macho

HRAC HERBICIDE GROUP CODE G9

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.

ACTIVE INGREDIENT

Glyphosate (Glycine)	540 g/ℓ
(Glyphosate potassium salt)	655 g/ℓ

MAY BE HARMFUL WHEN SWALLOWED

Introlab
outperform the norm

www.introlab.co.za

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SEE ENCLOSED FOR FULL DETAILS. SEE CONTAINER SIDE FOR BATCH NO, MANUFACTURE DATE, EXPIRY DATE AND CONTENT

WARNING

WARNINGS

- Waiting period: Allow 7 – 10 days after last application and transplanting seedlings. Application on soils with a low clay content (< 10 % clay) can lead to significantly reduced germination and growth of small seeded crops (i.e. onions) for up to 8 weeks after application.
- Harmful if swallowed or inhaled.
- Irritating to eyes and skin.
- Store in a cool place.
- Store away from food, feed, fertilizer and other agricultural products.
- Keep out of reach of children, uninformed persons and animals.
- Re-entry interval: Do not enter treated area until spray deposit has dried unless wearing protective clothing.
- Avoid contact with leaves, green or immature bark and fruit of desired plants, whether direct or by spray drift. Always make sure that ONLY UNDESIRED plants are treated.

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 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 animals 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

- Avoid skin and eye contact when mixing and applying the product.
- Wear rubber gloves and face shield when handling the concentrate.
- If you get it in your eyes, flush it out at once. Wash with soap and water after use and accidental skin contact. Wash contaminated clothing.
- Do not eat, drink or smoke while mixing or applying the product or before washing hands and face.
- Avoid drift of spray onto other crops, grazing, rivers, dams and areas not under treatment.
- Clean applicator after use. Dispose of wash water where it will not contaminate crops, grazing, rivers, dams and boreholes.
- Prevent contamination of food, feeds, drinking water and eating utensils.
- Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of 10% of that of the container. Add the rinsing to the contents of the spray tank before destroying the container.
- Destroy the empty container by perforation and flattening and do not use for any other purpose.
- Change and wash your work clothes. Wash yourself.

RESISTANCE WARNING

For resistance management, MACHO is a group code G herbicide. Any weed population may contain individuals naturally resistant to MACHO and other group code G herbicides. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds may not be controlled by MACHO or any other group code G 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 supplier of this product.
- The supplier cannot be held responsible for the failure of MACHO to control resistant weeds.

DIRECTIONS FOR USE: Use only as indicate

- The efficiency of MACHO is significantly improved when used in combination with Glyphosist.
- Use only clean water in spray mixture.
- Add Glyphosist according to label recommendations before adding MACHO to the spray water.
- The visible effect of MACHO on treated foliage usually only appears after 10 – 14 days of treatment, but may vary depending on weather conditions and weed species.
- MACHO is a non-selective systemic herbicide and is only active when applied to the green foliage and bark of plants.
- MACHO 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 localized 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 completely.
- MACHO has NO pre-emergence activity; therefore repeat applications are necessary when applied on its own to control weeds germinating from seed. Target weeds must be fully exposed to the MACHO spray for optimum efficacy.
- MACHO should be applied to actively growing weeds that are not dormant or under temperature or moisture stress. Ensure full and even coverage onto target weeds.
- Do not spray whilst weeds are wet, dormant, under stress or covered in a layer of dust or silt or when damaged by frost.
- Rain or irrigation within 4 – 6 hours of application can reduce the effectiveness of MACHO.
- Do not apply MACHO under less favourable weather conditions (i.e. wind speeds of > 10 km/h or humidity <40%).
- Do not apply other pesticides within 12 hours of a MACHO application, as it may adversely affect the product's efficacy.
- When applied in a tank mix with other chemicals, follow the label recommendations of all products.
- Pre-plant weed control on sandy soil (<10 % clay) should take place at least 14 days before transplanting tomato or tobacco seedlings.

MIXING INSTRUCTIONS: Half fill the spray tank with clean water. Add the required quantity of glyphosist and the MACHO 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 MACHO 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 MACHO 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.

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.
- Equipment should be calibrated to spray 30 – 300 ℓ/ha to ensure optimum spray deposits.
- 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 fine even droplet distribution and thorough coverage of target weeds.
- Conventional spray equipment such as knapsack sprayers, tractor mounted beams or hand-held spray guns may be used.

CONTROL OF PERENNIAL GRASSES:

GRASSES	DOSAGE RATE		REMARKS
	PER HA	*SOLUTION*	
Common couch *Cynodon dactylon*	4.0 ℓ 6.0 ℓ		**Summer rainfall area:** Apply to actively growing grasses in autumn or summer. If re-growth occurs, spray with 1.65% solution. **Winter rainfall area:** Apply as directed above in autumn.
Weeping love grass *Eragrotis curvula*	1.3 ℓ	1%	Apply to actively growing grasses in autumn or summer.
Common paspalum *Paspalum dilatatum*	4.0 ℓ	2%	Apply in summer at flower, but before seed drop. If re-growth occurs, spray with 1% solution
Common buffalo grass *Panicum maximum*	4.0 ℓ	2%	Apply to actively growing grasses in the early growth stage. If re-growth occurs, spray with 1% solution.
Kikuyu *Pennisetum cladestinum*	2.6 ℓ	1.3%	Apply in summer to actively growing grasses. If re-growth occurs, spray with 1% solution.
Bush buffalo grass *Setaria megaphylla*	4.0 ℓ	2%	Apply to actively growing grasses in autumn or summer. If re-growth occurs, spray with 1 % solution.
Johnson grass *Sorghum halepense*	2.6 ℓ	1.3%	Apply in summer or autumn. If re-growth occurs, spray with 1% solution.
Common wild sorghum *Sorghum verticilliflorum*	1.3 ℓ	1%	Apply to actively growing grasses in summer or autumn.

SEDGES:

BOTANICAL NAME	COMMON NAME	DOSAGE RATE	
		L / PER HA	*SOLUTION*
Cyperus esculentus	**Yellow nutsedge**	4 ℓ / Ha	2%

For best results apply February / March before flowering.

INDUSTRIAL WEED CONTROL: Annual Grasses

Digitaria sanguinalis	**Crab fingergrass**	2.6 – 4.0 ℓ / Ha	1.3 – 2.0 %
Eleusine coracana	**African goose grass**		

INDUSTRIAL WEED CONTROL: Annual Broadleaf weeds

BOTANICAL NAME	COMMON NAME	DOSAGE RATE	
		L / PER HA	*SOLUTION*
Amaranthus hybridus	**Common pigweed**	2.6 – 4.0 ℓ / Ha	1.3 – 2.0 %
Richardia brasiliensis	**Tropical richardia**		
Schkuhria pinnata	**Dwarf marigold**		

ANNUAL WEEDS: Broadleaf weeds

BOTANICAL NAME	COMMON NAME	DOSAGE RATE		
		1 - 12 Leaf	*12 Leaf to Pre Bloom*	*Flowering*
Alternanthera pungens	**Khaki burweed**	0.5–0.7 ℓ/Ha	0.7–1 ℓ/Ha	1-1.3 ℓ/Ha
Amaranthus hybridus	**Common pigweed**			
Amaranthus spinosus	**Thorny pigweed**			
Amaranthus thunbergii	**Red pigweed**			
Arctotis venusta	**Free State Daisy**			
* *Argemone subfusiformis*	**Mexican poppy**			
Bidens pilosa	**Black Jack**			
* *Chenopodium album*	**White goosefoot**			
* *Chenopodium ambrosioides*	**American goosefoot**			
* *Chenopodium carinatum*	**Green goosefoot**			
* *Chenopodium murale*	**Nettle-leaved goosefoot**			
Cirsium arvense	**Canada thistle**			
Citrullus lanatus	**Bitter apple**			
Cumumis spp.	**Wild cucumber**			
Datura ferox	**Large thorn apple**			
Datura stramonium	**Thorn apple**			
Galinsoga parviflora	**Gallant soldier**			
* *Gisekia pharnaceiodes*	**Gisekia**			
Physalis angulate	**Wild gooseberry**			
** *Portulaca oleracea*	**Purslane**			
Pseudognaphalium luteo-album	**Cudweed**			
Pseudognaphalium undulatum	**Undulate Cudweed**			
Schkuhria pinnata	**Dwarf marigold**			
Spergula arvensis	**Corn spurry**			
Tribulus terrestris	**Dubbletjie**			

* 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***
* **Avena fatua**	*Common wild oats*	0.5–0.7 ℓ/Ha	0.7–1 ℓ/Ha	1-1.3 ℓ/Ha
* **Avena spp.**	*Wild oats*			
Briza maxima	*Quaking grass*			
Bromus diandrus	*Ripgut brome*			
Eleusine coracana	*African goose grass*			
Ehrharta longiflora	*Oat-seed grass*			
Hordeum marinum	*Wild barley*			
* **Lolium multiflorum**	*Italian ryegrass*			
* **Lolium temulentum**	*Darnel*			
Panicum schinzii	*Sweet buffalo grass*			
Poa annua	*Winter grass*			
Rhynchelytrum repens	*Natal red-top*			
Secale cereal	*Rye*			
Sorghum bicolor	*Wild grain sorghum*			
Tragus racemosus	*Large carrot-seed grass*			
** **Zea mays**	*Volunteer maize*			

* Alternate with herbicides form different classes as recommended under "RESISTANCE WARNING" to avoid development of resistance in *Lolium spp*. Under cold, stress conditions the rates might have to be increased 2, 2.3 and 2.5 L/ha according to 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 MACHO RATES FOR ANNUAL BROADLEAF WEEDS:			
Dosage Rate	**1.0 – 2.0 L/ha**	**2.0 L/ha**	**2.0 L/ha**
Growth Stage	1 -12 leaf stage	12 leaf stage to pre-bloom	Flowering
Musk heron's bill		***Erodium moschatum***	

RECOMMENDED MACHO RATES FOR ANNUAL BROADLEAF WEEDS:			
Dosage Rate	**1.0 – 2.0 L/ha**	**2.0 L/ha**	**Do Not Spray**
Growth Stage	1 -12 leaf stage	12 leaf stage to pre-bloom	Flowering
Small mallow		***Malva parviflora***	

RECOMMENDED MACHO RATES FOR ANNUAL BROADLEAF WEEDS:			
Dosage Rate	**5.0 – 6.0 L/ha**	**5.0 – 6.0 L/ha**	**5.0 – 6.0 L/ha**
Growth Stage	1 -12 leaf stage	12 leaf stage to pre-bloom	Flowering
Sheep sorrel		***Rumex angiocarpus***	

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 1.0 L MACHO 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.