CAUTION

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

Sabakem

Glufosinate 400®

Herbicide

ACTIVE CONSTITUENT: 400 g/L GLUFOSINATE-AMMONIUM

GROUP N HERBICIDE

For the non-residual control of broadleaf and grass Weeds in various situations as indicated in the Directions for Use.

IMPORTANT: READ THIS LEAFLET BEFORE OPENING OR USING THIS PRODUCT

Sabakem Pty Ltd ABN 34 151 682 138
Suite 809, Level 8, 2 Queen Street, Melbourne VIC 3000
Tel: 03 9629 3979 • Fax: 1300 242 436
www.sabakem.com

Leaflet_0919
APVMA Approval No: 88062/120172

DIRECTIONS FOR USE

RESTRAINTS: DO NOT apply by aircraft.
DO NOT apply when rain is expected within 6 hours.
DO NOT apply to weeds under stress due to, for example, very dry, very wet, frosty or diseased conditions.
DO NOT apply under hot dry conditions (temperatures above 33^{0}C with a relative humidity below 50%).

CROP / SITUATION	WEED	STATE	RATE	WHP	CRITICAL COMMENTS
Blackberry, boysenberry, loganberry, raspberry	Primocane and sucker control	NSW, Vic, Tas only	250mL/ 500L water	Nil	Apply as a directed spray to suckers and primocanes. Contact with flowers, developing fruit or desirable foliage will cause damage. Ensure complete coverage of primocanes/ suckers by spraying to the point of runoff, preferably when they are less than 15cm high. Wetting agent may be added at a rate of 25mL/100L or equivalent.
Avocado, banana, feijoa, guava, kiwifruit, litchi, mango, pawpaw, passionfruit, pineapple, rambutan plantations	See list of weeds controlled in tables 1 and 2.	Qld, NSW, Vic, SA, WA, NT only	0.5 to 2.5 L/ha	Nil	Apply as a directed or shielded spray. Refer to the label section Application Equipment for specific information on application methods. Controlled Droplet Application equipment must not be used for application in cherry orchards. **Warnings:** DO NOT apply spray or spray drift to contact desirable foliage or green (uncalloused) bark. To avoid potential crop damage, refer to the label sections on Application Equipment and **PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS.** Sabakem Glufosinate 400 Herbicide may be used around trees/vines less than two years old provided they are effectively shielded from spray and spray drift. The recommended rate of use is determined by the following criteria: WEED SPECIES WEED GROWTH STAGE WEED DENSITY CLIMATIC CONDITIONS **WEED SPECIES** Apply the appropriate rate to control the least susceptible weed present as per the lists of weeds controlled in the accompanying tables. **WEED STAGE OF GROWTH** Use the lower rate when weeds are young and succulent (grasses: pre-tillering; broadleaves: cotyledons to 4-leaf) or the population is very sparse. A median rate should be used for medium sized plants (grasses: tillering; broadleaves: 4-leaf to advanced vegetative) and the high rate should be used when weeds are mature (grasses: noding to flowering; broadleaves: budding to flowering). **WEED DENSITY** Use the higher rates when the weed population is dense. **Thorough coverage of weeds is essential for good control.** **CLIMATIC CONDITIONS** Best results are achieved when applied under warm humid conditions. Control will be reduced and/or slower under cold conditions and/or overcast conditions. Good results will be achieved under most other conditions, however poor results may occur under hot dry conditions (temperature above 33^{0}C with a relative humidity below 50%). Weeds that have been hardened or stunted in growth due to stressed conditions should be treated at the maximum rate. **COVERAGE** Complete coverage of weeds is essential for good control. Poor coverage may result in re-growth. **PERENNIAL WEEDS** Apply when weeds are actively growing. Follow-up treatments will be necessary to control re-growth of perennial weeds in most cases.
Citrus orchards		All States		Nil	
Olive plantations					
Pome and stone fruit orchards				21 days (H)	
Tree nut plantations Vineyards				Nil	
Strawberries, cane berry fruits (inter-row	See lists of weeds controlled in Tables 1 and 2	All States	0.5 to 2.5 L/ha	Nil	Apply as a directed or shielded spray to the inter-row area. Take care not to allow spray or spray drift to contact the crop, including strawberry runners. Refer to GENERAL INSTRUCTIONS for warnings concerning plastic mulch and fumigated/sterilised soil. Determine the recommended rate of use by considering the criteria WEED SPECIES, WEED STAGE OF GROWTH, WEED DENSITY and CLIMATIC CONDITIONS, as described above.
Tomatoes (inter-row)					
Commercial & Industrial areas, rights-of-way and other non-agricultural areas including public service areas, roadsides, railways and beneath electrical transmission towers.	See lists of weeds controlled in Tables 1 and 2	All States	0.5 to 3.0 L/ha	–	Determine the recommended rate of use by considering the criteria WEED SPECIES, WEED STAGE OF GROWTH, WEED DENSITY and CLIMATIC CONDITIONS as described above. Warnings: Do not allow spray or spray drift to contact desirable plants. To avoid potential crop damage, refer to the label sections on Application Equipment and PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS.

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

WITHHOLDING PERIOD (WHP)

HARVEST (H)
Avocado, banana, feijoa, guava, kiwifruit, litchi, mango, pawpaw, passionfruit, pineapple, rambutan, blackberry, boysenberry, loganberry, raspberry, citrus fruit, grapes, strawberries, tomatoes, tree nuts: NOT REQUIRED WHEN USED AS DIRECTED.

Pome and stone fruit, olives: DO NOT HARVEST FOR 21 DAYS AFTER APPLICATION.

GRAZING (G)
DO NOT GRAZE OR CUT TREATED AREAS FOR STOCKFOOD FOR 8 WEEKS AFTER APPLICATION.

GENERAL INSTRUCTIONS
Sabakem Glufosinate 400 Herbicide is a non-volatile herbicide with activity against many annual and perennial broadleaf weeds and grasses.

Sabakem Glufosinate 400 Herbicide is absorbed by plant foliage and green stems. It is not significantly translocated as an active herbicide throughout the plant, and therefore will only kill that part of a green plant that is contacted by spray. Sabakem Glufosinate 400 Herbicide does not provide residual weed control. Visible symptoms of control appear in 3 to 7 days, but complete desiccation may take 20 to 30 days under cool conditions.

Best results are achieved when application is made under good growing conditions. Application to weeds under stress (e.g. due to continuous severe frosts, dry or waterlogged conditions) should be avoided.

Soil fumigation / sterilisation
Sabakem Glufosinate 400 Herbicide is metabolised (broken down) by microorganisms in the soil to become inactive. Soil fumigation or sterilisation will reduce the number of microorganisms present, thus slowing the breakdown of Sabakem Glufosinate 400 Herbicide. As damage to transplants or seedlings may occur, it is not advisable to apply Sabakem Glufosinate 400 Herbicide in conjunction with soil fumigation or sterilisation.

Plastic mulches
Sabakem Glufosinate 400 Herbicide will remain active on inert surfaces such as plastic. Special care should be taken when applying Sabakem Glufosinate 400 Herbicide over plastic mulches, as plant contact with the mulch after spraying may result in crop damage.

RESISTANT WEEDS WARNING

GROUP N HERBICIDE

Sabakem Glufosinate 400 Herbicide is a member of the glycine group of herbicides. Sabakem Glufosinate 400 Herbicide has the inhibitor of glutamine synthetase mode of action. For weed resistance management Sabakem Glufosinate 400 Herbicide is a Group N herbicide. Some naturally occurring weed biotypes resistant to Sabakem Glufosinate 400 Herbicide, and other Group N herbicides which inhibit glutamine synthetase, 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 Sabakem Glufosinate 400 Herbicide or other Group N herbicides. Since the occurrence of resistant weeds is difficult to detect prior to use, Sabakem Pty Ltd accepts no liability for any losses that may result from the failure of Sabakem Glufosinate 400 Herbicide to control resistant weeds.

Export of Treated Produce
Growers should note that suitable MRLs or import tolerances may not be established in all markets for produce treated with Sabakem Glufosinate 400 Herbicide Herbicide. If you are growing produce for export, please check with Sabakem Pty Ltd for the latest information on MRLs and import tolerances BEFORE using Sabakem Glufosinate 400 Herbicide Herbicide.

COMPATIBILITY
Sabakem Glufosinate 400 Herbicide is compatible with most residual herbicides e.g. simazine, diuron, oxyfluorfen, norfluazuron, and oryzalin, and with glyphosate and metsulfuron. The addition of a wetting agent or other adjuvant is generally not considered necessary, (refer to the Directions for Use table). However, benefit has been obtained using a wetting agent or adjuvant on hard-to-wet weeds when using water rates in excess of 500 L/ha. The rate is 25 mL/100 L of a 1000 g/L non-ionic wetting agent, or equivalent. For information on compatible wetting agents and adjuvants, contact your local Sabakem Pty Ltd representative.

MIXING
Sabakem Glufosinate 400 Herbicide mixes easily with water. Clean water should always be used for mixing with Sabakem Glufosinate 400 Herbicide. Ensure that the spray tank is free of any residues of previous spray materials. Two-thirds fill the spray tank with clean water, and with agitator operating add the required amount of Sabakem Glufosinate 400 Herbicide. Add other relevant compatible products. Top the tank up to the required volume with clean water with agitator running.

APPLICATION EQUIPMENT
Ground Sprayers
Aim to apply a thorough and even coverage of spray to the target plant. Dense stands of weeds should be thoroughly wetted with spray. Incomplete coverage may result in poor control. Equipment should be such that adequate coverage, penetration and volume of spray liquid can be achieved.

Boom or Directed Sprayer Equipment
Sabakem Glufosinate 400 Herbicide should be applied at label rates (refer to specific column in the lists of weeds controlled) in sufficient water to give thorough coverage of weeds. It has been found that 300 to 500 L/ha has given good results under most weed conditions. Special care must be taken when using sprayer/slasher combination units not to cause dust and turbulence, which can carry spray into non-target areas.

Knapsack and Handgun Equipment
Sabakem Glufosinate 400 Herbicide should be applied at label rates (refer to specific columns in the lists of weeds controlled) in adequate water to thoroughly wet the weeds being sprayed, i.e. 500 to 1000 L/ha. Dense stands will require up to 1000 L/ha of spray mixture, whereas less dense stands will require less water. High volume application using hollow-cone nozzles for hand spraying is recommended.

Controlled Droplet Application (CDA) Equipment
Sabakem Glufosinate 400 Herbicide may be applied through CDA row spraying equipment fitted with a solid (impermeable) shroud or skirt, at rates as recommended for boom or directed sprayers (refer to specific column in the lists of weeds controlled), provided thorough spray coverage of weeds can be achieved. Apply preferably when weeds are less than 15 cm in height, with the equipment set up so that the spray dome only just touches the tops of the weeds. A total spray volume of 20 to 30 L/ ha has been found to give good results. DO NOT mix residual herbicides or any spray adjuvants with Sabakem Glufosinate 400 Herbicide when using CDA equipment.

Warning: Because the spray solution is highly concentrated particular care must be taken when using Sabakem Glufosinate 400 Herbicide through CDA equipment to avoid contact of the spray solution with any part of the crop trunk or canopy. DO NOT apply Sabakem Glufosinate 400 Herbicide through equipment fitted with bristle skirts. Particular care should be taken when using CDA equipment around green or uncalloused bark.

Please refer to PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS. CDA equipment must not be used for application in cherry orchards.

Sprayer cleanup
Clean all equipment after use by thoroughly flushing with water.

Aircraft
Do not apply by aircraft.

PRECAUTIONS
Re-entry period: DO NOT allow entry into treated areas until the spray has dried.
DO NOT allow bystanders to come into contact with the spray cloud

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT
DO NOT contaminate streams, rivers or waterways with this product or the used container.

PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS
DO NOT apply under weather conditions, or from spraying equipment, that may cause spray to drift onto nearby susceptible plants/crops, cropping lands or pastures. DO NOT apply on desirable foliage or allow spray to drift onto the foliage of desirable plants, trees or vines, as damage will occur. DO NOT allow product to contact green or uncalloused bark (such as on desirable young trees and vines) or cut, cracked, damaged or wounded tissue, where the affected surface is not adequately healed. Sabakem Glufosinate 400 Herbicide may be used around desirable trees/vines less than two years old provided they are effectively shielded from spray and spray drift. DO NOT allow desirable plant foliage to contact any inert surface, such as plastic mulches, which have been treated with Sabakem Glufosinate 400 Herbicide. DO NOT apply Sabakem Glufosinate 400 Herbicide to recently fumigated or sterilised soil.

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. DO NOT re-use empty container for any other purpose.

SAFETY DIRECTIONS
Harmful if inhaled. Will irritate the eyes and skin. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. Avoid contact with eyes and skin. DO NOT inhale spray mist. When opening the container and preparing the spray, wear cotton overalls, over normal clothing, buttoned to the neck and wrist and a washable hat, elbow-length chemical resistant gloves and goggles. If applying by boomspray equipment, wear cotton overalls, over normal clothing, buttoned to the neck and wrist, and elbow-length chemical resistant gloves. In addition, wear cotton overalls, over normal clothing, buttoned to the neck and wrist and a washable hat, and a half piece respirator if applying by low pressure hand wand. If product in eyes, wash it out immediately with water. Wash hands after use. After each days use wash gloves and goggles and contaminated clothing and respirator and if rubber wash with detergent and warm water .

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

SAFETY DATA SHEET
For further information refer to the Safety Data Sheet (SDS), which can be obtained from the supplier.

CONDITIONS OF SALE
The use of this product is beyond the control of Sabakem Pty Ltd. No warranty is expressed or implied regarding the suitability or efficiency for any purpose for which it is used by the buyer. Sabakem Pty Ltd accepts no responsibility for any consequences resulting from the use of this product. Sabakem Pty Ltd will not be held liable for any loss, injury or damage arising from the sale, supply or use of this product, whether through negligence or otherwise. No responsibility will be accepted for any consequences whatsoever resulting from the use of this product.

Additional statements required by Globally Harmonised System of Classification and Labelling of Chemicals (GHS) and Safe Work Australia: May damage fertility of the unborn child. May cause damage to organs through prolonged and repeated exposure.

Table 1. Recommendations for weed control (except when referred to Table 2)

Common Name	Scientific Name	Application Rates		
		Boom or Directed Sprayer L/ha	Handgun mL/100L	Knapsack mL/15L
ANNUAL WEEDS				
Awnless barnyard grass	*Echinochloa colona*	1.25 to 1.75	175	26.5
Barley grass	*Hordeum leporinum*	1.0 to 1.5	150	22.5
Barnyard grass	*Echinochloa crus-galli*	1.0 to 2.5	250	37.5
Billy goat weed	*Ageratum conyzoides*	1.0 to 2.5	250	37.5
Bitter cress	*Cardamine hirsute*	1.0 to 2.5	250	37.5
Black bindweed (buckwheat) (refer Note 2)	*Fallopia convolvulus*	0.9 to 2.5	250	37.5
Bladder ketmia	*Hibiscus trionum*	1.5 to 2.5	250	37.5
Bordered panic	*Entolasia marginata*	1.0 to 2.0	200	30
Brome grass (refer Note1)	*Bromus* spp.	1.0 to 1.5	150	22.5
Calopo	*Calopogonium mucanoides*	1.0 to 2.5	250	37.5
Caltrop burr (refer also Table 2)	*Tribulus terrestris*	1.5 to 2.5	250	37.5
Capeweed	*Arctotheca calendula*	0.75 to 2.5	250	37.5
Clover (subterranean)	*Trifolium subterranean*	0.9 to 1.5	150	22.5
Cobbler's peg	*Bidens pilosa*	1.0 to 2.5	250	37.5
Common storksbill	*Erodium cicutarium*	0.75 to 2.0	200	30
Crowsfoot grass	*Eleusine indica*	1.5 to 2.5	250	37.5
Deadnettle (refer also Table 2)	*Lamium amplexicaule*	1.0 to 2.5	250	37.5
Dwarf crumbweed	*Chenopodium pumilo*	1.5 to 2.5	250	37.5
Fat hen	*Chenopodium album*	1.5 to 2.5	250	37.5
Fumitory	*Fumaria officinalis*	0.9 to 2.5	250	37.5
Green crumbweed	*Chenopodium carinatum*	1.0 to 2.5	250	37.5
Lesser canary grass (refer also Table 2)	*Phalaris minor*	1.5 to 2.5		
Liverseed grass (refer also Table 2)	*Urochloa panicoides*	0.75 to 2.5	250	37.5
Medics (annual)	*Medicago spp.*	0.5 to 2.5	250	37.5
Milk thistle	*Sonchus oleraceus*	1.0 to 2.5	250	37.5
Mint weed	*Salvia reflexa*	1.5 to 2.5	250	37.5
New Zealand spinach	*Tetragonia tetragoniodes*	1.0 to 2.5	250	37.5
Patterson's Curse	*Echium plantagineum*	0.5 to 1.5	150	22.5
Peanuts	*Arachis hypogaea*	0.75 to 1.5	150	22.5
Pigweed	*Portulaca oleracea*	1.5 to 2.5	250	37.5
Pinkburr	*Urena lobata*	1.0 to 2.5	250	37.5
Potato weed	*Galinsoga parviflora*	1.0 to 2.5	250	37.5
Praire grass (refer Note 1)	*Bromus unioloides*	2.0 to 2.5	250	37.5
Prickly lettuce	*Lactuca serriola*	1.5 to 2.5	250	37.5
Red natal grass	*Rhynchelytrum repens*	1.0 to 2.5	250	37.5
Ryegrass (annual)	*Lolium rigidum*	1.0 to 2.5	250	37.5
Saffron thistle	*Carthamus lanatus*	0.75 to 2.5	250	37.5
St. Barnby's thistle	*Centaurea solstitialis*	0.75 to 2.5	250	37.5
Sago weed	*Plantago cunninghamii*	1.0 to 1.5	150	22.5
Scarlet pimpernel	*Anagallis arvensis*	1.0 to 2.5	250	37.5
Setaria	*Setaria italica*	1.0 to 2.5	250	37.5
Sheep thistle	*Carduus tenuiflorus*	1.25 to 2.5	250	37.5
Silver grass	*Vulpia myuros*	1.0 to 2.5	250	37.5
Sorghum/sudax	*Sorghum bicolor*	1.0 to 2.5	250	37.5
Square weed	*Spermacoce latifolia*	1.0 to 2.5	250	37.5
Stagger weed	*Stachys arvensis*	1.0 to 2.5	250	37.5
Star of Bethlehem	*Ipomoea quamoclit*	1.0 to 2.5	250	37.5
Summer grass	*Digitaria cillaris*	1.0 to 2.5	250	37.5
Thickhead	*Crassocephalum crepidioides*	1.5 to 2.5	250	37.5
Three Cornered Jack	*Emex australis*	1.0 to 2.5	250	37.5
Tomato	*Lycopersicon esculentum*	1.0 to 2.5	250	37.5
Turnip weed	*Rapistrum rugosum*	1.5 to 2.5	250	37.5
Variegated thistle (refer also Table 2)	*Silybum marianum*	1.25 to 2.5	250	37.5
Wheat	*Triticum eastivum*	2.0 to 2.5	250	37.5
Wild carrot	*Daucus glochidiatus*	1.0 to 2.5	250	37.5
Wild gooseberry	*Physalis minima*	1.0 to 2.5	250	37.5
Wild mustrad	*Sysimbrium orientale*	1.0 to 2.5	250	37.5
Wild oats (refer also Table 2)	*Avena* spp.	1.5 to 2.5	250	37.5
Wild radish	*Raphanus raphanistrum*	2.5	250	37.5
Wire weed (refer also Table 2)	*Polygonum aviculare*	0.75 to 2.5	250	37.5
PERENNIAL WEEDS				
Blady grass	*Imperata cylindrica*	1.5 to 2.0	200	30
Cape tulip	*Homeria* spp.	1.0 to 1.5	150	22.5
Centro	*Centrosema pubescens*	0.5 to 2.5	250	37.5
Clover glycine	*Glycine latrobeana*	0.5 to 1.5	150	22.5
Couch grass	*Cynodon dactylon*	1.25 to 2.5	250	37.5
Cow pea	*Vigna unguiculata*	0.5 to 1.5	150	22.5
Giant sensitive plant	*Mimosa invisa*	1.0 to 2.5	250	37.5
Greenleaf desmodium	*Desmodium intortum*	0.5 to 1.5	150	22.5
Johnson grass	*Sorghum halepense*	1.5 to 2.5	250	37.5
Panicum spp.	*Panicum* spp.	1.0 to 2.5	250	37.5
Paspalum spp.	*Paspalum* spp.	1.5 to 2.5	250	37.5
Perennial bindweed	*Convolvulus arvensis*	1.0 to 1.5	150	22.5
Shamrock	*Oxalis corymbosa*	1.5	150	22.5
Sida weed (refer also Table 2)	*Sida retusa*	1.5 to 2.5	250	37.5
Silver leaf desmodium	*Desmodium uncinatum*	2.0 to 2.5	250	37.5
Siratro	*Macroptilium atropurpureum*	0.5 to 1.5	150	22.5
Stink grass	*Eragrostis cilianensis*	1.5 to 2.5	250	37.5
White clover	*Trifolium repens*	1.5 to 2.5	250	37.5
White eye	*Richardia brasiliensis*	1.5 to 2.5	250	37.5
Willow herb	*Epilobium* spp.	2.0 to 2.5	250	37.5

Notes:

1. Well-established clumps of Prairie grass and Brome grasses may only be suppressed at these rates. Follow-up treatments may be necessary to control re-growth.
2. Good control will be achieved on small and medium sized plants only in non-crop situation.

Table 2. For control of weeds in Commercial and Industrial areas, rights-of-way and other non- agricultural areas (when referred from Table 1)

Common Name	Scientific Name	Application Rates		
		Boom or Directed Sprayer L/ha	Handgun mL/100L	Knapsack mL/15L
ANNUAL WEEDS				
Caltrop burr	*Tribulus terrestris*	2.0 to 2.5	250	37.5
Dead nettle	*Lamium amplexicaule*	3.0	300	45
Lesser canary grass	*Phalaris minor*	2.0 to 3.0	300	45
Liverseed grass	*Urochloa panicoides*	0.75	75	11.5
Variegated thistle	*Silybum marianum*	3.0	300	45
Wild oats	*Avena* spp.	2.5 to 3.0	300	45
Wire weed	*Polygonum aviculare*	1.0 to 2.5	250	37.5
PERENNIAL WEEDS				
Sida weed	*Sida retusa*	2.0 to 2.5	250	37.55