

Product Name: David Grays Glyphosate 450 Herbicide
APVMA Approval No: 91397/132100



Label Name:	David Grays Glyphosate 450 Herbicide
Signal Headings:	CAUTION KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
Constituent Statements:	450 g/L GLYPHOSATE PRESENT AS THE ISOPROPYLAMINE SALT
Mode of Action:	GROUP 9 HERBICIDE
Statement of Claims:	A non-selective water soluble herbicide for the control of a wide range of annual and perennial weeds in a wide variety of situations as per the Directions for Use Table.
Net Contents:	5L - bulk
Restraints:	<p>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.</p> <p>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.</p> <p>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.</p> <p>SPRAY DRIFT RESTRAINTS Specific definitions for terms used in this section of the label can be found at apvma.gov.au/spraydrift DO NOT allow bystanders to come into contact with the spray cloud.</p>

	<p>DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.</p> <p>DO NOT apply unless the wind speed is between 3 and 20 kilometres per hour at the application site during the time of application.</p> <p>DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. Surface temperature inversion conditions exist most evenings one to two hours before sunset and persist until one to two hours after sunrise.</p>
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Directions for Use:	This section contains file attachment.
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Other Limitations:	
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Withholding Periods:	NOT REQUIRED WHEN USED AS DIRECTED
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Trade Advice:	
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General Instructions:	<p>GENERAL INSTRUCTIONS</p> <p>Mode of Action David Grays Glyphosate 450 Herbicide is a water soluble liquid herbicide. The product is non-selective and will control a wide range of emerged annual and perennial weeds. It provides no residual activity and is inactivated once it comes into contact with the soil. The product is absorbed by plant leaves and green stems and is then translocated throughout the plant to the root system. The product inhibits a plant enzyme causing a breakdown in the metabolic pathway leading to death of the plant. Visual effects of product efficacy are gradual wilting, yellowing leading to complete plant browning. For annual weeds effects are usually apparent in 3-7 days and for perennial weeds up to 14-21 days. The time taken for these effects to appear will vary depending on the speed of translocation which will be dependent on climatic conditions such as temperature, moisture conditions etc. Best results are obtained if plants are sprayed when they are actively growing and not under any stress from such factors as disease, water logging, insect damage, drought stress etc.</p> <p>To ensure that the product is adequately absorbed by weeds it is recommended that spraying be delayed if rainfall is expected. Rain up to 6 hours after application may reduce the efficacy of the product and heavy rain within 2 hours may necessitate re-treatment. Plants which are covered in dust or which are wet with dew should not be treated.</p> <p>Crop Establishment: Where the product is used to control weeds prior to establishment of a new crop or pasture it is important that the crop or pasture not be sown until a suitable seed bed is present. Where a light cover of weeds has been sprayed, it may be possible to sow in one day. Where a large amount of dead weed matter or trash is present the seed bed needs to be adequately prepared before crop or pasture sowing.</p> <p>Mixing and Application:</p>
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David Grays Glyphosate 450 Herbicide may be applied by boom spray, air, knapsack, handgun or wiper application.

Boom Application – Spray volumes of 25 – 100 L water/ha are recommended with a fan nozzle at pressures of 240 – 280 kPa. Boom Height must be set to ensure double overlap of spray patterns at the top of the weed canopy.

Wiper Equipment – (eg ropewick, canvas, carpet or felt application) may be used to apply the product in the situations as per the directions for use table. Weeds should be at least 15 cm above the crop and the wiper equipment should be operated at least 10 cm above the crop. Best results are obtained with lower speeds of application (do not exceed 8 km/hr) and where two applications are made in opposite directions ie double pass. Where herbicide does not contact foliage (due to different levels of foliage) results may not be satisfactory and re-treatment may be required. DO NOT store a mixture solution for more than 2 days.

Rate: 800 mL of product to 2 litres of water.

Aerial Application- Apply a minimum spray volume of 20 L/ha for Micronair and boom equipment. Droplet size should be medium to coarse and the swath width 15-17 metres. Aerial application is only recommended in pasture or fallow situations before establishment of a new crop or pasture or in pre-harvest sorghum.

On sloping ground, the spraying height may vary, so it is recommended that the spray volume be increased to 30 – 80 L/ha with a droplet size of at least coarse. Since the product is non-selective it is important to avoid spraying in conditions likely to cause drift. eg wind over 8 kph, temperature inversion, still air and hot dry days.

DO NOT use in intensive horticultural areas.

Use recommended rate specified in this label up to a maximum limit of 3.2 L/ha.

APPLICATION IN HOT CONDITIONS: When the temperature reaches 25°C increase the water volume to at least 30L/ha and droplet size to at least coarse VMD to compensate for additional evaporation of sprayed droplets. DO NOT use by air in temperature above 30°C.

Surfactant

The addition of surfactant may improve weed control where water rates are high or product rates are low. Suggested surfactant rates are 200 mL/100 L of 1000 g/L non-ionic surfactant or 250-500 mL of 700 g/L surfactant. Do not add spraying oils, agricultural chemicals or any other material except as directed on the label.

Mixing - When the product is to be mixed with water it is important that clean water be used. Dirty water or hard water containing calcium salts may reduce the product's effectiveness. The following procedure for mixing should be followed:

1. Ensure spray tank is clean and that previous chemicals used are washed from the tank.
2. Half fill the tank with clean water, add the required amount of Glyphosate 450.
3. Add the rest of the water.
4. Add surfactant last.

Compatibility

The product may be mixed with a variety of products to enhance weed control, to broaden the spectrum of weeds and to add residual control.

Refer to the "Directions for Use" Section for detailed information on the tank mix situations. Additives: Crystalline Ammonium Sulphate assists in minimising antagonism when mixed with flowable Triazine herbicides. The only form of Ammonium sulphate to be used is the crystalline form (not prilled or granule forms). Test the quality by dissolving 2 tablespoons in 2 litres of water. Swirl gently for 2 minutes. Should undissolved particles still remain at the end of that time, pre-dissolve them prior to adding product to spray tank. Ensure solution is poured through a screen.

Herbicides: Atrazine - flowable or granular (see additives above - do not apply the tank mix for control of Barnyard grass or liverseed grass), Dicamba, 2,4-D ester, Express*, Garlon*, chlorsulfuron, metsulfuron, Yield*, Stomp*, Logran*, LVE MCPA, Goal CT*.

Goal CT - The addition of Goal CT at 75 mL/ha to recommended rates of this product prior to planting Wheat or Barley will improve knockdown and increase the speed at which treated weeds develop visible symptoms of phytotoxicity. Add Flowright Compatibility agent to improve the compatibility in cold water. (less than 15°C). See Directions below. Insecticides: Chlorpyrifos, dimethoate, fenitrothion, Le-Mat*, Lorsban*, metasystox, Sumithion*, Perfekthion EC 400*.

Flowright compatibility agent.

Rate: 200 mL/100 L spray solution. When mixing with Goal CT*, add to improve the compatibility in cold water (less than 15°C). Flowright must be pre-mixed with Goal CT before adding to the spray tank. Refer to Flowright label for full directions.

For tank mixing the following procedure should be undertaken:

1. Half fill tank and start agitator.
2. Add crystalline ammonium sulphate if required through mesh screen.
3. Add companion product.
4. Add David Grays Glyphosate 450 Herbicide and rest of the water.
5. Add surfactant and maintain agitation while spraying.

EQUIPMENT MAINTENANCE AND USAGE

David Grays Glyphosate 450 Herbicide should ONLY be stored, mixed or applied in plastic or plastic lined, stainless steel, aluminium, copper, brass or fibreglass containers. The product and spray solutions react with galvanised steel and unlined steel tanks and containers to form hydrogen gas which may form a highly combustible gas mixture. This gas could cause an explosion if ignited by an open flame. All application equipment including tanks, nozzles, hoses aircraft and aircraft landing gear, should be thoroughly washed after use to prevent corrosion.

Resistance Warning:

Resistance Weeds Warning:

David Grays Glyphosate 450 Herbicide is a member of the Glycine group of herbicides. David Grays Glyphosate 450 has the Inhibitor of EPSP synthase mode of action. For weed resistance management Glyphosate 450 is a Group 9 Herbicide. Some naturally occurring weed biotypes resistant to Glyphosate 450 Herbicide and other Group 9 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 David Grays Glyphosate 450 Herbicide or any other Group 9 herbicide. Since the occurrence of resistant weeds is difficult to detect prior to use, David Gray & Co. Pty Ltd accepts no liability for any losses that may result from the failure of Glyphosate 450 to control resistant weeds.

Precautions:

Precautions:

Do not store, mix or apply the product or spray solutions in unlined steel or galvanised containers as a highly flammable gas may form. Use stainless steel, brass, copper, aluminium, plastic or plastic lined, fibreglass containers or spray tanks.

Protections:

Protection of Livestock:

There is no withholding period for this product but removal of stock may be necessary to achieve efficacy. It is recommended that stock be removed from the area to be treated 1 day after treatment of annual weeds and 7 days after treatment of perennial weeds. Certain plants (eg Soursob, Variegated Thistle) may be naturally toxic to stock. Where known toxic plants are present, do not allow stock to graze until complete browning of treated plants has occurred.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT
DO NOT contaminate dams rivers or streams with the chemical or used containers. DO NOT apply to weeds growing in or over water. DO NOT spray across open bodies of water

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, 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:

Will irritate the eyes and skin. Avoid contact with the eyes and skin. When opening the container, preparing and using the prepared spray wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and elbow length chemical resistant gloves. In addition wear a face shield or goggles when mixing and loading. When using a controlled droplet applicator wear protective clothing and impervious footwear. Wash hands after use. After each day's use wash gloves and face shield or goggles and contaminated clothing.

First Aid Instructions:

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26.

First Aid Warnings:

DIRECTIONS FOR USE

SITUATION	WEEDS CONTROLLED	STATE	RATE/ha	CRITICAL COMMENTS
<p>SOUTHERN AUSTRALIA Before sowing a crop or pasture.</p> <p>For weed control prior to sowing a crop or pasture with full soil disturbance by cultivation or sowing with a tyned implement.</p>	Barley Grass (<i>Hordeum leporinum</i>), Brome Grass (<i>Bromus unioloides</i>), Volunteer Cereals, Wild Oats (<i>Avena fatua</i>)	NSW, ACT, VIC, WA, SA only	400 mL – 800 mL pre tillering 800 mL – 1.0 L post tillering	<p>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 ie fully tillered grasses or broadleaf weeds at budding or stem elongation.</p> <p>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.</p> <p>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.</p> <p>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. Addition of Chem- Wett 1000 at 200 mL/100L spray solution may improve control.</p> <p>Crop Establishment: Sowing should not proceed until conditions allow for the formation of satisfactory seedbed. See Crop Establishment for directions</p> <p>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.</p>
	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 L post tillering	
	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	
	Amsinkia (Amsinkia), Fumitory (<i>Fumaria officinalis</i> , <i>F. muralis</i>), Paterson’s curse/Salvation Jane (<i>Echium plantaginium</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 toumefortii</i>)		800 mL – 1.0 L less than 12 cm diameter 1.0 – 1.2 L greater than 12 cm diameter	
	Dock - seedling (<i>Rumex crispus</i>)		800 mL – 1.2 L	
	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		1.2 L	

	rosettes (NSW only)			
	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 (200g/L) to improve control of sorrel, dock and white clover. Observe dicamba label directions and plant back periods. Addition of Chem-Wett 1000 at 200 mL/100 L spray solution may improve control.
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 fatua</i>)	NSW, ACT, VIC, 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 ie fully tillered grasses or broadleaf weeds at budding or stem elongation. 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, 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. Addition of Chem-Wett 1000 at 200 mL/100 L spray solution may 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. 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
	Brome Grass (<i>Bromus unioloides</i>), Capeweed (<i>Arctotheca calendula</i>), Variegated Thistle (<i>Silybum marianum</i>), Winter Grass (<i>Poa annua</i>)		1.0 - 1.6 L	
	Annual Ryegrass (<i>Lolium rigidum</i>), Paterson's Curse/Salvation Jane (<i>Echium plantaginium</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 Turnip (<i>Brassica tournefortii</i>)		1.2 - 1.6 L	
	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>)		1.5 - 2.0 L	

	Dock (<i>Rumex</i> spp.), Flatweed (<i>Hypochoeris</i>)		2.0 L	establishing pasture, ensure application of fertiliser and insecticides and follow-up management is undertaken as required.
	All weeds listed above	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. Addition of Chem-Wett 1000 at 200 mL/100 L spray solution may improve control.
SOUTHERN AUSTRALIA For weed control before a fallow	Barley Grass (<i>Hordeum leporinum</i>), Volunteer cereals, Wild Oats (<i>Avena fatua</i>)	NSW, ACT, VIC, 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. 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. Soursob -Treat at tuber exhaustion. Hoary Cress -Treat from late rosette to early flowering. 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. Addition of Chem-Wett 1000 at 200 mL/100 L spray solution may improve control.
	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 plantaginium</i>), Saffron Thistle (<i>Carthamus lanatus</i>), Scotch Thistle (<i>Onopordum acanthium</i>), 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	
	Hoary Cress (<i>Cardaria draba</i>) Soursob (<i>Oxalis pes-caprae</i>)		1.2 L	

<p>NORTHERN AUSTRALIA</p> <p>For weed control prior to sowing a summer or winter crop or in fallow</p>	<p>Annual Phalaris (<i>Phalaris</i>), Barley Grass (<i>Hordeum vulgare</i>), Volunteer cereals, Wild Oats (<i>Avena fatua</i>)</p>	<p>NSW, QLD only</p>	<p>400 mL - 800 mL</p>	<p>Use the lower rate on young weeds or where cultivation is to take place within 21 days.</p> <p>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.</p> <p>In winter (cold) conditions, symptoms on Deadnettle may be slow to develop.</p> <p>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.</p> <p>Liverseed Grass and Barnyard Grass may be very sensitive to moisture stress. Dense stands may require re-treatment.</p> <p>For aerial application see General Instructions. DO NOT apply by air if temperature is over 30°C.</p> <p>*Larger plants (>5 cm) of Noogoora Burr, Variegated Thistle and Volunteer Sunflower may require up to 1.6 L/ha to achieve control.</p> <p>Crop Establishment: Sowing should not proceed until conditions allow for formation of a satisfactory seedbed. See Crop Establishment for directions.</p> <p>Sowthistle: previously grazed plants may be difficult to control without allowing full recovery.</p>
	<p>Barnyard Grass (<i>Echinochloa crus-galli</i>), Liverseed grass (<i>Urchloa</i> spp.), Lovegrass/Stink Grass (<i>Eragrostis curvula</i>), Sweet summer grass, Volunteer Sorghum (<i>Sorghum halepense</i>)</p>		<p>800 mL-1.6 L</p>	
	<p>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>), Mintweed (<i>Salvia reflexa</i>), New Zealand Spinach (<i>Tetragonia tetragonoides</i>), *Noogoora Burr (<i>Xanthium pungens</i>), Saffron Thistle (<i>Carthamus lanatus</i>), Spear Thistle (<i>Cirsium vulgare</i>), Spurge (<i>Euphorbia</i> spp.), *Variegated Thistle (<i>Silybum marianum</i>), *Volunteer sunflower, Yellow vine/ Caltrop (<i>Tribulis terrestris</i>)</p>		<p>800 mL-1.2 L</p>	
	<p>Wireweed (<i>Polygonum aviculare</i>)</p>		<p>800 mL - 1.2 L</p>	
	<p>Boggabri weed (<i>Amaranthus macrocarpus</i>), Caltrop (<i>Tribulis terrestris</i>), Indian Hedge Mustard (<i>Sisymbrium orientale</i>), Mintweed (<i>Salvia reflexa</i>), Summer grass (<i>Digitaria ciliaris</i>)</p>		<p>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.</p>	

	Annual Ground Cherry (<i>Physalis angulata</i>), Bladder ketmia, Sowthistle (<i>Sonchus oleraceus</i>), Turnip Weed (<i>Rapistrum rugosum</i>), Wild Lettuce (<i>Lactuca saligna</i>). Wild Turnip (<i>Brassica tournefortii</i>)	800 mL - 1.2 L prior to stem elongation/ budding OR 1.2 -1.6 L after stem elongation/budding
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PASTURE RENOVATION AND TOPPING

SITUATION	WEEDS CONTROLLED	STATE	RATE/ha	CRITICAL COMMENTS
Pasture with Poa Tussock present as a weed For pasture renovation	Annual weeds (see previous table) and Poa tussock (<i>Poa labillardii</i>)	QLD, NSW, ACT, VIC, TAS only	2.4 - 3.2 L	Before spraying <ul style="list-style-type: none"> • graze heavily. • remove stock 14 days or more before treatment. • apply after autumn break when plants are actively growing but before frosts begin (March-May). Increasing to the higher rate may give more effective reductions. Sowing of new pasture may begin 14 days after sowing. It is essential that correct follow-up pasture establishment and management occurs after treatment. Spot treatment will limit re-infestation. May be aerially applied.
Pasture with Bent Grass present as a weed For control/suppression of Bent Grass before sowing a crop or pasture	Annual weeds (see previous table) and Bent Grass (<i>Agrostis tenuis</i>)	TAS, VIC only	2.0 L	Apply late spring when seed heads have developed but before the onset of summer moisture stress. Remove stock prior to spraying to achieve good foliage cover. Ensure plants are actively growing. 10-21 days after spraying fully disturb soil with a tined implement and then sow summer crop and/ or re-seeded pasture or crop the following autumn.

Pasture Topping for the reduction of seed set of annual grasses, Capeweed and Calomba daisy	Annual Ryegrass (<i>Lolium rigidum</i>), Calomba daisy (<i>Pentzia suffruticosa</i>)	NSW, ACT, VIC, SA, WA, TAS only	360 mL	Use the higher rate for heavy infestation or where annual ryegrass is present. Apply before "haying off". Annual Ryegrass and Capeweed - Apply at Flowering. Other weeds - Apply at head to milky dough stage. Stock should be removed before spraying to allow regrowth. Pasture legumes may be affected. DO NOT apply to medic/clover crops to be used for hay or seed. Apply a maximum of 50L/ha water. Above this water volume add a non-ionic surfactant.
	Barley Grass (<i>Hordeum leporinum</i>), Brome grass (<i>Bromus unioloides</i>), Capeweed (<i>Arctotheca calendula</i>), Silver Grass (<i>Vulpia</i> spp.)		240 – 360 mL	
Pasture manipulation for the control /suppression of certain grasses before sowing soybeans, forage crops or Leucaena	Carpet Grass (<i>Xonopus</i> spp.), Kikuyu (<i>Pennisetum clandestinum</i>), Paspalum (<i>Paspalum dilatatum</i>)	WA, NSW, ACT, VIC only	1.1 – 4.8 L	Apply the lower rate for suppression only. The higher rate will provide control. Leucaena - (QLD ONLY) Rows should be 4 m apart. Use 2 L/ha with single taper fan nozzle LFI-80 mounted at the rear of a single row planter giving a 1 m swath.
	Carpet Grass, Paspalum	QLD only	1.1 – 4.8 L	
	Kikuyu		500 mL – 4.8 L	
	Black spear grass (<i>Hederopogon contortus</i>), Wire grasses (<i>Aristida</i> spp.), Love Grasses (<i>Eragrostis</i> spp.), Red Natal Grass (<i>Rhynchelytrum repens</i>), Barbed Wire Grass (<i>Cymbopogon refractus</i>)		2.4 L	

SUGAR CANE (RATOON CONTROL) FOR QLD AND NSW ONLY

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 60-100cm 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. Boom height must allow for correct overlap of the spray pattern at the top of the crop canopy.
	Q86, Q96, Q113	3.2 – 4 L	
	Cassius, Q115, Q122, Q94	4 – 4.8 L	
	NCO310, Q107	4.8 – 7.2 L	

RICE: DIRECT DRILLING FOR NSW ONLY

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 and add Chem-Wett 1000 at 200mL/100 L of spray solution. · Crop Sowing- Sow 1-14 days after treatment. Residual control will only be achieved by adding another suitable herbicide.

SORGHUM CONTROL

SITUATION	WEEDS CONTROLLED	STATE	RATE/ha	CRITICAL COMMENTS
Sorghum control before harvest	Grain sorghum (<i>Sorghum bicolor</i>)	QLD, NSW only	1.2 or 1.6 L	<p>DO NOT apply to varieties intended for seed production or varieties prone to lodging.</p> <p>DO NOT apply to crop under stress from factors such as waterlogging, frost, disease, low moisture etc.</p> <p>Apply when grain moisture is less than 25%. The product can be applied when some browning has occurred.</p> <p>Use the lower rate for control of the crop, late tillers and ratoon regrowth.</p> <p>Use the higher rate for better suppression of ratoon regrowth.</p> <p>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.</p> <p>CAUTION: Sorghum may be naturally toxic to stock.</p>
Sorghum control after harvest	Sorghum stubble (grain sorghum) (<i>Sorghum bicolor</i>)		<p>800 mL-1.2 L for new regrowth from slashed stubble</p> <p>1.2 - 1.6 L for standing green stubble</p> <p>800mL - 1.2 L for fresh spring regrowth</p>	<p>DO NOT apply if plants are stressed from such factors as waterlogging, frost disease, low moisture, etc.</p> <p>For slashed stubble and spring regrowth apply when regrowth is at least 20 cm high.</p> <p>Standing Stubble - apply only if sufficient green leaf is present. Allow regrowth of at least 20 cm if grazing has occurred.</p> <p>Use the lower rate for knockdown and regrowth suppression where cultivation is to follow. Use the higher rate for better control of regrowth.</p> <p>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.</p> <p>CAUTION: Sorghum may be naturally toxic to stock.</p>

ANNUAL WEEDS – FOR ALL STATES

WEEDS CONTROL	RATE	CRITICAL COMMENTS
<p>Amaranth (<i>Amaranthus sp.</i>), Barley Grass (<i>Hordeum leporinum</i>), Barnyard Grass (<i>Echinochloa crus-galli</i>), Brome grass (<i>Bromus spp.</i>), Caltrop (<i>Tribulus terrestris</i>), Canary Grass (<i>Phalaris sp.</i>), Capeweed (<i>Arctotheca calendula</i>), Cereals - volunteer (barley, wheat, oats, sorghum), Chickweed (<i>Stellaria media</i>), Cobbler's Peg (<i>Bidens pilosa</i>), Fumitory (<i>Fumaria officinalis</i>, <i>F. muralis</i>), Ground Cherry (<i>Physalis angulatis</i>), Lesser Swinecress (<i>Coronopus didymus</i>), Liverseed grass (<i>Urochloa panicoides</i>), Mintweed (<i>Salvia reflexa</i>), Paradoxa grass (<i>Phalaris paradoxa</i>), Paterson's Curse/Salvation Jane (<i>Echium plantagineum</i>), Pigweed (<i>Portulaca oleracea</i>), Potato Weed (<i>Galinsoga parviflora</i>), Ryegrass - annual (<i>Lolium rigidum</i>), Saffron thistle (<i>Cathamus lanatus</i>), Silver grass (<i>Vulpia spp.</i>), Sow thistle (<i>Sonchus oleraceus</i>), Spear thistle (<i>Cirsium vulgare</i>), Spiny burr grass (<i>Cenchrus spp.</i>), Spurge (<i>Euphorbia spp.</i>), Sub clover (<i>Trifolium subterraneum</i>), Wild Mustard (<i>Sisymbrium officinale</i>), Wild Oats (<i>Avena fatua</i>), Wild Turnip (<i>Brassica tournefortii</i>), Winter grass (<i>Poa annua</i>), Variegated Thistle (<i>Silybum marianum</i>)</p>	<p>BOOM 1.6 -2.4 L/ha</p> <p>HANDGUN 400 – 560 mL per 100 L</p> <p>KNAPSACK 60 – 80 mL per 15 L</p>	<p>* Apply only to plants which actively growing and not suffering stress. * Use the lower rate for weeds up to 15 cm and the higher rate for weeds over 15 cm. * The effects of the product may take 3-7 days to appear under normal conditions and up to 20-30 days in cool conditions. * NO residual control will be provided by this product. Germinations after initial treatment may have to be resprayed. For residual control the product should be tank-mixed with a suitable residual herbicide.</p>

PERENNIAL WEEDS

WEEDS CONTROLLED	STATE	RATE			CRITICAL COMMENTS
		BOOM L/ha	HANDGUN VOL/100L	KNAPSACK VOL/15L	
Bamboo (<i>Bambusa</i> spp.)	All States	-	80 mL	120 mL	Apply to actively growing foliage and/or regrowth which is between 1 and 2 m tall. Cut stump - dilute the product 1:6 ie 1 part Glyphosate 450 to 6 parts water, cut stems back to 20 cm high, pour mixture down hollow stem or paint the cut.
Bent Grass (<i>Agrostis capillaris</i>)	Vic, Tas only	2 L	400 mL	60 mL	Apply to plants which have some seed-head development late in the spring. Plants must be actively growing. It is necessary to follow-up spraying with full soil disturbance within 21 days and then plant to a summer crop and/or re-seeded pasture or crop in autumn.
Blady Grass (<i>Imperata cylindrica</i>)	NSW, ACT, Qld only	7.2 L	1 L	160 mL	Apply to actively growing plants when most plants have reached the head stage.
Bracken (<i>Pteridium esculentum</i>)	All States	-	1.2 L	180 mL	* For best control Wiper application is recommended. * Bracken should be slashed in the previous Winter/Spring so that application is made to new growth. * Apply to actively growing fully unfurled fronds in Autumn (March -May) before the onset of frosts. * Symptoms may be very slow to appear. * Follow-up treatment is recommended as control will NOT be achieved after one treatment.
Carpet grass (<i>Axonopus</i> spp.)	All States	2.4 L	400 mL	60 mL	Apply to actively growing plants at early head stage.
Cocksfoot (<i>Dactylis glomerata</i>)	All States	2.4 L	560 mL	80 mL	Apply to actively growing plants at early head stage.
Couch (<i>Cynodon dactylon</i>)	All States	7.2 L	1 L	160 mL	Apply to actively growing plants when most plants are at the early head stage. For best results in WA and SA apply in Oct-November

Flat Weed /Cat's Ear (<i>Hypochoeris radicata</i>)	All States	2.4 L	560 mL	80 mL	Apply at early flower stage to fully developed rosettes.
Guinea Grass (<i>Panicum maximum</i>)	All States	7.2 L	1 L	160 ml	Apply to actively growing plant at early head stage. May be applied by Wiper equipment.
Hoary Cress (<i>Cardaria draba</i>)	NSW, ACT, Tas, VIC only	1.2 L	400 mL	60 mL	Apply late July to early September to actively growing plants at the late rosette to flowering stage. Ensure plants are not stressed at time of spraying. Where stems are long enough wiper equipment may be used. TAS: Add a non-ionic surfactant at the recommended rate.
Johnson Grass (<i>Sorghum halepense</i>) Kangaroo Grass (<i>Themeda australis</i>) Kikuyu (<i>Pennisetum clandestinum</i>)	All States	4.8 L	800 mL	120 mL	Apply to actively growing plants at early head stage. May be applied by Wiper equipment to Johnson Grass.
Lovegrass – African (<i>Eragrostis curvula</i>)	VIC, NSW, ACT, WA only	4.8 L	800 mL	120 mL	Apply to actively growing plants. To restrict seedling re-establishment pasture improvement is recommended.
Nutgrass (<i>Cyperus rotundus</i>)	All States	4.8 L	800 mL	120 mL	Non cultivated situations: Apply to actively growing plants in February - April.
		2.4 L + 2.4L	560mL + 560mL	80 mL + 80 mL	Cultivated Situations: Make first application when at least 20% of plants have reached early head stage (about Feb). Make the second application when most plants have re-emerged (about 6-8 weeks after first application). Follow up treatments may be necessary as further plants emerge.
Pampas Grass (<i>Cortaderia</i> spp.)	All States		800 mL or 1 L	120 mL or 160 mL	Apply in spring, summer or autumn to actively growing plants. Ensure complete coverage of the foliage. Best results are obtained if plants are sprayed at flowering. Use the lower rate for plants under 1 m tall and the higher rate for larger plants. Plants may be cut prior to application but regrowth must be at least 1 m prior to spraying.
Paragrass (<i>Brachiara mutica</i>)	All States	7.2 L	1 L	160 mL	Apply to actively growing plants at early head stage.
Paspalurn (<i>Paspalum dilatatum</i>)	All States	4.8 L	800 mL	120 mL	Apply to actively growing plants at early head stage.

Phalaris (<i>Phalaris aquatica</i>)	SA, VIC, NSW, ACT only	2.4 or 4.8 L	400 mL or 800 mL	60 or 120 mL	Apply in winter-spring to actively growing plants. Use lower rate where only knockdown is required such as prior to burning for a fire break. Burning should not take place for 2 - 3 weeks after spraying. The higher rate should be used for longer term control.
Plantains (<i>Plantago</i> sp.)	All States	2.4L	560 mL	80 mL	Apply to actively growing plants at the early head stage. Symptoms may be slow to appear.
Prairie Grass (<i>Bromus unioloides</i>), Qld Blue Grass (<i>Dichanthium sericeum</i>), Red-leg Grass (<i>Bothriochloa ambigua</i>), Rhodes Grass (<i>Chloris gayana</i>).	All States	4.8 L	80 mL	120 mL	Apply to actively growing plants at the early head stage.
Rope Twitch (<i>Agropyron repens</i>)	Tas, Vic only	4.8 L	800 mL	120 mL	Apply in late summer-autumn to actively growing plants with foliage at least 20cm high. To ensure maximum shoot emergence the area should NOT be cultivated in the period from the preceding winter until the time of spraying.
Sorrel (<i>Rumex acetocella</i>)	All States	4.8 L	800 mL	120 mL	Apply to actively growing plants when the majority of plants are at the early bud stage.
Soursob (<i>Oxalis pes-caprae</i>)	NSW, ACT, VIC, TAS, WA, SA only	1.2 L	400 mL	60 mL	Apply to actively growing plants late July to early September prior to plant senescence (yellowing). Ensure plants are not stressed at time of application. If plants have been grazed or frosted allow regrowth before treatment.
St John's Wort (<i>Hypericum perforatum</i>)	All States	2.4 L	400 mL	60 mL	Apply to actively growing plants at flowering to post flowering, procumbent stem stage (about Nov-May). Pasture improvement or re-treatment may be necessary to prevent seedling re-establishment.
Thistle – Artichoke (<i>Cynara cardunculus</i>)	SA, VIC only	2.4 L	400 mL	60 mL	Apply when plants are at the rosette to early head stage.
Thistle-californian (<i>Cirsium arvense</i>)	Vic, TAS only	4.8 L	400 mL	60 mL	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.

Yorkshire fog (<i>Holcus lanatus</i>)	All States	2.4 L	560 mL	80 mL	Apply to actively growing plants at early head stage.
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WOODY WEEDS AND BRUSH

WEEDS CONTROLLED	STATE	RATE		CRITICAL COMMENTS
		HANDGUN VOL/100L	KNAPSACK VOL/15L	
Bitou Bush/ Boneseed (<i>Chrysanthemoides monilifera</i>)	NSW, ACT, QLD, VIC, TAS ONLY	400 or 800 mL	60 or 120mL	Apply to actively growing plants. Do not treat plants which are stressed, particularly drought stressed. Spray to wet all foliage. Best results are achieved when treated during the winter at peak flowering time. Use the higher rate on larger bushes. Follow-up treatment may be required to prevent the establishment of germinating weeds.
Blackberry (<i>Rubus fruticosus</i>)	All States	800 mL or 1 L	120 or 160 mL	Apply from January to May (flowering to leaf fall). Spray plants which are not under stress to thoroughly wet all foliage. Use the higher rate for dense, old stands over 2 m high. Further treatment may be needed to control seedlings and regrowth. Symptoms may be slow to appear and may not be apparent until next season. TAS ONLY- Do not spray bushes bearing mature fruit.
Box Thorn (<i>Lycium ferocissium</i>)	All States	560 mL or 800 mL	80 or 120 mL	Spray to wet all foliage. Use the lower rate for young bushes and the higher rate for bigger mature bushes. Do not spray if conditions are hot and dry regrowth and seedling germination may have to be retreated.
Crofton Weed (<i>Eupatorium adenophorum</i>)	NSW, ACT, QLD only	400 mL	60 mL	Apply to plants with full foliage which are actively growing. Spray to wet all foliage. Seedling germination may have to be retreated.
Groundsel Bush (<i>Baccharis halimifolia</i>)	QLD, NSW, ACT only	560 mL or 800 mL	80 mL -120 mL	Apply to actively growing plants using the higher rate for plants over 2 m tall. Do not spray during summer drought stress conditions or in winter. Spray to wet all foliage. Seedling germination may have to be re-treated.

Hawthorn (<i>Crataegus</i> spp.)	NSW, ACT, VIC, TAS, WA, SA only	800 mL- 1 L	120-160 mL	Spray from flowering to leaf fall when plants are actively growing. Use the higher rate for plants over 2 m tall. Spray to thoroughly wet all foliage. Seedling regrowth may have to be retreated.
Lantana (<i>Lantana camara</i>)	NSW, QLD only	800 mL	120 mL	Apply to plants with full foliage which are actively growing. Spray to thoroughly wet all foliage and individual plants. Seedling regrowth may have to be retreated.
Mistflower (<i>Eupatorium riparium</i>)	NSW, ACT, QLD only	400 mL	60 mL	Apply to plants with full foliage which are actively growing. Spray to thoroughly wet all foliage. Seedling regrowth may have to be retreated.
Sifton Bush/ Chinese Scrub (<i>Cassinia arcutata</i>)	NSW, ACT, QLD only	800 mL or 1 L	120 or 160 mL	Apply to actively growing plants ensuring complete coverage. Seedling regrowth may have to be retreated. For high volume application use the higher rate when bushes are over 1 m For Wiper application a double pass application is required. Best results are achieved if bushes are less than 1 m tall and are green at time of application.
Sweet Briar (<i>Rosa rubiginosa</i>)	NSW, ACT, VIC, TAS, WA, SA only	1.2 L or 1.6 L	180 or 240 mL	Apply from late flowering to leaf fall to actively growing plants. Spray to thoroughly wet all foliage Use the higher rate for bushes over 1.5m tall. Seedling regrowth may have to be retreated.

GENERAL USES
FOR USE IN ALL STATES UNLESS SPECIFIED

SITUATION	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Agricultural areas	See Weeds Controlled Table for Annual and Perennial Weeds and Brush and Woody Weeds	See Weeds Controlled tables	For the control of weeds listed in "Weeds Controlled" prior to sowing of any crop.
Dry drains and channels, dry margins of dams, lakes and streams situations			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 the water. DO NOT allow water to return to dry channels and drains within 4 days of application.
Domestic areas (home gardens), Commercial and Industrial Areas, Public Service Areas, Rights of Way		8 mL per litre of water	<ul style="list-style-type: none"> * Ensure weeds are actively growing at time of application. * Complete and uniform coverage is necessary to ensure the best results. * Symptoms may take 3-21 days to appear. * NO residual control is provided.
Forestry Situations		See Weeds Controlled tables	<p>The product may be used:</p> <ol style="list-style-type: none"> 1. In site preparation before planting. 2. Before establishment of nurseries. 3. Amongst established trees by using selective wiper equipment, directed or shielded spray. The product must NOT contact foliage or green bark of desirable trees. The wiper should not contact any part of the tree.
HORTICULTURAL CROPS Avocado, Bananas, Blueberries, Citrus fruits, Custard Apples, Duboisia, Figs (Dessert), Guava, Kiwifruit, Litchi, Mango, Monstera, Nuts (Almond, Pecan, Macadamia, Pistachio, Walnut), Olives, Paw Paw, Persimmon, Pome Fruit, Stone Fruit, Raspberries, Tea, Vineyards.			<p>The product can be used as a shielded or directed spray, or using Wiper equipment.</p> <p>DO NOT apply near trees or vines less than 3 years old unless they are adequately protected from spray and spray drift.</p> <p>DO NOT allow spray or spray drift to contact bark, leaves, wounds or any other plant parts as severe injury may occur.</p> <p>Tea - Apply a maximum of 3.2 L/ha by a shielded spray or a directed off centre nozzle or 0.4 L/100L by directed handgun or knapsack to avoid injury to the crop</p>
Pasture			<p>The product may be used by the following method:</p> <ul style="list-style-type: none"> *Spot application – To remove weeds by spot application within a pasture. This product is non-selective and may damage or kill any plant in the sprayed area. To prevent seedling re-establishment pasture improvement and/or retreatment may be necessary. *Boom application – This product may be used to suppress or kill existing pasture prior to reseeding or establishment of other crops. * Selective application- See Wiper equipment under General Instructions.

Peanuts, Cotton, Soybeans & Sugar Cane (USING SELECTIVE APPLICATION EQUIPMENT ONLY) QLD, NSW ONLY	See Weeds Controlled Table for Annual and Perennial Weeds and Brush and Woody Weeds	See Weeds Controlled tables	WIPER EQUIPMENT Apply to the weeds growing between the rows or to weeds growing at least 15 cm above the crop. DO NOT allow the herbicide to contact the crop or to drip from the applicator as serious crop injury may occur. SHEILDED SPRAYERS (Cotton only) Apply to the weeds growing between the rows using a shielded sprayer. DO NOT apply unless the crop is at least 20 cm high. DO NOT allow herbicide or drift to contact crop.
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NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION