



# Muscle-Up<sup>®</sup> K 500 SL

Reg. No. L8698 Act No. 36 of 1947

HRAC HERBICIDE GROUP CODE 9

A water-soluble concentrate non-selective, foliar applied systemic herbicide for the control of a wide range of annual and perennial weeds in agricultural, non-crop and industrial areas. May be used on glyphosate tolerant maize, soybean and cotton.

## Active Ingredient:

Glyphosate (glycine)	500 g ae/l
(Glyphosate Potassium Salt)	615 g/l



Registered, Manufactured and Distributed by:  
**Rolfes Agri (Pty) Ltd.**  
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UN NO.: 3082  
MUSCLE UP<sup>®</sup> K 500 SL IS A REGISTERED TRADEMARK OF ROLFES AGRÍ (PTY) LTD.  
SEE CONTAINER FOR BATCH DETAILS  
COUNTRY OF ORIGIN: REPUBLIC OF SOUTH AFRICA  
VERSION ROLFES AGRÍ: 12/2020



CAUTION



**SHAKE WELL** Shake well before use • Store at room temperature  
Keep out of direct sunlight • Keep container closed when not in use





## MIXING INSTRUCTIONS:

Half fill the spray tank with clean water. Add the required quantity of **POWER-UP®** and then **MUSCLE-UP® K 500 SL** while agitating. Fill spray tank to the required volume with clean water. When using tank mixes, follow the respective manufacturers' label recommendations. It is recommended that **MUSCLE-UP® K 500 SL** be added before the additional products, if tank mixtures are used. Tank mixtures must be sprayed out immediately and not allowed to stand in the spray tank overnight. Spraying equipment must be thoroughly flushed out at the end of the spraying operation.

## COMPATIBILITY:

The compatibility of **MUSCLE-UP® K 500 SL** with other products depends on the formulations of the respective products, as well as the quality of the spray water to be used. As formulations change from time to time it is recommended that a physical compatibility test be done prior to the tank mixture being made.

## GLYPHOSATE TOLERANT CROPS:

### GLYPHOSATE TOLERANT SOYBEAN:

Broadcast application:

**MUSCLE-UP® K 500 SL** may be applied post-emergent to Glyphosate tolerant soybeans from the ground cracking stage through to flowering.

Do not exceed the following **MUSCLE-UP® K 500 SL** application volumes per hectare:

- Cumulative total per season for all applications: 7,2 t/ha
- Pre-plant, burndown applications: 2,2 t/ha
- Total in-crop applications from cracking to flowering: 5,1 t/ha
- Maximum pre-harvest application rate: 1,4 t/ha

Refer to recommendations under "Ground application".

### GLYPHOSATE TOLERANT MAIZE:

**BROADCAST (OVER THE TOP) APPLICATION:**

Broadcast application of **MUSCLE-UP® K 500 SL** can only be done after the ground cracking stage up to the V8 stage (V8 stage = when the first plants in the field have 8 leaves with closed collars around the main stem; however, the actual number of leaves may be more). Do not apply broadcast applications if the spray equipment will cause mechanical crop damage. Broadcast application after the V8 stage may cause yield loss or delayed maturity. Flat fan or twin jet nozzles, suitable for low water volume deliveries, are recommended. If follow-up applications are required to control specific weed species, e.g. *Cyperus esculentus*, the second application should not be made within 10 days of the first application. If the maize has grown beyond the V8 stage at this time, a directed follow-up application will be necessary (refer below).

### DIRECTED APPLICATION:

Directed **MUSCLE-UP® K 500 SL** applications can be made after the V8 stage, if row spacing permits the movement of the sprayer without causing mechanical damage to the crop. Row spacing of 150 cm and 210 cm are recommended for conventional tractor mounted spray rigs. For the control of certain broadleaf weeds mentioned above, **MUSCLE-UP® K 500 SL** can be mixed with either 2,4-D Amine or MCPA SL at 500ml/ha. Refer to 2,4-D Amine or MCPA SL label for use restrictions.

## GLYPHOSATE TOLERANT COTTON:

**BROADCAST APPLICATION:**

This product may be applied to control annual grasses and broadleaf weeds listed on this label in glyphosate tolerant cotton.

**MUSCLE-UP® K 500 SL** herbicide may be applied over-the-top beyond the 4<sup>th</sup> TRUE LEAF / NODE COTTON GROWTH STAGE in glyphosate tolerant cotton. For best results, make applications while weeds are small (less than 100 mm high). Where sequential applications are necessary to control specific weed species (e.g. *Cyperus esculentus*) the second application should not occur within 10 days of the first application. The second application can be delayed beyond the 4<sup>th</sup> TRUE LEAF / NODE COTTON GROWTH STAGE.

Maximum allowable **MUSCLE-UP® K 500 SL** application volumes:

- Combined total per season for all applications 13,4 t/ha
- Pre-plant, burndown applications 8,3 t/ha
- Total in-crop applications from emergence throughout to 60% open balls 10 t/ha
- Maximum pre-harvest application rate from 60% open bolls to 7 days before harvest 3,5 t/ha

Refer to recommendations under "Ground application".

## GROUND APPLICATION:

- Always ensure that spray equipment is clean, and correctly calibrated under field conditions before spraying to ensure even and accurate application.
- Use low spray pressure (100 – 200 kPa) to avoid spray drift.
- Apply **MUSCLE-UP® K 500 SL** at a maximum volume rate of 200 litres spray mixture per hectare. Where the volume rate is less than 120 litres per hectare, the application must be done with purpose designed low volume spray equipment (e.g. self-drive "high boy" sprayers).
- The application speed of low volume sprayers must not exceed 25 km per hour on an even soil bed. Where the soil bed is more uneven (e.g. due to clods) a maximum application speed of 15 km per hour must be used.
- Constant agitation throughout the spray operation is essential.
- Avoid the use of hard or muddy water, or water with a high colloidal content derived from soils high in organic matter.
- Ensure a medium-sized even droplet distribution and thorough coverage of target weeds.
- Conventional ground equipment such as knapsack sprayers, tractor-mounted booms or hand-held spray guns may be used.

**CONTROL OF PERENNIAL GRASSES:**

GRASSES	DOSAGE RATE		REMARKS
	PER HA	SOLUTION	
<b>Common couch</b> <i>Cynodon dactylon</i>	4 ℓ 6 ℓ	– –	<b>Summer rainfall area:</b> Apply to actively growing grasses in autumn or summer. If regrowth occurs, spray with 1,65 % solution. <b>Winter rainfall area:</b> Apply as directed above in autumn.
<b>Weeping love grass</b> <i>Eragrostis curvula</i>	1,3 ℓ	1 %	Apply to actively growing grasses in autumn or summer.
<b>Common paspalum</b> <i>Paspalum dilatatum</i>	4 ℓ	2 %	Apply in summer at flower, but before seed drop. If regrowth occurs, spray with 1 % solution.
<b>Couch paspalum</b> <i>Paspalum paspalodes</i>	5,3 – 6 ℓ	–	Apply in summer at flowering but before seed drop. If regrowth occurs, spray with 1,3 % solution or 2,6 ℓ / ha. Apply the higher rate in the winter rainfall area.
<b>Common buffalo grass</b> <i>Panicum maximum</i>	4 ℓ	2 %	Apply to actively growing grasses in the early growth stage. If regrowth occurs, spray with 1 % solution.
<b>Kikuyu</b> <i>Pennisetum clandestinum</i>	2,6 ℓ	1,3 %	Apply in summer to actively growing grasses. If regrowth occurs, spray with 1 % solution.
<b>Bush buffalo grass</b> <i>Setaria megaphylla</i>	4 ℓ	2 %	Apply to actively growing grasses in autumn or summer. If regrowth occurs, spray with 1 % solution.
<b>Johnson grass</b> <i>Sorghum halepense</i>	2,6 ℓ	1,3 %	Apply in summer or autumn. If regrowth occurs, spray with 1 % solution.
<b>Common wild sorghum</b> <i>Sorghum verticilliflorum</i>	1,3 ℓ	1 %	Apply to actively growing grasses in summer or autumn.

**SEDGES:**

BOTANICAL NAME	COMMON NAME	DOSAGE RATE	
		ℓ / ha	SOLUTION
<i>Cyperus esculentus</i>	Yellow nutsedge	4	2 %

For best results apply February / March before flowering. If regrowth occurs, spray with 2 ℓ / ha or 1 % solution.

**INDUSTRIAL WEED CONTROL:**
**Annual broadleaf weeds**

BOTANICAL NAME	COMMON NAME	DOSAGE RATE	
		ℓ / ha	SOLUTION
<i>Amaranthus hybridus</i>	Common pigweed	2,6 – 4	1,3 – 2 %
<i>Richardia brasiliensis</i>	Tropical Richardia		
<i>Schkuhria pinnata</i>	Dwarf marigold		

## ANNUAL GRASSES:

BOTANICAL NAME	COMMON NAME	DOSAGE RATE	
		ℓ / ha	SOLUTION
<i>Digitaria sanguinalis</i>	Crab fingergrass	2,6 – 4	1,3 – 2 %
<i>Eleusine coracana</i>	African goose grass		

## CONTROL OF ANNUAL WEEDS: Broadleaf weeds:

BOTANICAL NAME	COMMON NAME	DOSAGE RATE		
		1 – 12 LEAF	12 LEAF to PRE-BLOOM	FLOWERING
<i>Alternanthera pungens</i>	Khaki burweed	0,5 – 0,7 ℓ / ha	0,7 – 1 ℓ / ha	1 – 1,3 ℓ / ha
<i>Amaranthus hybridus</i>	Common pigweed			
<i>Amaranthus spinosus</i>	Thorny pigweed			
<i>Amaranthus thunbergii</i>	Red pigweed			
<i>Arctotis venusta</i>	Free State daisy			
* <i>Argemone subfusiformis</i>	Mexican poppy			
<i>Bidens pilosa</i>	Black jack			
* <i>Chenopodium album</i>	White goosefoot			
* <i>Chenopodium ambrosioides</i>	American goosefoot			
* <i>Chenopodium carinatum</i>	Green goosefoot			
* <i>Chenopodium murale</i>	Nettle-leaved goosefoot			
<i>Cirsium arvense</i>	Canada thistle			
<i>Citrullus lanatus</i>	Bitter apple			
<i>Cucumis spp.</i>	Wild cucumber			
<i>Datura ferox</i>	Large thorn apple			
<i>Datura stramonium</i>	Thorn apple			
<i>Galinsoga parviflora</i>	Gallant soldier			
* <i>Gisekia pharnaceioides</i>	Gisekia			
<i>Physalis angulata</i>	Wild gooseberry			
** <i>Portulaca oleracea</i>	Purslane			
<i>Pseudognaphalium luteo-album</i>	Cudweed			
<i>Pseudognaphalium undulatum</i>	Undulate cudweed			
<i>Schkuhria pinnata</i>	Dwarf marigold			
<i>Spargula arvensis</i>	Corn spurry			
<i>Tribulus terrestris</i>	Dubbeltjie			

\* Alternate with herbicides from different classes as recommended under "RESISTANCE WARNING" to avoid development of resistance in these weed populations.

\*\* Variable control even at high rates has been recorded. Apply a follow-up application in the case of unsatisfactory control.

## GRASSES:

BOTANICAL NAME	COMMON NAME	DOSAGE RATE		
		1 – 12 LEAF	12 LEAF to PRE-BLOOM	FLOWERING
* <i>Avena fatua</i>	Common wild oats	0,5 - 0,7 ℓ / ha	0,7 - 1 ℓ / ha	1 - 1,3 ℓ / ha
* <i>Avena spp.</i>	Wild oats			
<i>Briza maxima</i>	Quaking grass			
<i>Bromus diandrus</i>	Ripgut brome			
<i>Eleusine coracana</i>	African goose grass			
<i>Ehrharta longiflora</i>	Oat-seed grass			
<i>Hordeum murinum</i>	Wild barley			
* <i>Lolium multiflorum</i>	Italian ryegrass			
* <i>Lolium temulentum</i>	Darnel			
<i>Panicum schinzii</i>	Sweet buffalo grass			
<i>Poa annua</i>	Winter grass			
<i>Rhynchelytrum repens</i>	Natal red-top			
<i>Secale cereale</i>	Rye			
<i>Sorghum bicolor</i>	Wild grain sorghum			
<i>Tragus racemosus</i>	Large carrot-seed grass			
** <i>Zea mays</i>	Volunteer maize			

\* Alternate with herbicides from different classes as recommended under “RESISTANCE WARNING” to avoid development of resistance in *Lolium* species. Under cold, stress conditions the rates might have to be increased to 2, 2,3 and 2,5 ℓ / ha according to the growth stage.

\*\* Apply a follow-up application in the case of unsatisfactory control and adjust the rates according to weed size and density. Will not control glyphosate-tolerant varieties.

## Recommended MUSCLE-UP® K 500 SL rates for annual broadleaf weeds:

Dosage rate	1 – 2 ℓ / ha	2 ℓ / ha	2 ℓ / ha
Growth stage	1 – 12 leaf stage	12 leaf stage to pre-bloom	Flowering
Musk heron's bill	<i>Erodium moschatum</i>		

## Recommended MUSCLE-UP® K 500 SL rates for annual broadleaf weeds:

Dosage rate	1,5 – 2 ℓ / ha	2 ℓ / ha	Do not spray
Growth stage	1 – 12 leaf stage	12 leaf stage to pre-bloom	Flowering
Small mallow	<i>Malva parviflora</i>		

## Recommended MUSCLE-UP® K 500 SL rates for annual broadleaf weeds:

Dosage rate	5 – 6 ℓ / ha	5 – 6 ℓ / ha	5 – 6 ℓ / ha
Growth stage	1 – 12 leaf stage	12 leaf stage to pre-bloom	Flowering
Sheep sorrel	<i>Rumex angiocarpus</i>		

## NOTES:

- Not recommended for *Malva parviflora* (small mallow) control at flowering.
- For problem *Erodium moschatum* (Musk heron's bill) (low growing type) control in grapevines and deciduous fruit: Apply 1 ℓ MUSCLE-UP® K 500 SL prior to budburst. Regrowth must be sprayed 4 – 6 weeks later with paraquat and simazine SC. Refer to paraquat and simazine SC labels for rates and details.

ACKNOWLEDGEMENT OF TRADEMARKS: MUSCLE-UP® and POWER-UP® are registered trademarks of Rolfe Agri (Pty) Ltd.

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