



Roundup®

SEE ENCLOSED PAMPHLET FOR FULL PARTICULARS

Reg. No. L0407 (Act No. 36 of 1947)
Namibian Reg. No. N-AR 0101
Botswana Reg. No. W130361 (Act No. 18 of 1999)

A soluble concentrate, non-selective, systemic post-emergence herbicide with little or no soil activity for the control of perennial and annual weeds in agricultural, non-crop and industrial areas. ROUNDUP can be used as a growth regulator to increase sucrose content of sugar cane or reduce growth of weeds.

SIEN INGESLOTE PAMFLET VIR VOLLEDIGE BESONDERHEDE

Reg. Nr. L0407 (Wet Nr. 36 van 1947)
Namibiese Reg. Nr. N-AR 0101

'n Nie-selektiewe sistemiese na-opkoms onkruidoder met min of geen grondaktiwiteit vir die beheer van meer- en eenjarige onkruid in landboukundige, onbeboude en nywerheidsgebiede. ROUNDUP kan ook gebruik word as groeireguleerder vir die verhoging van suikrose in suikerriet en die vertraging van groei in onkruid.

GROUP / GROEP **G** HERBICIDE / ONKRUIDODER



WARNING

HAZARD STATEMENTS:

Causes serious eye irritation.

PRECAUTIONARY STATEMENTS:

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Wash hands thoroughly after handling. Wear protective gloves/ protective clothing/ eye protection/ face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention.

Active ingredient:

Glyphosate (glycine)..... 360 g/l
(contains 441 g potassium salt of glyphosate)

Aktiewe bestanddeel:

Glifoosaat (gliersien)..... 360 g/l
(bevat 441 g kaliumsout van glifoosaat)

Contents **e 1 l** Inhoud

REGISTERED BY / GEREgistREER DEUR: Bayer (Pty) Ltd / (Edms) Bpk

Reg. 1968/011192/07

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IN CASE OF POISONING PLEASE PHONE / IN GEVAL VAN VERGIFTIGING

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Roundup® is a registered trademark of Monsanto Technology LLC

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BATCH NUMBER / LOTNOMMER: See on pack

DATE OF MANUFACTURE / DATUM VERVAARDIG: Sien op houer

UN No. / VN Nr.: Not classified as dangerous goods

WARNINGS:

HAZARD STATEMENTS:

- Causes serious eye irritation.

Handle with care.

Do not mix, store or apply ROUNDUP solutions in galvanised steel or unlined steel (except stainless steel) containers or spray tanks as a reaction will produce hydrogen gas which is highly combustible.

Aerial application: Notify all inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warnings.

Store in a cool place away from food, feed, seed and other agricultural remedies.

Keep out of reach of children, uninformed persons and animals.

RE-ENTRY: Do not enter treated field until spray deposit has dried unless wearing appropriate protective clothing.

ALTHOUGH ROUNDUP 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 WEEDS TO 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:

PRECAUTIONARY STATEMENTS:

- Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
- Wash hands thoroughly after handling.
- Wear protective gloves/ protective clothing/ eye protection/ face protection.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If eye irritation persists: Get medical advice/ attention.

Do not smoke, eat or drink while using, or before washing and change of clothing.

Prevent spray drift and/or contamination onto susceptible or edible crops, grazing or any other areas not under treatment as this may cause serious crop damage.

Direct or spray drift contact by ROUNDUP onto leaves and/or immature bark of desired plants can result in serious localised or translocated damage.

Prevent contamination of drinking water, eating utensils, food, feedstuff, seed, fertilizers and other agricultural chemicals.

The container is rinsed by filling one quarter to one-third with clean water, replacing the cap and shaking vigorously for 30 seconds. The rinse is then added to the contents of the spray tank. This rinsing procedure is repeated a further two times (i.e. three times in all) with a final draining into the spray tank. Rinsed containers should then be punctured and stored safely with their caps off until they can be properly disposed of.

Do not re-use the empty container for any other purpose.

RELEVANT SUBSTANCES:

Formulation component	CAS Number	Conc. (%)
Potassium salt of glyphosate	70901-12-1	35.5
Fatty alkyl ether alkyl amine ethoxylate	68478-96-6	> 1 - < 10



MON30300775A

5 4 1 1 7 7 3 1 6 4 8 1 6

RESISTANCE WARNING:

For resistance management, **ROUNDUP** is a group code G herbicide. Any weed population may contain individuals naturally resistant to **ROUNDUP** 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 **ROUNDUP** or any other group code G herbicide.

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] in weed control programmes.

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

DIRECTIONS FOR USE: USE ONLY AS DIRECTED

General information

The herbicidal action of **ROUNDUP** is only visible from two weeks after application onwards.

Apply **ROUNDUP** post-emergence to vigorously growing weeds, directed to the foliage and immature bark. For difficult to control perennial weeds, application in autumn is recommended when weeds are actively translocating nutrients into their roots, bulbs, rhizomes and stolons. Any regrowth should be spot sprayed.

Do NOT spray whilst weeds are wet, dormant or under stress nor when covered in a layer of dust or when damaged by frost.

Rain or irrigation within 4 - 6 hours of application can reduce efficacy of **ROUNDUP**.

In mixed weed situations (annuals in amongst perennial) mow or spray out annuals; wait for vigorous regrowth of perennials and then spray or spot spray on regrowth.

When **ROUNDUP** is applied in a tank mix with other chemicals the label recommendations of all the products apply.

Pre-plant weed control sprays on sandy soil (10 % clay) should take place 14 days before transplanting any seedlings (tomato and tobacco seedlings are the most sensitive).

MIXING INSTRUCTIONS:

COMPATIBILITY

ROUNDUP can be tank mixed with the following chemicals:

Herbicides:

MCPA (Potassium salt), **Simazine** (with ammonium sulphate), **Velpar**, **Bromacil WP** and **Diuron WP** (with ammonium sulphate).

Additives:

Armoblen 650, **Bladbuff 7** or ammonium sulphate.

Note:

The addition of ammonium sulphate (2 %) (2 kg or 2 litre) to the spray water before adding Diuron or Simazine in tank mixtures with **ROUNDUP** improves compatibility.

APPLICATION INFORMATION:

ROUNDUP can be applied in spray volumes ranging from 12 - 200 L/ha.

Ensure that spray equipment is clean and free of rust, dust and sediment from other pesticides.

Always use clean water. Avoid the use of brack or muddy water, or water with a high colloid content derived from soils high in organic matter. Where alkaline and/or hard water occurs, **Bladbuff 7** should be added according to label recommendations.

Correctly calibrate all sprayers under field conditions.

In situations where drift may be hazardous, use low pressures of 100 to 200 kPa and or low drift nozzles when spraying

Do not spray when wind speed exceeds 10 km/h.

Ensure a fine, even droplet distribution and thorough coverage of the target weeds.

AERIAL APPLICATION:

Aerial application of **ROUNDUP** may only be done by a registered Aerial Application Operator using a correctly calibrated, registered aircraft according to the instructions of SABS Code 0118 (Aerial Application of Agricultural Pesticides). Ensure that the spray mixture is distributed evenly over the target area and that the loss of spray material during application is restricted to a minimum. It is therefore essential that the following criteria be met:

- **Volume:** A spray mixture volume of 30 to 50 litres per hectare is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy, or be held responsible for any adverse effects if this product is applied aerially at a lower volume rate than recommended above.
- **Droplet coverage:** 30 to 40 droplets per cm² must be recovered at the target area.
- **Droplet size:** A droplet spectrum with a VMD of 300 to 400 microns is recommended. Limit the production of fine droplets less than 150 microns (high drift and evaporation potential) to a minimum.
- **Flying height:** Maintain the height of the spray boom at 3 to 4 metres above the target. Do not spray when aircraft dives, is in a climb or when banking.
- Use suitable **atomising equipment** that will produce the desired droplet size and coverage, but which will ensure the minimum loss of product. The spraying system must produce a droplet spectrum with the lowest possible Relative Span.
- Position all the atomisers within the inner 60 to 75 % of the wingspan to prevent droplets from entering the **wingtip vortices**.
- Prevent drift. The use of a registered drift retardant and / or low drift aerial spraying nozzle (e.g. straight stream nozzle) is recommended.
- The difference in **temperature** between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8° C.
- Stop spraying if the **wind speed** exceeds 10 km/h.
- Stop spraying under **turbulent**, unstable and dry conditions during the heat of the day.
- Spraying under temperature **inversion conditions** (spraying in or above the inversion layer) and/or **high humidity conditions** (relative humidity 80 % and above) may lead to the following:
 - a) reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage).
 - b) damage to other sensitive crops and/or non- target areas through drifting of the suspended spray cloud away from the target field.
- Ensure that the Aerial Spray Operator knows exactly which fields to spray.
- Obtain an assurance from the Aerial Spray Operator that the above requirements will be met and that relevant data will be compiled in a logbook and kept for future reference.

SURFACTANTS ADDITIVES

For optimum results a minimum of 1,5 % **ROUNDUP** solution in the total spray volume is recommended. If it is less, 0,5 % of a suitable surfactant (0,5 //100 / water) should be added to the spray volume.

Example:

- 3,0 l **ROUNDUP** in 200 l water/ha (1,5 % solution) = No surfactant is needed.
- 3,0 l **ROUNDUP** in 400 l water/ha (0,75 % solution) = Add 2,0 l surfactant to the spray volume.
- For pH and water hardness adjustment of spray water, add **Bladbuff 7** as recommended to the spray water before adding **ROUNDUP**.
- Add ammonium sulphate according to label recommendations to improve water quality.

The use of a high quality ammonium sulphate source, such as **Velocity Super** or **AMS Super** or **AMS Granule**, is recommended at a rate of 2% added to the spray water before adding **ROUNDUP**.

WEED CONTROL

Percentage calculation, e.g. 1.5 % solution = 1.5 ℓ

ROUNDUP in 98,5 ℓ water = 100 ℓ spray solution. Season in which to apply:

- 1 - Early spring
- 2 - Summer
- 3 - Autumn
- 4 - Winter

Table 1: Perennial and Aquatic weeds.**Table 2:** Non-crop and Industrial weeds.**Table 3:** Crop recommendations, tree crops, pre-planting, forestry, Eucalyptus eradication and sugar cane.**Table 4:** Sugar cane ripening.**Table 5:** Chemical mowing.**Table 6:** Pasture renovation.**Table 7:** Wipe-type application.**TABLE 1 – PERENNIAL AND AQUATIC WEEDS***

WEED		Season	Solution** %	OR L/Ha	Remark
<i>Acacia meamsii</i>	Black wattle	2	1,5	3,0	Spray up to 1 m height.
<i>Acacia saligna</i>	Port Jackson Willow	1 - 3	1,5 1,5	2,0 4,0	Seedlings only: Bipinnate leaf stage. Up to 60 cm height.
<i>Caesalpinia decapetala</i>	Mauritius thorn	2	1,5	3,0	Spray up to 1 m height.
<i>Chromolaena odorata</i>	Triffid weed	2 - 3	1,5	3,0 *	Slash established plants. Spray on regrowth at 50 - 120 cm height to give complete droplet cover of foliage. Previously slashed multistem plants may require a follow up treatment.
<i>Convolvulus arvensis</i>	Field bindweed	2	3,0 1,5	6,0 *	Apply at beginning of flowering. Follow up spray or spotspray on regrowth.
<i>Cynodon dactylon</i>	Common quick grass	2 - 3	3,0 * 2,0	6,0 4,0 *	Apply in autumn. Follow up in summer or Spotspray on regrowth or Apply in summer and follow up in autumn on regrowth.
<i>Cyperus esculentus</i>	Yellow nutsedge	2	3,0 * 1,5	6,0 3,0 *	Apply at flowering. Follow up or Spotspray on regrowth in Feb/Mar.
<i>Cyperus rotundus</i>	Purple nutsedge	2	3,0 * 1,5	6,0 3,0 *	Apply at flowering. Follow up or Spotspray on regrowth in Feb/Mar.
<i>Eichhornia crassipes</i>	Water Hyacinth	2	3,0 3,0 4,0	6,0 * *	Apply when maximum exposure of new leaves are visible. Knapsack sprayer. Mistblower.
<i>Eragrostis curvula</i>	Weeping love grass	2 - 3	1,5 1,5	2,0 4,0	Seedlings only. Bipinnate stage to 60 cm height.

TABLE 1 – PERENNIAL AND AQUATIC WEEDS*(continued)

WEED		Season	Solution** %	OR L/Ha	Remark
<i>Lantana camara</i>	Lantana	2 - 3	3,0 3,0 4,0	6,0 * *	Knapsack sprayer. Mistblower.
<i>Malva parviflora</i>	Small mallow	1	1,5	3,0	Apply before flowering in tank mix with recommended Simazine rate.
<i>Opuntia ficus-indica</i>	Prickly pear	1 - 4	*	*	Stem injection: Apply 2 mℓ of a 33 % solution into each of 4 - 12 pre-made holes in the stem of trees with 20 - 250 cladodes (Consult the representative for more information).
<i>Panicum maximum</i>	Buffalo or Ubabe grass	2	3,0 1,5	6,0 3,0	Follow up or Spotspray on regrowth.
<i>Paspalum dilatatum</i>	Common Paspalum	2	3,0 1,5	6,0 3,0 *	Apply at flowering but before seeds are shed. Follow up spray or Spotspray on regrowth.
<i>Paspalum paspaloides</i>	Couch Paspalum	2	* * 2,0 *	8,0 4,0 * 9,0	Apply at flowering but before seed shed. Follow up or Spotspray on regrowth. Winter rainfall area: Apply in autumn but before frost.
<i>Pennisetum clandestinum</i>	Kikuyu	2	1,5 * 1,5	4,0 3,0 *	Apply on active growth during summer or autumn for winter rainfall area but before frost. Follow up spray or Spotspray on regrowth.
<i>Phytolacca heptandra</i>	Ink Berry	2	1,5	3,0	Spray up to 1 m height.
<i>Phragmites australis</i>	Common reed	2 - 3	3,0 3,0 4,0	6,0 * *	Apply at 20 - 30 % flowering. Knapsack sprayer. Mistblower. Slash regrowth and spray the following regrowth at 45 cm height.
<i>Plantago lanceolata</i>	Plantain	1	1,5	3,0	Apply before flowering.
<i>Rubus</i> spp.	American bramble	2 - 3	3,0 3,0 4,0	6,0 * *	Knapsack sprayer.
<i>Rumex</i> spp.	Sorrel	1	1,5	3,0	Apply before flowering.
<i>Sesbania punicea</i>	Sesbania	1	1,5 2,5	3,0 3,0	Seedlings: Up to 1 m height. Heigher than 1 m.
			1,5 - 2,0	3,0	Shrubs - tall trees: Slash, spray regrowth at 1 m height.
<i>Setaria chevalieri</i>	Bush Buffalo grass	2 - 3	3,0 3,0 4,0	6,0 * *	Knapsack sprayer. Mistblower.

TABLE 1 – PERENNIAL AND AQUATIC WEEDS* (continued)

WEED	Season	Solution** %	OR L/Ha	Remark
<i>Solanum mauritianum</i> Bugweed	2 – 3	1,5 1,5	2,0 *	Large trees: Cut stems back to 5 - 20 cm height. Wait for regrowth to be knee height before spraying
<i>Sorghum bicolor</i> Wild grain sorghum	2 – 3	1,5	2,0	
<i>Sorghum halepense</i> Johnson grass	2 – 3	1,5 *, 1,5	4,0 3,0 *	Follow up spray on regrowth. Spotspray.
<i>Striga trichotoma</i> Nasella tussock grass	4	1,5 2,0	4,0 *	Use high volume of 400 l/ha total mixture. Spotspray regrowth or early spring.

*For all applications, with any of the various types of application equipment, always ensure that the recommended dosage rate on a litre per hectare basis is fully complied with.

** % Solution is based on Knapsack sprayers which deliver a water volume of 200 l /ha. If the water volume delivered differs, adjust the dosage accordingly.

TABLE 2 – NON-CROP AND INDUSTRIAL USE

WEED	RATE L/Ha	REMARK
Annual weeds	1,0 – 3,0	
Annual and perennial weeds	2,0 – 10,0	Spot spraying of regrowth with a 1,5 % solution may be necessary. For specific weeds, refer to Table 1. For longer, persistent weed control use ROUNDUP in a tank mix with residual herbicides according to recommended rates (Bromacil, Diuron, Simazine, Ustilan or Velpar).

TABLE 3 – CROP RECOMMENDATION

Precautions:		
<ul style="list-style-type: none"> Prevent spray / spraymist contact with leaves, green and young bark of stems as well as fruit of crops. Allow 10 days after pruning, or the removal of low branches and/or suckers before spraying weeds in perennial crops. Trees with green bark (Normally younger than 4 years); Shield stems from spray contact. 		
WEED	RATE L/Ha	REMARK
Annual weeds	1,0 – 3,0	Use the higher rates on mature weeds.
Perennial weeds	Table 1	See specific weed recommendations.
Almond, Aloes, Apples, Apricots, Avocados, Cherries, Citrus, Coffee, Deciduous fruit, Granadilla, Guava, Hops, Kiwi fruit, Litchis, Macadamia Nuts, Mangoes, Nectarines, Olives, Pawpaw, Peaches, Pears, Pecan Nuts, Plums, Prunes, Quince and Tea.		

Crops Specific	
Crop	Remark
Bananas	Protect Suckers and green stems from spray contact
Blackberry	Use only wipe type equipment and prevent direct crop contact
Pineapples and Prickly Pears	Apply only as a directed inter-row application
Vines	Apply only to vines older than 2 years as a directed spray before bud burst.
Brush and low trellised Vines <60 cm height	Apply pre-bud burst in spring.
Sisal	Apply to nursery and mature plants.

Crop	Situation	Rate l/Ha	Remark
Sugar cane	Last ratoon eradication	8.0 - 10.0	Minimum tillage: Allow regrowth after final harvest to height of 45 cm (tillering complete). Apply 100 - 400 l /ha mixture when tillers have emerged.
		4.0 - 8.0	Combination tillage: Spray ROUNDUP on the regrowth of the last ratoon at 35 - 100 cm height. Allow 1- 10 days to elapse and shear cane stool at a depth of 10 - 15 cm below the soil surface using a blade shear or similar implement. This will also control certain weeds. Use the higher rates on productive soils where regrowth could be a problem.
	Spot eradication	10 % Solution	Apply directed spray to foliage of diseased (e.g. smut) or off-type stools.
	Spot Spray around fields	2 % Solution	Apply spray to actively growing weeds around fields, telephone poles etc.
	Pre-plant	1.0 - 3.0	Annual weeds: Apply to active growing weeds.
Table 1		Perennial weeds: Apply to active growing weeds.	

Crop Specific - Tank Mixes

Use recommended rates and adhere to all label restrictions for the products involved.

Crop	Product Rate l/Ha	Remark
Apples, Pears and Grapevines	ROUNDUP + Simazine	To overcome incompatibility, add 2 kg or 2 l ammonium sulphate / 100 l spray volume in the tank, then ROUNDUP followed by Simazine.
	ROUNDUP + MCPA (Potassium salt)	Apply when weeds such as Plantain (<i>Plantago lanceolata</i>), Musk herons bill (<i>Erodium moschatum</i>) are young and actively growing.
	ROUNDUP 1.5 + MCPA 3.0	Early winter: (Weeds under 15 cm height) This combination is not for Small mallow (<i>Malva parviflora</i>), Cape marigold (<i>Arctotheca calendula</i>), Oat seed grass (<i>Eriharta</i> spp.), Blue echium (<i>Echium vulgare</i>), Ryegrass (<i>Lolium</i> spp.), Sow thistle (<i>Sonchus oleraceus</i>) and Bromo spp. (<i>Bromus</i> spp).
	ROUNDUP 2.0 + MCPA 4.0	Late winter: (Weeds under 30 cm height) Use the higher rates for Bur clover (<i>Medicago polymorpha</i>), Prostrate knotweed (<i>Polygonum aviculare</i>) and Sheep sorrel (<i>Rumex angiocarpus</i>).

Crop Specific - Tank Mixes (continued)		
Crop	Product Rate /Ha	Remark
Arable crop land	Annual weeds 1.0 - 3.0 Perennial weeds Table 1	Use ROUNDUP after harvesting of the previous crop, prior to the emergence of the new crop. Use the higher rates on annual weeds exceeding 12 leaf stage or established plants. For <i>Coryza</i> spp. (Fleabane) use 2.0 - 3.0 l/ha
Forestry	Table 1	For the establishment of <ul style="list-style-type: none"> • firebreaks, total or tracer lines • pre-plant trace line in virgin veld • post harvest re-plant clean up • wattle re-establishment and • the control of alien, noxious and perennial or problem weeds.
Eucalyptus stump eradication	50 m ^l of 10% Solution	Single stem stump (trees never coppiced)
	100 m ^l of 15 % Solution	Multi stem stump (trees previously coppiced)
	<ul style="list-style-type: none"> • Apply solution to give complete stump wetting especially to the cambium region (where bark and wood meet). • Use a low pressure knapsack sprayer with a full cone nozzle. Apply after felling and removal of sawdust on surface to be treated. Apply on the same day as felling. Stumps which coppice after treatment should be under cut or ringbarked to expose the entire cambium region which must then be treated. • A fuzzy coppice regrowth may occur which normally dies back. If not, remove it by hand or apply a 2 % ROUNDUP solution avoiding drift onto newly established seedlings. • Species other than <i>Eucalyptus grandis</i> may show a variable response to ROUNDUP and may require retreatment. 	

TABLE 4 – SUGAR CANE RIPENING

RATE L/Ha	REMARK
0,75	Ground application
1,0	Aerial application

- Apply to actively growing cane with at least 8 green leaves and not where there is more than 15 % flowered stalks during the late season.
- Cane harvested from April to July: Apply 6 - 8 weeks prior to harvest.
- Cane harvested from October to January: Apply 4 - 6 weeks prior to harvest.
- **Do not attempt to ripen sugar cane which is growing under stress.**
- Do not apply to sugar cane to be harvested for seed purposes.
- **ROUNDUP** will ripen sugar cane which is regarded as being mature (up to 90 % purity) but best results are obtained when cane quality is low (young immature cane or early and late in the milling season).
- Continue irrigation as long as possible after application before starting the drying off period where applicable.
- All currently approved commercial varieties can be ripened.
- Most of the sucrose increase is concentrated in the top nodes. Top at the base of the fourth leaf sheath.
- Chemical activity is sometimes evidenced by slight leaf yellowing in early season cane and bud swell with side shooting in late season cane, within 3 - 4 weeks after application. Apical growth ceases and spindle death may occur.
- Ratoon may have increased tiller population and/or slightly stunted tillers with chlorotic leaves which will recover.

TABLE 5 – GROWTH REGULATION (CHEMICAL MOWING)

The growth and flowering of tufted and running perennial grasses, biennial and perennial broadleaf weeds can be regulated by applying sub-lethal doses after mowing.		
WEED	RATE m ^l /Ha	REMARK
<i>Bromus unioloides</i>	400 - 800	Rescue grass
<i>Cynodon dactylon</i>	400 - 1000	Couch grass
<i>Digitaria eriantha</i>	400 - 1000	Smuts finger grass
<i>Erodium moschatum</i>	600 - 800	Musk heron bill
<i>Festuca</i> spp.	400 - 800	Fescues
<i>Hypparrhenia hirta</i>	400 - 1000	Common thatch grass
<i>Lolium</i> spp.	400 - 800	Rye-grass
<i>Malva parviflora</i>	600 - 800	Small mallow
<i>Paspalum dilatatum</i>	400 - 800	Common paspalum
<i>Paspalum urvillei</i>	400 - 800	Tall paspalum
<i>Pennisetum clandestinum</i>	200 - 600	Kikuyu grass
<i>Plantago lanceolata</i>	600 - 800	Plantain
<i>Sporobolus africanus</i>	600 - 1000	Ratstail dropseed
Annual weeds and seedlings	200 - 1000	Well developed annual weeds. Seedlings and young plants may be controlled.
Follow up treatment	Up to 600	All weeds in Table 5. Use lowest rate above.

- Apply **ROUNDUP** 5 - 10 days after mowing. Use the shorter interval in spring and summer when growth is most active.
- Application should replace 2 - 4 mechanical mowings depending on dose rate, species and climatic conditions.
- High dosage rates will have a longer growth regulation period and a corresponding increase in initial chlorosis (yellowing).
- Perennial grasses are more sensitive to **ROUNDUP** in autumn and chlorosis can be expected to be greater in this period. Use the lower dosage rates to avoid chlorosis.
- In orchards and vineyards in the Winter Rainfall region where the inter-row is not irrigated (eg. drip irrigation) the lower dosage rate should be used for late spring and summer applications on grasses (eg. fescues).
- Do not apply to plants under stress conditions e.g. drought, water-logging etc.
- Remove excess plant material after mowing, prior to spraying.
- Apply 50 - 200 l/ha spray volume and ensure even droplet distribution on target foliage.

TABLE 6 – PASTURE RENOVATION

REMARKS	SITUATION
<p>Perennial running grass infestation: Mechanical plus chemical pasture renovation:</p> <p>Prepare pasture seedbed. Allow perennial running grass and annual weeds to emerge. Apply ROUNDUP at recommended rates for the weeds present. (See Table 1). Sow new pasture 3 - 4 days after spraying.</p> <p>Cultivate the weeds and allow regrowth to occur. Spray with the recommended ROUNDUP rate. Allow 7 days after spraying before a second cultivation, seedbed preparation and planting.</p> <p>New germinating annual weeds can be controlled with 1,0 - 3,0 l/ha. <i>Cyperus</i> spp requires 6,0 l/ha. Sow pasture 3 - 4 days after spraying.</p>	<p>Conventional</p> <p>Light pressure</p> <p>Heavy pressure</p> <p>Pre-sowing weed control</p>
<p>Pasture replacement and veld improvement: Reduce trash levels by mowing or heavy grazing 3 - 4 weeks prior to ROUNDUP applications on regrowth. Drill the new pasture 3 - 4 days after spraying.</p>	Direct drill
<p>Pasture maintenance: Control perennial and annual weed infestations in pastures by spot spraying with a 2 % solution or using wipe type equipment to weeds projecting above the pasture. (See Table 7)</p>	Pasture maintenance
<p>Notes:</p> <ul style="list-style-type: none"> • Use recommended rates for the control of perennial (See Table 1) and annual weeds (See Table 2) when renewing established pastures. • Use conventional or direct drill planting methods. • Ensure that rank weed growth does not prevent spray from reaching the target plants. • Do not spray old heavy growth of Kikuyu or Common quick grass with a reduced green leaf area. Burn at the end of winter to reduce dry mass. Allow to regrow in summer and spray regrowth late summer for autumn replanting of new pasture. 	

TABLE 7 – WIPE-TYPE APPLICATION

APPLICATOR TYPE	SOLUTION	REMARK
Hand held roller applicators	Annual weeds 5% Perennial weeds 10%	100 – 150 l/ha solution recommended where conventional spraying is not practical, i.e. low trellised or bush vines etc.
Hand held or Tractor mounted rope-wick applicator	50 %	Apply up to 3,0 l/ha solution in situations around tree crops and where weed / crop height differentiation exists, i.e. control of volunteer crop or resistant or late germinating weeds in beans and groundnuts.
<p>Notes:</p> <ul style="list-style-type: none"> • Use wipe-type applicator which has been approved by Bayer (Pty) Ltd. These applicators make use of an absorbent material to transfer ROUNDUP solution onto plants with which the applicator comes into contact. • Ensure that the wiper surface is kept clean. The wiper must NOT come into contact with the crop. 		

The following trademarks and registrations under Act No 36 of 1947 are acknowledged:

Product	Reg. No.	Registration holder
Armoblen	L4159	Dow AgroSciences, (Pty) Ltd
AMS Super	L9758	Universal Crop Protection (Pty) Ltd.
AMS Granule	L9610	Universal Crop Protection (Pty) Ltd.
Bladbuff 7	L8121	AECI Limited
Bromacil WP	L3338	Dow AgroSciences, (Pty) Ltd
Diuron 800 SC	L3200	Dow AgroSciences, (Pty) Ltd
Diuron WP	L3227	Dow AgroSciences, (Pty) Ltd
Gesatop	L2241	Syngenta AG, Basel, Switzerland
MCPA (potassium salt)	L3616	Dow AgroSciences, (Pty) Ltd
Simazine SC	L3340	Dow AgroSciences, (Pty) Ltd
Velocity Super	L9603	Universal Crop Protection (Pty) Ltd.
Velpar Df	L263	Du Pont de Nemours Int SA

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WAARSKUWINGS:

GEVAARSTELLINGS:

- Verorsaak ernstige oogirritasie.

Hanteer versigtig.

Moenie **ROUNDUP**-oplossings meng, berg of toedien vanuit gegalvaniseerde staal of ongevoeringde houers (behalwe vlekrye staal) of spuitens nie, aangesien dit chemies met die staal reageer om waterstofgas te vorm wat hoogs vlambaar is. Lugtoediening: Stel alle inwoners in die onmiddellike omgewing van die voorgenome bespuitingsgebied in kennis en reik die nodige waarskuwings uit.

Stoor buite die bereik van voedsel, voer, saad, kunsmis en ander landbouchemikalieë.

Hou buite die bereik van kinders, diere en oningeligte persone.

HERBETREDING: Moenie behandelde gedeelte betree totdat die spuit neerslag droog geword het nie of dra geskikte beskermende klere.

ALHOEWEL ROUNDUP OMVATTEND ONDER 'N GROOT VERSKEIDENHEID TOESTANDE GETOETS IS WAARBORG DIE REGISTRASIEHOUER NIE DAT DIT ONDER ALLE TOESTANDE DOELTREFFEND SAL WEES NIE AANGESIEN DIE WERKING EN EFFEK DAARVAN BEÏNVOLED KAN WORD DEUR FAKTORE SOOS ABNORMALE GROND-, KLIMAATS- EN BERGINGSTOESTANDE, KWALITEIT VAN VERDUNNINGSWATER, VERENIGBAARHEID MET ANDER STOWWE WAT NIE OP DIE ETIKET AANGEDUI IS NIE EN DIE VOORKOMS VAN WEERSTAND VAN DIE ONKRUIDE TEEN DIE BETROKKE MIDDEL SOWEL AS DIE METODE, TYD EN AKKURAATHEID VAN TOEDIENING. VERDER AANVAAR DIE REGISTRASIEHOUER NIE VERANTWOORDELIKHEID VIR SKADE AAN GEWASSE, PLANTEGROEI, DIE OMGEWING OF VIR NADELIGE EFFEK OP MENS OF DIER OF VIR 'N GEBREK AAN PRESTASIE VAN DIE BETROKKE MIDDEL AS GEVOLG VAN DIE VERSUIM VAN DIE GEBRUIKER OM ETIKETAANWYSINGS NA TE KOM OF AS GEVOLG VAN DIE ONTSTAAN VAN DIE TOESTANDE WAT NIE KRAGTENS DIE REGISTRASIE VOORSIEN KON WORD NIE. RAADPLEEG DIE VERSKAFFER IN DIE GEVAL VAN ENIGE ONSEKERHEID.

VOORSORGMATREËLS:

VOORSORGSTELLING:

- Moet nie poeier/walm/gas/stuifsel/dampe/spuitstof inasem nie.
- Was hande deeglik na hantering.
- Dra beskermende handskoene/beskermende klere/oogbeskerming/gesigbeskerming
- INDIEN IN OÊ: Spoel versigtig met water vir etlike minute. Verwyder kontakklense indien aanwesig en maaklik om te verwyder. Hou aan met spoel.
- Indien oogirritasie voortduur: Kry mediese hulp.

Moenie eet, drink of rook tydens gebruik of daarna, alvorens deeglik gewas en skoon klere aangetrek is nie.

V voorkom wegdrywing van spuitnewel en/of besoedeling van gevoelige of eetbare gewasse, weiding, en enige ander gebied wat nie behandel word nie. Dit mag gewasskade veroorsaak.

Direkte of spuitnewel kontak van **ROUNDUP** met blare en/of onvolwasse bas van gewenste plante kan lei tot gelokaliseerde of getranslokeerde skade.

Moenie drinkwater, eetgerei, voedsel, voer, saad, kunsmis en enige ander landbouchemikalieë besoedel nie.

Spoel leë houer drie keer uit met 'n volume water gelykstaande aan 'n minimum van 10 % van die houer. Gooi die spoelwater by die inhoud van die spuitenk en vernietig dan die houer deur dit stukkend te steek en plat te trap.

Moet nie vir enige ander doel gebruik nie.

RELEVANTE STOWWE:

Formulasie komponent	CAS Nommer	Konsentrasie (%)
Kalium sout van gisofaat	70901-12-1	35.5
Vetterige alkiel eter alkiel amine ethoxylate	68478-96-6	> 1 – < 10

WEERSTANDSWAARSKUWING:

ROUNDUP is 'n groepkode G onkruiddoder. Enige populasie van 'n spesifieke onkruid mag individue insluit wat 'n natuurlike weerstand teen **ROUNDUP** of enige ander groepkode G onkruiddoder het. Indien hierdie onkruiddoders herhaaldelik aangewend word, kan die weerstandbiedende individue uiteindelik die onkruidpopulasie oorheers. Hierdie weerstandbiedende onkruid sal waarskynlik nie deur **ROUNDUP** of enige ander groepkode G onkruiddoder beheer word nie.

Om weerstand teen onkruiddoders te vertraag:

- Verminder die eksklusiewe herhaaldelike gebruik van onkruiddoders met dieselfde groepkode. Wissel af met, of gebruik tenkingsels van produkte in verskillende onkruiddodergroepkodes.
- Integreer ander beheermaatreëls (chemies, verbouing, biologies) in onkruidbeheerprogramme.

Vir spesifieke inligting oor weerstandsbestuur kontak die registrasiehouer van hierdie produk.

GEBRUIKSAANWYSINGS: GEBRUIK SLEGS SOOS AANGEDUI

Algemene inligting

Die totale effek van **ROUNDUP** is eers na twee weke sigbaar.

Dien **ROUNDUP** na opkoms van die onkruid toe. Rig bespuiting op die blare en onvolwasse bas van aktiefgroeiende onkruid. Bespuit die moeilik beheerbare meerjarige onkruid in die herfs ten tye van aktiewe translokasie van plantvoedingstowwe na die wortels, knolle, wortelstokke of uitlopers. Behandel hergroei met 'n kol-behandeling.

MOENIE spuit as die onkruid nat, dormant onder stremming, met stof bedek of deur ryp beskadig is nie.

Reën of besproeiing binne 4 - 6 uur na toediening mag die effektiwiteit van **ROUNDUP** verminder.

In probleemgevulle waar een- en meerjarige onkruid voorkom moet die eenjarige onkruid chemies of meganies beheer word. Daarna moet die hergroei van meerjarige onkruid bespuit of kolbehandel word.

Indien **ROUNDUP** in 'n tenkingsel met ander chemikalieë toegedien word is die etiket aanbevelings van alle betrokke produkte van toepassing.

Voorplant onkruidbespuitings op sanderige grond (10 % klei) moet 14 dae voor uitplant van alle saailinge plaasvind (tamatiën- en tabaksaailinge is veral sensitief).

MENGINSTRUKSIJS:

MENGBAARHEID

ROUNDUP kan in 'n tenkingsel met die volgende chemikalieë gebruik word:

Onkruidoders:

MCPA (kalium sout), **Simasien** (met die byvoeging van ammoniumsulfaat), **Velpar**, **Bromacil WP** en **Diuron WP** (met ammoniumsulfaat).

Bevorderingsmiddels:

Armoblen 650, **Bladbuff 7** en ammoniumsulfaat.

Nota:

Die byvoeging van (2 %) ammoniumsulfaat (2 kg of 2 liter) in die spuitwater voor Diuron of Simasien in tenkingsel met **ROUNDUP** verbeter verenigbaarheid.

TOEDIENINGSINLIGTING:

ROUNDUP kan toegedien word in spuitvolumes van 12 - 200 L/ha.

Maak seker dat spuittoerusting skoon en vry is van roes, stof of sediment van ander plaagdoders.

Gebruik altyd skoon water. Voorkom die gebruik van water met 'n hoë kolloïed inhoud of modderige water. Waar alkaliese en/of hardwater voorkom, word die byvoeging van **Bladbuff 7** volgens etiket aanbeveel.

Kalibreer alle spuite korrek onder veldtoestand.

In situasies waar spuitnewel gevaarlik kan wees moet 'n lae druk van 100 - 200 kPa en/of laenewel spuitkoppe gebruik word.

Moet nie in windsnelhede van meer as 10 km/uur spuit nie.

Verseker 'n fyn, egalige druppelverspreiding en 'n deeglike bedekking van die teikenonkruid.

LUGTOEDIENING:

ROUNDUP kan slegs deur 'n geregistreerde Lugbespuitingsoperateur met 'n korrek gekalibreerde, geregistreerde vliegtuig volgens die instruksies van SABS Kode 0118 (Aerial Application of Agricultural Pesticides) uit die lug bespuit word. Verseker dat die spuitmengsel eweredig oor die teikenarea versprei word, en die verlies aan spuitmengsel tydens toediening tot 'n minimum beperk word. Dit is daarom belangrik om aan die volgende vereistes te voldoen:

- **Volume:** 'n Spuitmengsel volume van 30 tot 50 liter per ha word aanbeveel. Hierdie produk is nie teen 'n verlaagde volume getoets nie. Die registrasiehouer kan nie effektiwiteit waarborg, of verantwoordelik gehou word vir enige nadelige effekte indien hierdie produk teen 'n laer volume, as hierbo aanbeveel, toegedien word nie.

- **Druppel bedekking:** 30 tot 40 druppels per cm² moet op die teikenarea herwin word.
- **Druppelgrootte:** 'n Druppelspektrum met 'n VMD van 300 tot 400 mikrons word aanbeveel. Beperk die produksie van druppels kleiner as 150 mikrons (hoë drywing en verdampingspotensiaal) tot 'n minimum.
- **Vlieghoogte:** Handhaaf die hoogte van die spuitbalk bo die teiken op 3 tot 4 meter. Moet nie spuit wanneer die vliegtuig duik (nie), uitklim of draai nie.
- Gebruik geskikte **atomiseringsapparaat** wat die vereiste druppelgrootte en bedekking sal produseer, maar die minste verlies van produk verseker. Die spuitstelsel moet 'n druppelspektrum met die kleinste moontlike Relatiewe Span produseer.
- Plaas al die atomiseerders in die binneste 60 tot 75 % van die vlerkspan om te verhoed dat druppels binne-in die **vlerkpuntvorteks** beweeg.
- Voorkom die wegdryf van spuitnewel. Die gebruik van 'n geregistreerde drywingsbeheermiddel en / of 'n lae drywing lugbespuiting spuitneuse (bv. "straight stream nozzle") word aanbeveel.
- Die verskil in **temperatuur** tussen die nat- en droëboltermometer van 'n swaaighigrometer, moet nie 8° C oorskry nie.
- Stop bespuiting indien die **windspoed** >10 km/h is.
- Stop bespuiting tydens **turbulente**, onstabiele en droë toestande gedurende die hitte van die dag.
- Bespuiting onder temperatuur **inversie toestande** (deur bo of binne die inversie laag te spuit) en/of **hoë lugvog toestande** (relatiewe humiditeit 80 % en meer) mag tot die volgende probleme lei:
 - a) verlaagde effektiwiteit aangesien die druppels as 'n wolk in die lug bly hang en moontlik verdamp (onvoldoende bedekking op teiken).
 - b) skade aan nie-teiken gewasse of sensitiewe areas as gevolg van wegdrywing na nie-teiken area.
- Verseker dat die Lugbespuitingsoperateur presies weet watter lande bespuit moet word.
- Dit is noodsaaklik om 'n versekering van die lugbespuitingsoperateur te verkry dat aan al die bogenoemde vereistes voldoen sal word en dat data van belang in 'n logboek saamgevat is (verwysing).

BEVORDERINGSMIDDELS

Vir optimale resultate word 'n minimum van 1,5 % **ROUNDUP** oplossing per totale spuitvolume aanbeveel. Indien laer, behoort 0,5 % van 'n geskikte benatter (0,5 l/100 l water) by die spuitvolume gevoeg te word.

Voorbbeeld:

- 3,0 l **ROUNDUP** in 200 l water/ha (1,5 % oplossing) = Geen bevorderingsmiddel nodig nie.
- 3,0 l **ROUNDUP** in 400 l water/ha (0,75 % oplossing) = Voeg 2,0 l bevorderingsmiddel by die totale spuitvolume.
- Voeg **Bladbuff 7**, soos aanbeveel, by die bespuitingswater vir pH en hardewater regstelling voor die toevoeging van **ROUNDUP**.
- Voeg ammoniumsulfaat volgens etiketaanbevelings by om die kwaliteit van die spuitwater te verbeter.

Die gebruik van 'n hoë kwaliteit ammoniumsulfaat bron, soos **Velocity Super** of **AMS Super** of **AMS Granule**, word aanbeveel teen 2% bygevoeg by die spuitwater voor die **ROUNDUP** bygevoeg word.

ONKRUIDBEHEER

Persentasie berekenings, bv 1,5 % oplossing = 1,5 l

ROUNDUP in 98,5 l water = 100 l spuitoplossing. Seisoen waarin toegedien moet word:

- 1 - Vroeë lente
- 2 - Somer
- 3 - Herfs
- 4 - Winter

Tabel 1: Meerjarige en wateronkruid.

Tabel 2: Nie-gewas en Industriële gebruik.

Tabel 3: Gewasaanbevelings, boomgewasse, voorplant, bosbou, bloekomuitwissing, suikerriet.

Tabel 4: Suikerriet nymaking.

Tabel 5: Groeiregulering (Chemiese sny).

Tabel 6: Weidingopknapping.

Tabel 7: Bestrykingstoediening.

TABEL 1 – MEERJARIGE EN WATER ONKRUIDE*

ONKRUID		Seisoen	Oplossing** %	OF L/Ha	Opmerking
<i>Acacia meamsii</i>	Swartwattel	2	1,5	3,0	Spuit tot 1 m hoogte.
<i>Acacia saigna</i>	Port Jackson	1 - 3	1,5 1,5	2,0 4,0	Slegs vir saailinge: Tweeblaarstadium. Tot 60 cm hoogte.
<i>Caesalpinia decapetula</i>	Kraaldoring	2	1,5	3,0	Spuit tot 1 m hoogte.
<i>Chromolaena odorata</i>	Eupatorium	2 - 3	1,5	3,0 *	Kap gevestigde plante af. Bespuit hergroeï op 50 - 120 cm hoogte. Verseker volledige druppelbedekking op die lower. Vorige gekapte meerstammige plante mag 'n opvolg behandeling benodig.
<i>Convolvulus arvensis</i>	Akkenwinde	2	3,0 1,5	6,0 *	Dien toe sodra begin blom. Opvolgbespuiting of kolbespuiting op hergroeï.
<i>Cynodon dactylon</i>	Kweek	2 - 3	3,0 * 2,0	6,0 4,0 *	Dien toe in herfs. Opvolgbespuiting gedurende somer of Kolbespuiting hergroeï of Dien toe in somer en volg op in herfs op hergroeï.
<i>Cyperus esculentus</i>	Geeluintjie	2	3,0 * 1,5	6,0 3,0 *	Dien toe met blom. Opvolgbespuiting of Kolbespuiting hergroeï gedurende Feb/Mar.
<i>Cyperus rotundus</i>	Rooiuintjie	2	3,0 * 1,5	6,0 3,0 *	Dien toe met blom. Opvolgbespuiting of Kolbespuiting hergroeï gedurende Feb/Mar.
<i>Eichhomia crassipes</i>	Water hasint	2	3,0 3,0 4,0	6,0 * *	Dien toe wanner nuwe blare maksimaal sigbaar is. Rugsak spuit. Newelblaser.
<i>Eragrostis curvula</i>	Oulandsgras	2 - 3	1,5 1,5	2,0 4,0	Slegs saailinge. Twee-blaarstadium tot 60 cm hoogte.
<i>Lantana camara</i>	Gewone lantana	2 - 3	3,0 3,0 4,0	6,0 * *	Rugsak spuit. Newelblaser
<i>Malva parviflora</i>	Kiesieblaar	1	1,5	3,0	Bespuit voor blom alleenlik in tenkmengsel met die aanbevole Simasien dosis.
<i>Opuntia ficus-indica</i>	Turksvy	1 - 4	*	*	Stam inspuiting: Dien 2 m ³ van 'n 33 % oplossing in elk van 4 - 12 voorafgeboorde gate in die stam van bome met 20 - 250 blaie (Raadpleeg u verteenwoordiger vir meer besonderhede).

TABEL 1 – MEERJARIGE EN WATER ONKRUIDE* (vervolg)

ONKRUID		Seisoen	Oplossing** %	OF L/Ha	Opmerking
<i>Panicum maximum</i>	Buffelsgras	2	3,0 1,5	6,0 3,0	Opvolgbespuiting of Kolbespuiting op hergroei.
<i>Paspalum dilatatum</i>	Polpaspalum	2	3,0 1,5	6,0 3,0 *	Dien toe met blom maar besis vir saadval. Opvolgbespuiting of Kolbespuiting op hergroei.
<i>Paspalum paspaloides</i>	Kweekpaspalum	2	* * 2,0 *	8,0 4,0 *	Dien toe met blom maar voor saadval. Opvolgbespuiting of Kolbespuiting op hergroei. Winterreënvál gebied: Dien toe in herfs maar voor enige ryp.
<i>Pennisetum clandestinum</i>	Kikoejoe	2	1,5 * 1,5	4,0 3,0 *	Dien toe op aktiewe groei in somer of herfs in die winterreënvál gebied maar voor enige ryp. Opvolgbespuiting of Kolbespuiting op hergroei.
<i>Phytolacca heptandra</i>	Inkbossie	2	1,5	3,0	Spuit tot 1 m hoogte.
<i>Phragmites australis</i>	Fluitjiesriet	2 – 3	3,0 3,0 4,0	6,0 * *	Dien toe met 20 - 30 % blomstadium. Rugsak spuit. Newelblaser. Kap hergroei af. Bespuit daaropvolgende hergroei op 45 cm hoogte.
<i>Plantago lanceolata</i>	Tongblaar	1	1,5	3,0	Bespuit voor blom.
<i>Rubus spp.</i>	Brame	2 – 3	3,0 3,0 4,0	6,0 * *	Rugsak spuit.
<i>Rumex spp.</i>	Steenboksure	1	1,5	3,0	Bespuit voor blom.
<i>Sesbania punicea</i>	Sesbania	1	1,5 2,5	3,0 3,0	Saailinge: Tot 1 m hoogte. Hoër as 1 m.
			1,5 - 2,0	3,0	Struik - lang bome: Sny af en bespuit hergroei op 1 m hoogte.
<i>Setaria chevaleri</i>	Bosbuffelsgras	2 – 3	3,0 3,0 4,0	6,0 *	Rugsak spuit. Newelblaser.
<i>Solanum mauritianum</i>	Luisboom	2 – 3	1,5 1,5	2,0 *	Groot bome: Kap stam terug tot 5 - 20 cm hoogte. Spuit indien hergroei knie-hoogte is
<i>Sorghum bicolor</i>	Wilde graansorghum	2 – 3	1,5	2,0	
<i>Sorghum halepense</i>	Johnson gras	2 – 3	1,5 1,5	4,0 3,0 *	Opvolgbespuiting op hergroei. Kolbespuiting.

TABEL 1 – MEERJARIGE EN WATER ONKRUIDE* (vervolg)

ONKRUID		Seisoen	Oplossing** %	OF L/Ha	Opmerking
<i>Striga trichotoma</i>	Nasella polgras	4	1,5 2,0	4,0 *	Gebruik hoë volume van 400 l/ha mengsel. Kolbespuit hergroei of bespuit vroeg in lente.

*Vir alle toedienings, met enige van die verskillende tipes toedieningstoerusting, verseker dat die aabevole dosis op 'n liter per hektaar basis, altyd volledig nagekom word.

** % Oplossing is bedoel vir rugsakspuite gebaseer op 'n watervolume van 200 l /ha. Indien die watervolume toegedien per hektaar verskil, pas die dosis ooreenkomstig aan.

TABEL 2 – NIE-GEWAS EN INDUSTRIËLE GEBRUIK

ONKRUID	DOSIS L/Ha	OPMERKING
Eenjarige onkruid	1,0 – 3,0	
Eenjarige en meerjarige onkruid	2,0 – 10,0	Kolbespuit hergroei met 'n 1.5 % oplossing waar nodig. Sien Tabel 1 vir spesifieke onkruid. Gebruik ROUNDUP in 'n tenkmengsel met residuele onkruidodders (Bromacil, Diuron, Simasien, Ustilan of Velpar) volgens etiket aanbevelings vir residuele onkruidodders.

TABEL 3 – GEWASAANBEVELINGS

ONKRUID	DOSIS L/Ha	OPMERKING
Eenjarige onkruid	1,0 – 3,0	Gebruik die hoër dosis op volwasse onkruid.
Meerjarige onkruid	Tabel 1	Sien spesifieke onkruid aanbevelings.
Voorsorgmaatreëls: <ul style="list-style-type: none"> • Voorkom spuit- of sproeinewel kontak met blare, groen en jong bas van stamme, asook vrugte. • Laat 'n periode van 10 dae toe na snoei, of verwydering van laaghangende takke en suiers alvorens onkruid in meerjarige gewasse bespuit word. • Jong boompies met groen bas (Normaalweg jonger as 4 jaar); Beskerm stamme teen sproei kontak. 		
Aalwyn, Amandels, Appels, Appelkose, Avokado, Grenadella, Hops, Kaalperskes, Kersie, Kiwi vrugte, Koffie, Koejawel, Kwepers, Lietjies, Makadamia Neute, Olywe, Papaja, Pere, Perskes, Pekanneute, Pruime, Pruimedante, Sagte vrugte, Tee en Veseperske.		

Gewasspesifiek	
Gewas	Opmerking
Piesangs	Beskerm suiers en groen stamme teen sproei kontak.
Brame	Gebruik slegs bestryktype toerusting. Vermy kontak met die gewas.
Pynapples en Turksvye	Dien alleenlik toe as 'n gerigte tussenry bespuiting.
Wingerd	Dien slegs toe op wingerd ouer as 2 jaar, gerig op die onkruid en voor bot.
Bostok en laagopgeleide wingerd <60 cm hoog	Dien toe in vroeë lente, voor bot.
Sisal	Dien toe in kwekery en op volwasse plante.

Gewas	Situasie	Dosis //Ha	Opmerking
Suikerriet	Laaste ratoen uitwissing	8.0 - 10.0	Minimum bewerking: Laat hergroeï toe tot 45 cm hoogte na laaste ratoen (stoelstadium voltooid). Dien 100 - 400 ℓ /ha mengsel toe sodra halms verskyn.
		4.0 - 8.0	Kombinasie bewerking: Bespuit hergroeï op 35 - 100 cm hoogte met ROUNDUP na laaste ratoen. Sny die suikerriet stoele na verloop van 1 - 10 dae op 'n diepte van 10 - 15 cm onder die grondoppervlak met 'n lem of soortgelyke implement. Sekere onkruid sal ook deur die behandeling beheer word. Gebruik die hoër dosis op vrugbare gronde waar hergroeï 'n probleem is.
	Koluitwissing	10 % Oplossing	Dien gerig toe op die lower van besmette (bv. brand) of af-tipe plante.
	Kolbespuit om landerye	2 % Oplossing	Dien toe op aktief groeiende onkruid om landerye, telefoonpale ens.
	Voor plant	1.0 - 3.0	Eenjarige onkruid: Dien toe op aktief groeiende onkruid.
Tabel 1		Meerjarige onkruid: Dien toe op aktief groeiende onkruid.	

Gewasspesifiek - Tenkmengsels		
Gebruik die aanbevole dosisse en hou by die beperkings op die etiket van die betrokke produkte.		
Gewas	Produk Dosis //Ha	Opmerking
Appels, Pere en Wingerd	ROUNDUP + Simazine	Voeg 2 kg of 2 ℓ ammoniumsulfaat / 100 ℓ spuitvolume toe, gevolg deur ROUNDUP en daarna Simasien om die verenigbaarheid te verbeter.
	ROUNDUP + MCPA (Kalium sout)	Dien toe wanneer onkruid soos Tongblaar (<i>Plantago lanceolata</i>) en Turksnael (<i>Erodium moschatum</i>) jonk is en aktief groei.
	ROUNDUP 1.5 + MCPA 3.0	Vroeë winter: (Onkruid kleiner as 15 cm hoogte) Die kombinasie word nie vir Kiesieblaar (<i>Melva parviflora</i>), Gousblom (<i>Arctotheca calendula</i>), Hawer saadgras (<i>Eharta</i> spp.), Echiium spp. (<i>Echium vulgare</i>), Raaigras (<i>Lolium</i> spp.), Sydlissel (<i>Sonchus oleraceus</i>) en Predikantsluis (<i>Bromus</i> spp) aanbeveel nie.
	ROUNDUP 2.0 + MCPA 4.0	Laat winter: (Onkruid kleiner as 30 cm hoogte) Gebruik die hoër dosis vir Klawer (<i>Medicago polymorpha</i>), Koperdraad (<i>Polygonum aviculare</i>) en Steenboksuring (<i>Rumex angiocarpus</i>).

Gewasspesifiek — Tenkmengsels (vervolg)		
Gewas	Produk Dosis //Ha	Opmerking
Landerye	Eenjarige onkruid 1.0 - 3.0 Meerjarige onkruid Tabel 1	Gebruik ROUNDUP na oes van die vorige gewas maar voor opkoms van die nuwe gewas. Gebruik die hoër dosis vir vir eenjarige onkruid ouer as die 12 blaar stadium of gevestigde plante. Gebruik 2.0 - 3.0 ℓ /ha vir <i>Conyza</i> spp. (Skraalhans).
Bosbou	Tabel 1	Vir die vestiging van <ul style="list-style-type: none"> • vuurbane, algeheel of stroke • voorplantstroke in onversteurde veld • na oes voorplant skoonmaak • wattel hervestiging en • die beheer van indringer, skadelike of meerjarige of probleem onkruid
Bloekom stomp uitwissing	50 mℓ of 10% Oplossing	Enkelstam stompe (bome wat nie hergroeï van 'n moederstam nie)
	100 mℓ of 15 % Oplossing	Meerstammige hergroeï vanuit 'n moederstam. <ul style="list-style-type: none"> • Dien oplossing toe vir volledige benatting van veral die kambium area (waar bas en hout ontmoet). • Gebruik 'n lae druk rugsakspuit met volgeel spuitpunte vir volledige stomp benatting. Dien toe nadat die bome gefel is en die saagsels op die oppervlakte verwyder is. Stompe wat uitloop na behandeling moet korter afgesaag of geringuleer word om die totale kambium bloot te lê vir verdere behandeling. • 'n Pluiserige hergroeï mag voorkom wat normaalweg terug sterf. Indien nie, verwyder met die hand of spuit 'n 2 % ROUNDUP oplossing met die nodige voorsorg om wegdrywing na nutgevestigde saailinge te voorkom. • Ander spesies as <i>Eucalyptus grandis</i> mag variërende resultate met ROUNDUP lewer en 'n herbespuiting mag nodig wees.

TABEL 4 – SUIKERRIETRYPMAKING

DOSIS L/Ha	OPMERKING
0,75	Grondbespuiting
1,0	Lugbespuiting

- Dien toe op aktief groeiende riet met tenminste 8 groen blare. Moet nie lande in die laat-seisoen bespuit waar meer as 15 % van die halms in blom is nie.
- Riet gekap van April tot Julie: Dien 6 - 8 weke voor kap toe.
- Riet gekap van Oktober tot Januarie: Dien 4 - 6 weke voor kap toe.
- **Moenie probeer om riet ry te maak wat onder stremming verkeer nie.**
- Moenie lande bespuit wat vir saaddoelendes gekap word nie.
- **ROUNDUP** sal suikerriet ry maak wat beskou word as volgroei (tot op 90 % suiwerheid) maar die beste resultate word verkry as rietkwaliteit laag is (jong onvolwasse riet of vroeg en laat in die meuseisoen).
- Hou aan met besproeiing waar van toepassing so lank as moontlik na toediening.
- Alle bestaande goedgekeurde kommersiële kultivars kan ry gemaak word.
- Die grootste suikrose toename is gekonsentreer in die boonste nodes. Top by die basis van die vierde blaarskede.
- Chemiese aktiwiteit, 3 - 4 weke na toediening is soms waarneembaar in effense vergeling vroeg in die seisoen en knopswel en sy-spruiting laat in die seisoen. Knop groei stop en spildood mag ook voorkom.
- Ratoen mag meer halms ontwikkel wat verpot mag voorkom met vergeling op die blare wat sal uitgroei.

TABEL 5 – GROEIREGULERING (CHEMIESE SNY)

Die groei en blom van meerjarige pol- en kruipgrasse, tweejarige en meerjarige breëblaar en eenjarige onkruid kan beheer word deur die toediening van subletale dosisse nadat afgesny is.		
ONKRUID	DOSIS m//Ha	OPMERKING
<i>Bromus unioloides</i>	400 - 800	Reddingsgras
<i>Cynodon dactylon</i>	400 - 1000	Gewone kweek
<i>Digitaria eriantha</i>	400 - 1000	Smutsvingergras
<i>Erodium moschatum</i>	600 - 800	Turksnael
<i>Festuca</i> spp.	400 - 800	Swenkgras
<i>Hyparrhenia hirta</i>	400 - 1000	Dek tamboekiegas
<i>Lolium</i> spp.	400 - 800	Raaigras
<i>Malva parviflora</i>	600 - 800	Kiesieblaar
<i>Paspalum dilatatum</i>	400 - 800	Gewone paspalum
<i>Paspalum urvillei</i>	400 - 800	Langbeen paspalum
<i>Pennisetum clandestinum</i>	200 - 600	Kikoejoe
<i>Plantago lanceolata</i>	600 - 800	Tongblaar
<i>Sporobolus africanus</i>	600 - 1000	Rotstert fynsaadgras
Eenjarige onkruid en saailinge	200 - 1000	Goed ontwikkelde eenjarige onkruid. Saailinge en jong plante mag deur hierdie behandeling beheer word.
Opvolgbespuitings	Tot en met 600	Alle onkruid in die Tabel 5. Eerste bespuiting soos hierbo, opgevolg voor oormatige groei.
<ul style="list-style-type: none"> • Dien ROUNDUP 5 - 10 dae na afsny toe. Gebruik die korter interval in die lente en somer tydens meer aktiewe groei. • Toediening behoort 2 - 4 meganiese operasies te vervang afhangel van dosis, spesie en weerstoestand. • Hoër dosisse sal groei langer onderdruk met 'n gepaardgaande hoër voorkoms van chlorose (vergeling). • Meerjarige grasse is meer sensitief vir ROUNDUP in die herfs. 'n Groter mate van chlorose kan dus vermag word. Gebruik 'n laer dosis om dit te voorkom. Gebruik die laer dosis op grasse gedurende laat lente en somer. In vrugteboorde en wingerde in die winterreëvalgebied, waar die tussen-ry nie besproei word nie (bv drup besproeiing). • Moenie toedien op plante wat onder spanning verkeer nie bv. droogte, versuip, ens. • Verwyder oortollige plantmateriaal na sny voor bespuiting. • Dien 50 - 200 l / ha spuitvolume toe en verseker 'n egalige druppelverspreiding op die teiken se lower. 		

TABEL 6 – WEIDING OPKNAPPING

OPMERKINGS	SITUASIE
<p>Meerjarige rankgras besmetting: Meganiese en chemiese opknapping:</p> <p>Berei saadbed voor. Laat meerjarige rankgras en eenjarige onkruid ontkiëm.</p> <p>Dien ROUNDUP toe volgens aanbevole dosisse vir onkruidspektrum. (Sien Tabel 1). Saai nuwe weiding 3 - 4 dae na toediening.</p> <p>Bewerk die onkruid en laat hergroei toe. Spuit dan die aanbevole ROUNDUP dosis. Laat 7 dae voor 'n tweede bewerking, saadbedvoorbereiding en plant/saai.</p> <p>Nuut ontkiërende onkruid kan beheer word met 1,0 - 3,0 l/ha. <i>Cyperus</i> spp benodig 6,0 l/ha. Saai die nuwe weigewas 3 - 4 dae na toediening.</p>	<p>Konvensioneel</p> <p>Ligte druk</p> <p>Hewige druk</p> <p>Onkruid beheer voor saai</p>
<p>Weiding vervang en veld verbetering: Verminder plantmateriaal deur af te sny of te beweï, 3 - 4 weke voor ROUNDUP toediening op hergroei. Plant die nuwe weigewas 3 - 4 dae na bespuiting.</p>	<p>Direkte plant</p>
<p>Onderhoud op weiding: Beheer een- en meerjarige onkruid in weidings deur kolbespuitings met 'n 2 % oplossing of gebruik 'n bestryktipe toedienaar waar onkruid bokant die weiding uitsteek. (Sien Tabel 7)</p>	<p>Onderhoud op weiding:</p>
<p>Notas:</p> <ul style="list-style-type: none"> • Gebruik die aanbevole dosis om meerjarige - (Tabel 1) en eenjarige onkruid (Tabel 2) te beheer tydens opknapping van gevestigde weidings. • Gebruik die konvensionele of direkte plant metodes. • Verseker dat geïl onkruidgroei nie verhoed dat teikenplante benat word nie. • Moet nie ou, swaar gevestigde Kikoejoe of Gewone Kweek met verminderde groen blaar-oppervlakte bespuit nie. Brand die grasmassa aan die einde van die winter. Laat hergroei en bespuit dan in die laatsomer vir herfs vestiging van die nuwe weiding. 	

TABEL 7 – BESTRYKTOEDIENING

TIPE TOEDIENER	OPLOSSING	OPMERKING
Rollertoediener handtipe	Eenjarige onkruid 5% Meerjarige onkruid 10%	100 – 150 //Ha oplossing word aanbeveel waar konvensionele ens. bespuiting onprakties is, bv. laag opgeleide bostok wingerde.
Handmodel of trekker gemonteerde toutipe toediener.	50 %	Dien tot en met 3,0 //ha oplossing toe in boorde en waar onkruid- / gewashoogtes verskil, bv vir beheer van opslag of laat ontkiemende onkruid in boontjies en grondboontjies.

Notas:

- Gebruik 'n bestryktipe toediener wat deur Bayer (Edms) Bpk goedgekeur is. Die toediener maak gebruik van absorberende materiaal om die **ROUNDUP** oor te dra op die plante waarmee dit in aanraking kom.
- Verseker dat die bestrykoppervlakte skoon gehou word. Die bestrykoppervlakte **MOET NIE** in aanraking met die gewas kom nie.

Die volgende handelsmerke en registrasies word erken kragtens Wet No 36 van 1947

Produk	Reg. Nr.	Registrasiehouer
Armoblen	L4159	Dow AgroSciences, (Edms) Bpk
AMS Super	L9758	Universal Crop Protection (Pty) Ltd.
AMS Granule	L9610	Universal Crop Protection (Pty) Ltd.
Bladbuff 7	L8121	AECI Beperk
Bromacil WP	L3338	Dow AgroSciences, (Edms) Bpk
Diuron 800 SC	L3200	Dow AgroSciences, (Edms) Bpk
Diuron WP	L3227	Dow AgroSciences, (Edms) Bpk
Gesatop	L2241	Syngenta AG, Basel, Switzerland
MCPA (potassium salt)	L3616	Dow AgroSciences, (Edms) Bpk
Simazine SC	L3340	Dow AgroSciences, (Edms) Bpk
Velocity Super	L9603	Universal Crop Protection (Pty) Ltd.
Velpar Df	L263	Du Pont de Nemours Int SA

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