )	2.4 L	560 mL	80 mL		Apply to actively growing plants at the early head stage.	

SITUATION	WEEDS	APPLICATION RATES			STATE	CRITICAL COMMENTS
		Boom- spray per ha	Handgun per 100 L Water	Knapsack per 15 L		
TREE AND VINE CROPS Avocado, Banana, Blueberries, Citrus Fruits, Custard Apples, Duboisia, Figs (dessert), Guava, Kiwifruit, Litchi, Mango, Monstera Fruit, Nuts (including Almond, Pecan, Macadamia, Pistachio and Walnut), Olives, Pawpaw, Persimmons, Pome Fruit, Raspberries, Stone Fruit, Tea, Vineyards	Amaranth, Barley Grass, Brome Grass, Barnyard Grass, Calltrop, Canary Grass, Capeweed, Chickweed, Deadnettle, Double Gee, Liverseed Grass, Mintweed, Pateron's Curse, Pigweed, Ryegrass, Silvergrass, Spear Thistle, Thornapple, Spiny Burrgrass, Wild Mustard, Wild Oats, Wild Turnip, Winter Grass, Variegated Thistle	1.6 - 2.4 L	400 - 600 mL	60 - 80 mL	All States	DO NOT allow spray to drift on to crop. This product can be used as a tank mixture with simazine SC formulations for the residual control of annual weeds. This mixture should not be used to control perennial weeds. Apply as a directed or shielded spray or using wiper equipment. DO NOT allow wiper surface to contact any part of the tree, vine or palm. Do not apply as a spray near trees or vines less than 3 years old. <b>CITRUS FRUIT, NUTS AND OLIVES, POME FRUIT AND VINEYARDS</b> Do not allow spray drift to contact green bark or stems, laterals, suckers, fresh wounds, foliage or fruit. <b>TEA</b> Apply a maximum of 3.2 L/ha by shielded boom or directed off-centre nozzle or 0.4 L/100 L by directed hand-gun or knapsack to avoid application to the crop. <b>ALL OTHER CROPS</b> DO NOT allow spray or spray drift to contact any part of the plant including the trunk. <b>CAUTION</b> Where split bark on kiwifruit and green stems on pawpaw occur, extreme care is required. Annual weeds may be sprayed anytime they are actively growing. Use the lower rate on weeds up to 15 cm tall.
	Couch	7.2 L	1.0 L	160 mL		

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

**WITHHOLDING PERIOD: NOT REQUIRED WHEN USED AS DIRECTED**

### GENERAL INSTRUCTIONS

This product is a non-selective liquid herbicide selective in the control of many annual and perennial grasses and broadleaf weeds in crop areas, land preparations and non-crop areas. This product is inactivated on contact with the soil and does not provide residual weed control. It is absorbed by the plant foliage and green stems and moves through the plant from point of contact to root system.

Visible effects are gradual yellowing, and wilting of the plant which advances to complete browning of growth above the ground and deterioration of underground plant parts.

Visible effects take 3 to 7 days on annual weeds, whereas on perennial weeds it may take 2 to 3 weeks or longer depending on weather conditions following spraying. No withholding period is required for this product. However, to ensure herbicide absorption, grazing of treated areas should be delayed at least one day after treatment of annual weeds and 7 days for perennial weeds. Certain plants (eg soursob, variegated thistle) are known to be naturally toxic to stock. Where known toxic plants are present, do not allow stock to graze until complete brown out of treated plants has occurred.

### RESISTANT WEEDS WARNING

eChem GLYPHOSATE 450 Herbicide is a member **GROUP M HERBICIDE** of the glycine group of herbicides. eChem GLYPHOSATE 450 Herbicide has the inhibitor of EPSP synthase mode of action. For weed resistance management eChem GLYPHOSATE 450 Herbicide is a Group M Herbicide. Some naturally occurring weed biotypes resistant to the product and other inhibitors of EPSP synthase herbicides may exist through normal genetic variability in any weed population. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds will not be controlled by eChem GLYPHOSATE 450 Herbicide or any other inhibitors of EPSP synthase herbicide. Since the occurrence of resistant weeds is difficult to detect prior to use, eChem (Aust) Pty. Limited accepts no liability for any losses that may result from the failure of this product to control resistant weeds.

### CROP ESTABLISHMENT

This product is recommended for the control of emerged weeds prior to crop establishment. Suitable cultivation and/or sowing operations are required to provide seedbed conditions satisfactory for crop germination and development. Spraying early to control young weeds will favour preparation of suitable seedbeds. On friable soils where there is only a light cover of young weeds, sowing may proceed satisfactorily from one day after spraying. In situations of heavy weed growth, sowing should be delayed until weed decay and soil conditions allow formation of a favourable seedbed. Incorporation of green or decaying vegetation and roots into the seedbed by cultivation or sowing may cause retarded crop emergence, particularly in cold and/or wet conditions. Vegetation may be reduced by grazing, and weed decay may be assisted by cultivation to leave trash on the surface. In marginal seedbed conditions take care to achieve the correct seeding depth, and avoid use of pre-emergence herbicides where label directions advise risk of retarded crop emergence.

### MIXING

- Clean spray tank and assure it is free from residues of previous spray materials.
- Fill the spray tank with half the required amount of clean water.
- Add the required amount of eChem GLYPHOSATE 450 Herbicide and mix well before adding the remaining water.
- If surfactant is required, add this last to minimise foaming.
- Agitate well before spraying.
- When preparing spray solution, use clean water since hard water containing calcium salts could inactivate glyphosate.
- Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminium, brass, copper, fiberglass, plastic or plastic lined spray tanks. Do not mix or store the product or spray solutions in galvanized steel or unlined steel (except stainless steel).

### TANK MIXES

When tank mixing with other products read and follow all label directions, restraints, plant back periods. Withholding periods and safety and first aid directions for the tank mix products. This product is compatible with the following insecticides: chlorpyrifos, dimethoate, fenitrothion, Gusathion<sup>1</sup>, Imidan<sup>1</sup>, Le Mat<sup>1</sup>, Lorsban<sup>1</sup>, metasystox<sup>1</sup> and Sumthion<sup>1</sup>. Other insecticides have not been tested.

### Atrazines/Triazines

eChem GLYPHOSATE 450 Herbicide may be tank mixed with Atrazine Flowable or Triazine Flowable for knockdown and residual weed control. Addition of crystalline ammonium sulphate at 2% w/v (2 kg/100 litre spray solution) is recommended to avoid antagonism.

### Dicamba

eChem GLYPHOSATE 450 Herbicide and Dicamba may be tank mixed for more selective control of Sorrel, Sub. Clover, medic.

### 2,4-D

eChem GLYPHOSATE 450 Herbicide may be tank mixed with 2,4-D Ester or 2,4-D Isopropylamine for improved control of broadleaf weeds.

### Chlorsulfuron

eChem GLYPHOSATE 450 Herbicide and chlorsulfuron tank mix will provide knockdown and residual weed control in fallow and in crop. Observe plant back restrictions for chlorsulfuron.

### Metsulfuron

eChem GLYPHOSATE 450 Herbicide and metsulfuron tank mix provide knockdown weed control in fallows and prior to planting certain winter cereals. Follow all label instructions on the metsulfuron label.

### Goal<sup>1</sup> CT

The addition of Goal CT at the rate of 75 mL/ha to the recommended rate of eChem GLYPHOSATE 450 Herbicide prior to planting wheat or barley will improve knockdown and increase the speed at which treated weeds develop visual symptoms of phytotoxicity.

### GENERAL SPRAYING INSTRUCTIONS

Do not spray this product if rain is likely to occur within 6 hours. Heavy rainfall within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required. Do not add extra surfactant or mix with other agricultural chemicals, herbicide oils or any other materials unless specifically directed on the label.

### APPLICATION

#### Boom Equipment

Use at spray volume of 25 to 100 L/ha. Fan nozzles at pressure of 240 – 280 Kpa is recommended. Boom height must be set to ensure double overlap of nozzle patterns at the top of the weed canopy.

#### Knapsack and Handgun Equipment

Adjust equipment to deliver a fine spray pattern and ensure a complete and uniform wetting of all foliage. Do not spray in conditions conducive to spray drift.

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Phone: 1300 781 649  
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APVMA Approval No: 53289/113875

### Aerial application

Aerial equipment may only be used to apply this product in pasture or fallow situations prior to establishment of field crops, fodder crops, new pasture and for pre-harvest applications to sorghum crops. DO NOT use in intensive horticultural areas. Use the recommended rates on this label up to a maximum of 3.2 L/ha. For micronair and boom equipment apply in a minimum spray volume of at least 15L/ha with an average droplet size of (or VMD) of 250-350 micron diameter. Swath width should be 15-17m.

Application on hilly terrain

As spraying height may vary, to maximise target contact increase water volume to 30-80 L/ha and increase droplet size to at least 300 micron (VMD).

### Application procedure in hot conditions

It is recommended that when the temperature reaches 24°C to 26°C, increase water volume to at least 30-35 L/ha and increase droplet size to at least 300 micron VMD. Aerial application is not recommended at temperatures above 32°C.

### Wiper equipment

Wiper equipment (ropewick applicators) may be used to apply this product on to weeds growing in oilseed crops, sugar cane, seed and pod vegetables, and tree and vine crops specified in this label, and in pasture and non-crop areas. Avoid contact with desirable vegetation. Operate wiper equipment a minimum of 10 cm above the crop or pasture. Weeds should be at least 15 cm above the crop or pasture at time of application. Speed of travel should be no greater than 8 km/h. Best results are achieved at lower speeds and where two applications are made in opposite directions (double pass). Where weeds are of variable height, or occur in dense infestations or clumps, some plants may not be contacted by the herbicide solution. In these cases repeat treatment may be necessary. Mix only enough herbicide solution for immediate requirements. Do not store mixed solution for more than a few days. Flush out equipment with water after use.

**Rate:** Mix 1 litre of this product with 2 litres clean water to prepare 33 % solution. This product may be used according to the above directions for suppression or control of many annual and perennial weeds. See WEEDS CONTROLLED tables for specific use recommendations.

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

**DO NOT** contaminate dams, rivers or streams with the product or used containers. **DO NOT** apply to weeds growing in or over water. **DO NOT** spray across open bodies of water and DO NOT allow spray to enter water. DO NOT allow water to return to dry channels within 4 days of application.

Avoid contamination of seed, feed or foodstuffs. Keep container closed to prevent spills and contamination.

### PROTECTION OF CROP, NATIVE AND OTHER NON-TARGET PLANTS.

Contact with desirable plants and trees may cause severe damage or destruction. DO NOT spray in conditions conducive to spray drift. DO NOT apply under weather conditions or from spraying equipment, that may cause spray to drift to nearby susceptible plants/crops, cropping lands or pastures. DO NOT re-use container for any other purpose.

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

**Glyphosate 450**  
HERBICIDE

ACTIVE CONSTITUENT: 450g/L GLYPHOSATE present as the isopropylamine salt

**GROUP M HERBICIDE**

A non-selective herbicide for the control of a broad range of annual and perennial weeds as per the directions for use table.

**IMPORTANT: THIS LABEL 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

### STORAGE AND DISPOSAL

Store in the closed, original container in a cool, well ventilated area. Do not store for prolonged periods in direct sunlight. Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging 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. For refillable containers: Empty contents fully into application equipment. Close all valves and return to point of supply for refill or storage.

### SAFETY DIRECTIONS

Product will irritate the eyes and skin. Avoid contact with eyes and skin. When preparing product for use, wear elbow-length PVC gloves and face shield or goggles. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash contaminated clothing, gloves and face shield or goggles. When using controlled droplet applicator, wear protective waterproof clothing and impervious footwear.

### FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre (Ph 13 11 26).

### SAFETY DATA SHEET

Additional information is listed in the safety data sheet (SDS). A safety data sheet for eChem Glyphosate 450 Herbicide is available from the supplier.

### CONDITIONS OF SALE

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

<sup>1</sup>Registered Trade Marks

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