

# Muscle Up®

## 500 SG



HERBICIDE

Reg. No. L7641 Act No. 36 of 1947

**READ LABEL BEFORE USE**  
**KEEP OUT OF REACH OF CHILDREN AND ANIMALS**

**HRAC HERBICIDE GROUP CODE 9**

Muscle Up® 500 SG is a water-soluble granule, non-selective systemic herbicide with little or no soil activity, for use as a post-emergent treatment on annual and perennial weeds.



**DANGER**

### ACTIVE INGREDIENT

**GLYPHOSATE (GLYCINE)**  
(Glyphosate sodium salt)

500 g/kg  
588 g/kg

#### HAZARD STATEMENTS:

Causes mild skin irritation.  
Causes serious eye irritation.  
Toxic to aquatic life with long lasting effects

#### PRECAUTIONARY STATEMENTS:

Wear face shield and protective goggles.  
Avoid release to the environment.

**Registration Holder:** Rolfes Agri (Pty) Ltd.  
(Reg. No. 1998/013411/07) • 288 Mundt Street, Waltloo, 0184  
Gauteng, RSA. • Tel: (012) 803-0145

**Emergency contact details**  
Office Hour Poisoning Helpline  
Rolfes Agri (Pty) Ltd.  
Tel: +27 (12) 803 0145

#### Spill Response and Spill incidents

Spill Tech, Oil and chemical pollution control  
Tel: +27 (86) 100 0366 / +27 (83) 253 6618  
[www.spilltech.co.za](http://www.spilltech.co.za)

Store at room temperature • Keep out of direct sunlight  
Keep container closed when not in use



LIFT HERE

## WARNINGS:

- Re-entry interval: Do not enter treated area until spray deposit has dried unless wearing protective clothing.

Although this remedy has been extensively tested under a large variety of conditions, the registration holder does not warrant that it will be efficacious under all conditions because the action and effect thereof may be affected by factors such as abnormal soil, climatic and storage conditions; quality of dilution water, compatibility with other substances not indicated on the label and the occurrence of resistance of the weed against the remedy concerned, as well as by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment, or harm to man or animal or for lack of performance of the remedy concerned due to failure of the user to follow the label instructions or to the occurrence of conditions, which could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.

## PRECAUTIONS:

- If medical advice is needed, have container or label at hand.
- Keep out of reach of children.
- Read carefully and follow all instructions.
- Wash affected area thoroughly after handling. Do not touch eyes.
- Wear protective gloves, face shield and protective goggles.
- Avoid release to the environment.
- IF ON SKIN: Wash with plenty of water.
- Specific treatment (see product SDS)
- If skin irritation occurs: Get medical help.
- Take off contaminated clothing and wash it before reuse.
- IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
- Get medical help.
- Collect spillage.
- Empty all pesticides from the container by placing it upside down over the spray tank and holding it there for at least 30 seconds. Puncture the rinsed container to render it useless and send to a recycler. Do not use empty containers for any other purpose.

## RELEVANT SUBSTANCES:

This product contains Glyphosate Sodium Salt 50% and Poly alkylglucosides 10-30%.

## RESISTANCE WARNING:

For resistance management, **MUSCLE-UP® 500 SG** is a group code 9 herbicide. Any weed population may contain individuals naturally resistant to **MUSCLE-UP® 500 SG** and other group code 9 herbicides. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds may not be controlled by **MUSCLE-UP® 500 SG** or any other group code 9 herbicides. To delay herbicide resistance:

- Avoid exclusive repeated use of herbicides from the same herbicide group code. Alternate or tank mix with registered products from different herbicide group codes.
- Integrate other control methods (chemical, cultural, biological) into weed control programmes.

For specific information on resistance management contact the registration holder of this product.

## DIRECTIONS FOR USE:

 Use only as indicated.

1. The efficacy of **MUSCLE-UP® 500 SG** is significantly improved when used in combination with **POWER-UP®**. Use only clean water in spray mixture and add **POWER-UP®** according to label recommendations before adding **MUSCLE-UP® 500 SG** to the spray water.
2. Always ensure that spray equipment is clean, and correctly calibrated before spraying.
3. Use low spray pressure (100 – 200 kPa) to avoid spray drift.
4. **MUSCLE-UP® 500 SG** is actively absorbed through leaves and immature bark of most plants and trees. Contact with immature bark, such as in trees younger than three years, can result in serious localise or translocated damage. Therefore, contact with leaves, green or immature bark and fruit of DESIRED plants, whether direct or by spray drift must be AVOIDED. Always make sure that ONLY UNDESIRED plants are treated. Do not spray onto pruned vines or fruit trees until wounds have sealed properly.
5. **MUSCLE-UP® 500 SG** is a non-selective systemic herbicide and is only active when applied to the green foliage and bark of plants. The visible effect of **MUSCLE-UP® 500 SG** on treated foliage usually appears at 10 – 14 days after treatment but may vary according to weather conditions.
6. **MUSCLE-UP® 500 SG SG** should be applied to actively growing weeds that are not dormant or under temperature or moisture stress.
7. Rain or irrigation a few days prior to a **MUSCLE-UP® 500 SG** application ensures that weeds are actively growing, resulting in optimum efficacy. Rain or irrigation within 6 hours of application can reduce **MUSCLE-UP® 500 SG** efficacy. Do not spray on weed foliage covered with a layer of dust. In these situations, apply after recent rain.
8. **MUSCLE-UP® 500 SG** has NO pre-emergence activity; therefore, repeat applications are necessary when applied on its own to control weeds germinating from seed. Ensure that target weeds are fully exposed to the **MUSCLE-UP® 500 SG** spray.

## MIXING INSTRUCTIONS:

Half fill the spray tank with clean water and then add the required quantity of **POWER-UP®** and then **MUSCLE-UP® 500 SG**. Finish filling spray tank to the required volume with clean water, ensuring thorough agitation. When using tank mixes, the additional herbicide should be added after **MUSCLE-UP® 500 SG**. Continuous agitation before and during spraying is required.

## APPLICATION:

- Remove sediments, e.g. residues of WP pesticides, from spray tanks before adding **MUSCLE-UP® 500 SG**.
- Always ensure that the spray applicators are clean and free of rust and dust.
- Avoid the use of hard or muddy water, or water with a high colloidal content derived from soils high in organic matter.
- Correctly calibrate all sprayers under field conditions prior to application.
- It is not necessary to spray to the point of run-off, but it is essential to ensure complete coverage of the target weed.
- EVEN application is essential for good results.
- **MUSCLE-UP® 500 SG** can be applied with conventional ground equipment i.e. tractor mounted booms, knapsack, etc.
- Optimum spray deposits are obtained with ground equipment calibrated to spray 30 – 600 litre/ha with suitable nozzles to ensure adequate coverage.
- Use only the pressures recommended for specific nozzles to avoid drift.
- Where drift is a problem, do not exceed 2 Bar.

## APPLICATION RATES:

**MUSCLE-UP® 500 SG** will control most emerged annual weeds germinating from seed in situations such as fallow land, pre-plant of crops, reduced or conservation tillage, perennial vine and tree crops. The dosage rate applied will depend on the weed growth stage – the higher recommended dosage rate should be used on older and more established weeds.

## CONTROL OF PERENNIAL WEEDS

NOXIOUS WEEDS	DOSAGE RATE		REMARKS
	PER HA	PER 100 ℓ WATER	
Red Sesbania <i>Sesbania punicea</i>	2,2 kg	1,5 kg 1,5 – 2,0kg	<b>Seedling plants less than 1 m high:</b> Use 1,5% solution <b>Tall shrubs:</b> Slash, spray regrowth with 1,5 – 2 % solution at 1m high.
Bugweed <i>Solanum mauritianum</i>	1,5 kg	1,5 kg	Apply in spring or summer. Large trees: Cut to 50cm, allow new growth of at least 50 cm before application.

## CONTROL OF PERENNIAL GRASSES:

GRASSES	DOSAGE RATE		REMARKS
	PER HA	PER 100 ℓ WATER	
Common couch <i>Cynodon dactylon</i>	4,3 kg  6,5 kg	-  -	<b>Summer rainfall area:</b> Apply to actively growing grasses in autumn or summer. If re-growth occurs, spray with 2,5 % solution. <b>Winter rainfall area:</b> As above in autumn.
Weeping love grass <i>Eragrostis curvula</i>	2,2 kg	1,5 kg	Apply to actively growing grasses in autumn or summer.
Common paspalum <i>Paspalum dilatatum</i>	4,3 kg	3,0 kg	Apply in summer at flower, but before seed drop. If re-growth occurs, spray with 1,5 % solution.
<i>Couch paspalum</i> <i>Paspalum paspalodes</i>	5,8 – 6,5 kg	-	Apply in summer at flowering but before seed drop. If re-growth occurs, spray with 2 % solution or 2,9 kg/ha. Apply the higher rate in the winter rainfall area.
<i>Common buffalo grass</i> <i>Panicum maximum</i>	4,3 kg	3,0 kg	Apply to actively growing grasses in the early growth stage. If re-growth occurs, spray with 1,5 % solution.
<i>Kikuyu</i> <i>Pennisetum clandestinum</i>	2,9 kg	1,5 kg	Apply in summer to actively growing grasses. If re-growth occurs, spray with 1,5 % solution.

GRASSES	DOSAGE RATE		REMARKS
	PER HA	PER 100 ℓ WATER	
<i>Bush buffalo grass</i> <i>Setaria megaphylla</i>	4,3 kg	3,0 kg	Apply to actively growing grasses in autumn or summer. If re-growth occurs, spray with 1,5 % solution.
<i>Johnson grass</i> <i>Sorghum halepense</i>	2,9 kg	2,0 kg	Apply in summer or autumn. If re-growth occurs, spray with 1,5 % solution.
<i>Common wild sorghum</i> <i>Sorghum verticilliflorum</i>	1,5 kg	1,5 kg	Apply to actively growing grasses in summer or autumn.

## CONTROL OF PERENNIAL SEDGES:

SLEDGES	DOSAGE RATE		REMARKS
	PER HA	PER 100 ℓ WATER	
Yellow nutsedge <i>Cyperus esculentus</i>	4,3 kg	-	Apply in summer at pre-flowering stage. If regrowth occurs, spray with 1,5% solution or 2,2 kg /ha.
Purple nutsedge <i>Cyperus rotundus</i>	4,3 kg	-	The best results will be obtained when applied in February/March.

**CONTROL OF ANNUAL WEEDS:**

Recommended MUSCLE UP® 500 SG rates for annual broadleaf weeds:

Dosage rate	0,75 – 1,5 kg/ha	1, 5 kg/ ha	2,2 kg/ha
Growth stage	1 – 12 leaf stage	12 leaf stage – pre -bloom	Flowering
Khaki burweed	<i>Alternanthera pungens</i>		
Cape pigweed	<i>Amaranthus hybridus</i>		
Thorny pigweed	<i>Amaranthus spinosus</i>		
Red pigweed	<i>Amaranthus thunbergii</i>		
Free State daisy	<i>Arctotis venusta</i>		
Mexican poppy	<i>Argemone subfusiformis</i>		
Black jack	<i>Bidens pilosa</i>		
White goosefoot	<i>Chenopodium album</i>		
American goosefoot	<i>Chenopodium ambrosioides</i>		
Green goosefoot	<i>Chenopodium carinatum</i>		
Nettle-leaved goosefoot	<i>Chenopodium murale</i>		
Canada thistle	<i>Cirsium arvense</i>		
Bitter apple	<i>Citrullus lanatus</i>		
Tall fleabane*	<i>Conyza albida*</i>		
Wild cucumber	<i>Cucumis spp.</i>		
Large thorn apple	<i>Datura ferox</i>		
Thorn apple	<i>Datura stramonium</i>		
Gallant soldier	<i>Galinsoga parviflora</i>		
Gisekia	<i>Gisekia pharmaceioides</i>		
Wild gooseberry	<i>Physalis angulata</i>		
Jersey cudweed	<i>Pseudognaphalium luteo-album</i>		
Cudweed	<i>Pseudognaphalium undulatum</i>		
Tropical Richardia	<i>Richardia brasiliensis</i>		
Karoo bush	<i>Pentzia grandiflora</i>		
Corn spurry	<i>Spergula arvensis</i>		

Recommended MUSCLE UP® 500 SG rates for annual broadleaf grasses:

Dosage rate	1,0 – 1,5 kg/ ha	2,2 kg/ha
Growth stage	1 leaf stage to pre-bloom	Flowering
Common wild oats	<i>Avena fatua</i>	
Oats	<i>Avena spp.</i>	
Quaking grass	<i>Briza maxima</i>	
Ripgut brome	<i>Bromus diandrus</i>	
Goose grass	<i>Eleusine indica</i>	
Weeping love grass	<i>Eragrotis curvula</i>	
Oat-seed grass	<i>Ehrharta longiflora</i>	
Wild barley	<i>Hordeum murinum</i>	
Cress	<i>Lepidium africanum</i>	
Rye grass*	<i>Lolium spp*</i>	
Sweet buffalo grass	<i>Panicum schinzii</i>	
Winter grass	<i>Poa annua</i>	
Natal red-top	<i>Rhynchelytrum repens</i>	
Rye	<i>Secale cereale</i>	
Wild grain sorghum	<i>Sorghum bicolor</i>	
Large carrot-seed grass	<i>Tragus racemosus</i>	

Recommended MUSCLE UP® 500 SG rates for annual broadleaf weeds and grasses:

Dosage rate	1,0 – 1,5 kg/ha	1, 5 - 2,2 kg/ ha	2,2-2,9 kg/ha
Growth stage	1 – 12 leaf stage	12 leaf stage – pre -bloom	Flowering
Cape Marigold	<i>Arctotheca calendula</i>		
Red milkweed	<i>Chamaesyce hirta</i>		
Smooth creeping milkweed	<i>Chamaesyce inaequilatera</i>		
Feathertop chloris	<i>Chloris virgat</i>		

Wandering jew*	<i>Commelina benghalensis*</i>
Fleabane*	<i>Conyza canadensis*</i>
Tall Fleabane*	<i>Conyza albid*</i>
Swine cress	<i>Caronopus didymus</i>
Mielie crotolaria	<i>Crotalaria sphaerocarpa</i>
Spine Emex	<i>Emex australis</i>
Fumitory	<i>Fumaria muralis</i>
Kanaf	<i>Hibiscus cannabinus</i>
Bladderweed	<i>Hibiscus trinum</i>
Common morning glory	<i>Ipomoea purpurea</i>
Tall purslane	<i>Paspalum urvillei (seedlings)</i>
Wild radish	<i>Raphanus raphanistrum</i>
Little seeded canary grass	<i>Phalaris minor</i>
Dwarf marigold	<i>Schkuhria pinnata</i>
Molton disease senecio	<i>Senecio burchelli</i>
Wild sesame	<i>Sesamum triphyllum</i>
Red bristle grass	<i>Setaria pallida-fusca</i>
Sticky bristle grass	<i>Setaria verticillate</i>
Common sow thistle	<i>Sonchus oleraceus</i>
Tall khaki weed	<i>Tagetes minuta</i>
Common dubbeltjie	<i>Tribulus terrestris</i>
Speedwell	<i>Veronica spp</i>
Volunteer maize	<i>Zea mays</i>
Volunteer wheat	<i>Triticum spp.</i>

Recommended MUSCLE-UP® 500 SG rates for annual broadleaf weeds:

Dosage rate	1,8 – 2,2 kg/ha	2,2, –3,6 kg/ ha	3,6 - 4,3 kg/ha
Growth stage	1 – 12 leaf stage	12 leaf stage – pre -bloom	Flowering
Wisp	<i>Leome gynandra</i>		
Crab finger grass	<i>Digitaria sanguinalis</i>		
Barnyard grass	<i>Echinochloa crus-galli</i>		
Patterson's curse	<i>Echium lycopsis</i>		
Hairy wild lettuce	<i>Hypochoeris radicata</i>		
Common buffalo grass	<i>Panicum maximum</i>		
Narrow leaved ribwort	<i>Plantago lanceolata</i>		
Prostrate knotweed	<i>Polygonum aviculare</i>		
Tall paspalum	<i>Paspalum urvillei</i>		
Heartload sida	<i>Sida cordifolia</i>		
Nightshade	<i>Solanum nigrum</i>		
European verbena	<i>Verbena officinolis</i>		
Garden urochloa	<i>Urochloa panicoides</i>		

**Recommended MUSCLE-UP® 500 SG rates for annual broadleaf weeds:**

Dosage rate	1,0 – 4,3 kg/ha	4,3 kg/ ha	4,3 kg/ha
Growth stage	1 – 12 leaf stage	12 leaf stage – pre -bloom	Flowering
Musk heron's bill	<i>Erodium moschatum</i>		

**Recommended MUSCLE-UP® 500 SG rates for annual broadleaf weeds:**

Dosage rate	4,3 kg/ha	4,3 kg/ ha	4,3 kg/ha
Growth stage	1 – 12 leaf stage	12 leaf stage – pre -bloom	Flowering
Small mallow	<i>Malva parviflora</i>		
Evening primrose	<i>Oenothera stricta</i>		

**Recommended MUSCLE-UP® 500 SG rates for annual broadleaf weeds:**

Dosage rate	3,6 - 4,3 kg/ha	3,6 - 4,3 kg/ ha	3,6 - 4,3 kg/ha
Growth stage	1 – 12 leaf stage	12 leaf stage – pre -bloom	Flowering
Sheep sorrel	<i>Rumex angiocarpus</i>		

**Recommended MUSCLE-UP® 500 SG rates for annual broadleaf weeds:**

Dosage rate	2,9 kg/ha	5,8 kg/ ha	3 % Solution
Growth stage	1 – 12 leaf stage	12 leaf stage to pre -bloom	Flowering
Port Jackson willow	<i>Acacia saligna</i>		

**NOTES:**

- For *Malva parviflora* (small mallow) and *Oenothera stricta* (evening primrose) control, spray **MUSCLE-UP® 500 SG** at 2,2 kg/ha in combination with recommended simazine SC rate for the soil type.
- For problem *Erodium moschatum* (Musk heron's bill) (low growing type) control in grapevines and deciduous fruit: Apply 1,5 kg **MUSCLE-UP® 500 SG** prior to budburst. Regrowth must be sprayed 4 to 6 weeks later with paraquat and simazine SC. Refer to paraquat and simazine SC labels for rates and details.

**SPECIFIC RECOMMENDATIONS:**

CROP	REMARKS
Almonds, Aloes, Apples, Apricots, Avocados, Bananas, Blackberry, Cherries, Citrus, Coffee, Granadilla, Guava, Hops, Kiwi fruit, Litchies, Macadamia nuts, mangoes, Nectarines, Olives, Pawpaw, Peaches, Pears, Pecan nuts, Pineapples, Plums, Cactus pears, Prunes, Quinces, Tea	See weed tables for dosage rate of  Protect young trees with green bark from direct spray.
Vines and Fruit trees	Apply before budburst to vines older than 2 years. Younger vines with green bark should be shielded. Spray should be directed onto weeds. <b>Do not spray onto pruned vines of fruit trees until wounds have sealed properly.</b>  <b>COVER CROP DESTRUCTION IN GRAPE-VINES:</b> Apply <b>MUSCLE-UP® 500 SG</b> at 1,0 – 2,2 kg/ha. Apply 10 days or more after pruning and before budburst.
Sisal	Applications can be made to nursery and mature plants
Arable land	Use <b>MUSCLE-UP® 500 SG</b> after harvesting of previous crop. Do not disturb target plants before 6 hours after application (before planting crops) and prior to emergence of new crop.

**FORESTRY USAGE:**

SITUATION	WEED SPECIES	Dosage Rate		REMARKS
		kg/ha	% Solution (kg MUSCLE-UP® 500 SG in 100 ℓ water)	
<b>MAINTENANCE IN ESTABLISHED FORESTS</b>	Black wattle <i>Acacia mearnsii</i>	2,2	1,5	Apply to young trees up to 1 m high
	Bugweed <i>Solanum mauritianum</i>	1,5	1,5	<b>Large trees:</b> Cut to 50 cm, allow re-growth of at least 50 cm before application
			0,5	<b>Saplings:</b> Apply directly to foliage.
	American bramble <i>Rubus spp</i>	4,3	3,0	Slash rank growth in winter. Apply when new growth is more than 0,5 m high. If re-growth occurs, spray with 1,5% solution.
<b>1. FIREBREAKS</b> Either tracer belts or total area  <b>2. BAND PREPARATION FOR TREE SEEDLINGS</b> Situations suitable for such treemnets include: a) Virgin veld b) Clear felled forest	In both situations weed population would include perennials and annuals. Refer to above lists for some of the weed control.	2,9	2,0	A minimum of 200 ℓ spray mixture per hectare must be applied when using the 2% solution  A follow-up treatment may be necessary to control some hardy perennials, using a 2% solution on a spot spray basis.

CROP	DOSAGE	REMARKS
Bluegum  <i>Eucalyptus grandis</i>	5 % solution	<b>Single stem stumps:</b> Apply 50 ml solution to clean cambium area immediately after felling.
	7% solution	<b>Multistem stumps:</b> Apply 100 mℓ solution to a clean, fully exposed cambium layer immediately after felling. If re-growth occurs, spray with 2% solution.