



ROTANGA

Reg. No. L 6811 (Act 36 of 1947)

A wettable powder post-emergence herbicide, packed in water soluble bags for the control of weeds as indicated in wheat, barley and oats in the Western, Southern and Eastern Cape and certain weeds in wheat planted in the summer rainfall region of the northern and north - eastern provinces.

HRAC HERBICIDE GROUP CODE B

ACTIVE INGREDIENT:

Chlorsulfuron (sulfonyl urea) 750 g/kg

REGISTERED BY:

BITRAD CONSULTING (PTY) LTD. Co. Reg. No. 2002/025636/07
PO Box 51454, Wierda Park, 0149

ROTANGA is a registered trademark

WARNINGS:

- Store in a cool, dry place.
- Store away from food and feeds.
- Keep out of reach of children, uninformed persons and animals.
- The product may irritate eyes, nose, throat and skin.
- Do not enter treated field until spray deposit has dried unless wearing protective clothing.
- AERIAL APPLICATION: Notify all inhabitants of the immediate area to be sprayed and issue the necessary warnings. **ROTANGA** is a highly active herbicide that in small quantities, when used incorrectly, can cause serious damage to crop seedlings, deciduous fruit trees and grape vines during the budding- and early season growth stages. Under the following conditions it can cause serious damage as far as 3 to 5 km from the nearest spray path of the aircraft: Cloudy weather with relative humidity above 80% and low air movement of less than 5 km per hour. When such conditions prevail, aerial application should NOT be carried out where crop seedlings, deciduous fruit trees and grape vines in budding or early development stages are present within 5 km of the nearest spray path of the aircraft.
- Incorrect timing of application in terms of crop stage and/or excessive dose rates may damage the crop.
- Temporary retarded growth and yellowing of leaves may occur after application with **ROTANGA** under certain climatic conditions such as prolonged cold, wet periods.

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 weeds 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 label instructions or to the occurrence of conditions that could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.

PRECAUTIONS:

- Keep the soluble bags dry at all times – until mixing takes place.
- **Do not** eat, drink or smoke whilst mixing and applying or before washing hands and face.
- Prevent contamination of food, feed, drinking water and eating utensils.
- Wear protective clothing when mixing the product i.e. overalls, gloves and face shield.
- Wash with soap and water after use and accidental skin contact.
- In case of eye contact, immediately flush with water.
- Wash contaminated clothing daily.
- **Do not** inhale the spray mist.
- Avoid drift of spray onto other crops, grazing, rivers, dams and areas not under treatment.
- **Cleaning of Application Equipment:** Special attention and care must be taken with cleaning of all equipment used in the mixing and application of **ROTANGA** – before using it for applications on other crops:

1. Drain spray tank and rinse thoroughly with ample water. Flush the pipes, boom and nozzles of applicator with the water.
 2. Drain spray tank again and fill with clean water.
 3. Add household Ammonia – 1 litre for every 100 litre water.
 4. Bleed the system to ensure that all pipes, booms and nozzles are filled with the ammonia solution.
 5. Leave the ammonia solution in the applicator for at least one hour.
 6. Drain spray tank and pipe system completely.
 7. Repeat steps 2 to 6.
 8. Remove ammonia residues by flushing system with clean water.
 9. Contamination on mixing equipment must also be washed with ammonia solution, whilst those on the outside of equipment can be washed with water.
- **Do NOT** dispose the wash water where it will contaminate crops, grazing, rivers and dams, and away from the root zone of desirable plants.
 - Destroy empty containers by perforation and dispose it in a safe and responsible way. Never use for any other purpose.

RESISTANCE STATEMENT:

ROTANGA is a member of the sulfonylurea group of herbicides (group B) and is an acetolactate synthase (ALS) inhibitor. Some naturally occurring weed biotypes resistant to **ROTANGA** and other ALS inhibitors (group B herbicides) may exist through normal genetic variability in a weed population. These resistant weeds can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds will not be controlled by **ROTANGA** or by other group B herbicides.

To delay the selection of resistant weeds:

- Integrate tillage or other mechanical control methods (including non-selective herbicides during the fallow period) into weed programmes whenever practical.
- Avoid repeated use of herbicides of the same mode of action groups. Plan crop rotations to allow the use of herbicides from different mode of action groups.
- Maintain herbicide records for each field to prevent repeated use of the same herbicide on the same field.
- Prevent movement of resistant weed seeds and vegetative material to other fields by cleaning harvesting and tillage equipment and by planting clean seed.
- Inspect each land annually to identify the development of resistance early.
- If the above-mention preventative measures are not strictly adhered to, the registration holder cannot be held responsible should **ROTANGA** fail to control resistant weeds.

Note: Sub-standard applications will lead to unsatisfactory control and assist in the development of resistance.

USE RESTRICTIONS:

1. The use of **ROTANGA** is restricted to Wheat, Barley and Oats in the Western-, Southern- and Eastern Cape and winter planted wheat in the summer rainfall region of the northern and North – eastern provinces.
2. **Follow-up crops.**
 - After a **ROTANGA** application, the following pre-plant intervals for follow up crops must be adhered to: Wheat - 6 months, Barley, Oats - 10 months, **Any other crops** - 20 months
 - Soils with pH levels exceeding 6.5 (KCl) and/or soils containing trace lime may result in longer residual activity of **ROTANGA** in respect of follow-up crops.
3. **Erratic control/regrowth** of weeds may occur under any of the following conditions:
 - Soils that tend to leach and/or become waterlogged.
 - Solid objects covering the soil surface eg. hard clods and stones.
 - Applications that do not coincide with the correct growth stages of weeds - as recommended.
 - Large weeds that escaped chemical tillage or cultivation will not be controlled.
 - The residual effect on germinating weeds may be limited, which depends on factors such as weed species, soil pH and soil moisture.
4. **Crop stress conditions.** Do not use **ROTANGA** when crop is growing under any stress condition eg. water logging, drought, disease, very cold conditions (min. night temperatures < 5 ° C.), insect damage and nutritional deficiencies (especially Nitrogen).
5. **Undersown Cereals:** **ROTANGA** must not be applied to cereals undersown with pastures.
6. **Water quality:** Use only water of good quality as suitable for irrigation, i.e. neutral pH, and without excessive salts/chemicals.
7. **Compatibility:** Crop safety of certain tank mixtures must be tested prior to application. Always add surfactant at registered rate to **ROTANGA** and also to a **ROTANGA** tank mix together with ROMEX (Metsulfuron-methyl) applications.

It is known that chlorpyrifos in mixture with sulfonyl ureas are not safe. Likewise, surfactant must NOT be added to a tank mixture of **ROTANGA** plus other liquid formulation i.e. Bromoxynil, MCPA, Dimethoate etc. when used in the Western -, Southern and Eastern Cape Region If MCPA is used in tank mix with **ROTANGA**, ensure that the crop is between the correct growth stages 7 to 13 as popularly described.

- A Tank mix application of **ROTANGA** and Dichlofop is not recommended since weed control can be impaired under climatic stress conditions. If a Dichlofop application is followed with a **ROTANGA** or **ROTANGA** tank mix, allow a 7 day interval following the Dichlofop treatment.
8. DO NOT leave excessive spray mixture overnight for later use.
 9. The efficacy of **ROTANGA** may be negatively affected if rain occurs after application, before the spray deposit has dried off.

DIRECTIONS FOR USE:

- **ROTANGA** use is limited to Wheat, Barley and Oats in the Western -, Southern – and Eastern Cape and dry land wheat in the Summer Rainfall Region of the northern and North – eastern provinces. Do not apply **ROTANGA** on cereals grown under Irrigation.
- Apply **ROTANGA** post emergence, within 2-5 weeks after weed emergence, depending on area and weed growth stages and when the crop has reached the 3 – 5 leaf stage.
- **ROTANGA** is formulated as a wettable powder and packed in soluble sachets to ensure accurate doses. Each sachet contains 15 g product.
- **ROTANGA** may also be used in tank mixtures with ROMEX, Bromoxynil and MCPA.
- If MCPA is added to **ROTANGA** as a tank mix, ensure that the crop is in the correct growth stage between 7 and 13 as popularly described.
- If a **ROTANGA** or **ROTANGA**/ROMEX tank mix is applied – always add surfactant at registered rate.
- If any other liquid formulation is added as tank mix for use in the Western -, Southern and Eastern Cape Region, do NOT add surfactant to the spray mixture.

PRE-MIXING:

- Do not handle the soluble bags with wet gloves.
- Count the number of sachets needed according to number of hectare to be treated and the capacity of the spray tank.
- Add the counted soluble bags into a bucket with water and mix to ensure that total disintegration of the bags and full dispersing of the contents in the water occurs.
- Add this concentrate to the spray tank whilst agitating the spray mixture.

MIXING INSTRUCTIONS:

1. Fill spray tank to 1/2, full of water.
2. Add the dispersed mixture to the tank through a sieve.
3. Rinse the pre-mixing bucket with water into spray tank.
4. Add the required amount of partner herbicide in the same manner and/or the surfactant.
5. Top up to the required volume while agitating continuously, then proceed as follows:

APPLICATION:

Ground application:

Apply 150 to 250 litre spray mixture per hectare at a constant operating pressure of 150 to 300 kPa and constant ground speed. Ensure an even coverage of the target area, using boom fitted with solid – or hollow cone nozzles. Prevent overdosing by avoiding overlapping of swaths and spraying whilst moving at speeds below the constant calibration speed and/or stopping.

Aerial application:

ROTANGA may only be applied by a registered Aerial Application Operator using a correctly calibrated, registered aircraft according to the instructions of SANS 10118 (The Aerial Application of 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 35 ℓ 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 350 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**.
- 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 15 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:
 - reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage).
 - 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.

APPLICATION TABLE: Western -, Southern and Eastern Cape.

CROP	DOSAGE/ha	DIRECTIONS FOR APPLICATION
WHEAT,	Ground application: Product used alone:	Apply the higher dose for severe weed infestation and larger weeds. Best weed control results are obtained when applications coincide with optimal growing conditions, when weeds are growing actively under ideal moisture regimes. Apply as a post-emergence application to young weeds which are not exceeding the growth stages given in the following table and when the cereal crop is in the 3 – 5 leaf stage. DO NOT use ROTANGA when crop is growing under stress conditions. Please refer to Use Restrictions and pay attention to limitations of the product in terms of: <ul style="list-style-type: none">* Controlling large weeds* Crop stress conditions* Erratic control and regrowth of weeds.* Pre-plant intervals of follow-up crops.* Warning on undersown crops.* Compatibility with other products.* Quality of Water used in applications.
BARLEY	15 g (1 sachet/ha) ROTANGA - 17,5 g (1 sachet/0,86 ha) ROTANGA plus	
and	50 ml Wet-All /100 litre spray mixture OR	
OATS	surfactant at registered rate (except when liquid formulations are used in tank mix)	
	Product used in mixture: 12,5 g ROTANGA (1 sachet/1,2 ha) plus 500 ml Bromoxynil (225 EC)	Recommended when susceptible growth stages of weeds, especially <i>Emex australis</i> (Spiny emex) exceeds the allowed limit at time of application and/or the advanced growth stage of the crop, disallows the use of traditional hormone type herbicides.
	OR 10 g ROTANGA (1 sachet/1,5 ha) plus 1000 ml MCPA (400 SL)	Recommended when susceptible growth stages of weeds, especially <i>Raphanus</i> (wild radish), exceeds the susceptible allowed limit at time of application. Ensure that the crop is between the correct growth stages 7 and 13 as popularly described.
	OR 8 g ROTANGA (1 sachet/1,88 ha) plus 10 g ROMEX plus	Recommended when susceptible growth stages of weeds, especially <i>Emex australis</i> (Spiny emex) exceeds the allowed limit at time of application and/or the advanced growth stage of the crop, disallows the use of traditional hormone type herbicides.
	50 ml Wet-All /100 litre spray mixture OR other surfactant at registered rate	
	OR 8 g ROTANGA (1 sachets/1,88 ha) plus 10 g ROMEX plus 500 ml MCPA (400 SL)	Recommended when susceptible growth stages of weeds, especially <i>Raphanus</i> (wild radish), exceeds the allowed limit at time of application. Ensure that the crop is between the correct growth stages 7 and 13 as popularly described.
	For Aerial application with mixtures: Follow recommendations as for ROTANGA used alone. plus Anti Drift Agent/Anti-evaporant if needed (both at registered rates.)	

USE ONLY AS DIRECTED

WEEDS CONTROLLED:

In the **Western -, Southern and Eastern Cape Region** the following weed species are normally controlled by **ROTANGA**, if used alone, from germination up to the growth stage indicated:

Common name	Botanical name	Maximum weed size at application
Annual Bluegrass	<i>Poa anua</i>	5 cm high
Chickweed	<i>Stellaria media</i>	5 cm high
Common mustard	<i>Sisymbrium thellungii</i>	2 leaves
Common sow thistle	<i>Sonchus oleraseus</i>	3 leaves
Corn spurry	<i>Spergula arvensis</i>	3 cm high
Fiddleneck	<i>Amsinckia augustiflora</i>	5 cm high
Fumitory	<i>Fumaria officinalis</i>	3 cm high
Galant soldier	<i>Galinsoga parviflora</i>	2 cm high
Large stinkweed	<i>Pentzia grandiflora</i>	5 cm high
Small stinkweed	<i>Pentzia suffrutosa</i>	5 cm high
Medics	<i>Medicago spp.</i>	5 leaves
Musk herraon's bill	<i>Erodium moschatum</i>	5 cm diameter
Narrow leaved ribwort	<i>Plantago lanceolata</i>	2 leaves
Pepperweed	<i>Lepidium africanum</i>	5 cm high
Pigweed (Thorny)	<i>Amaranthus spinosus</i>	3 leaves
Pimpernel	<i>Anagallis arvensis</i>	2 cm high
Prostrate knotweed	<i>Polygonum aviculare</i>	5 cm high
Sorrel (Red)	<i>Oxalis latifolia</i>	3 leaves
Sorrel (Yellow)	<i>Oxalis pescaprae</i>	4 leaves
Spiny emex	<i>Emex australis</i>	2 seed leaves (cotyledon stage)
White goosefoot	<i>Chenopodium album</i>	5 cm high
Wild radish	<i>Raphanus raphanistrum</i>	4 leaves

APPLICATION TABLE: Summer Rainfall Region (Dry land wheat only).

CROP	DOSAGE/ha	DIRECTIONS FOR APPLICATION
WHEAT	Ground application: Product used alone: 15 g (1 sachet/ha) ROTANGA - 17,5 g (1 sachet/0,86 ha) ROTANGA plus 50 ml Wet-All /100 litre spray mixture OR other surfactant at registered rate. Product used in mixture: 10 g ROTANGA (1 sachet/1,88 ha) + 30 g ROMEX + 1,0 litre MCPA 400 SL OR 300 ml 2,4-D Amine 480 SL + 50 ml Wet-All /100 litre spray mixture OR 100 ml/100 ℓ spray mixture Allgral 94 OR other Surfactant at registered rate For Aerial application with mixtures: Follow recommendations as for ROTANGA used alone. plus Anti Drift Agent/Anti-evaporant if needed, at registered rates.	Apply the higher dose for severe weed infestations. Best weed control results are obtained when applications coincide with optimal growing conditions, when weeds are growing actively under ideal moisture regimes. Apply as a post-emergence application to young weeds that are not exceeding the growth stages given in the table below and when the cereal crop is in the 3 – 5 leaf stage. DO NOT use ROTANGA when crop is growing under stress conditions. Please refer to Use Restrictions of the product in terms of: <ul style="list-style-type: none">* Controlling large weeds* Crop stress conditions* Erratic control and regrowth of weeds* Pre-plant intervals of follow-up crops* Warning on undersown crops* Compatibility with other products* Quality of water used in applications. This mixture is recommended when susceptible growth stages of weeds exceed the allowed limit at time of application.

WEEDS CONTROLLED:

In the **SUMMER RAINFALL REGION**, the following weed species are normally controlled by **ROTANGA**, from germination up to the growth stage indicated:

WHEN PRODUCT IS USED ALONE:

Common name	Botanical name	Maximum weed size at application
Common mustard	<i>Sisymbrium thellungii</i>	4 leaves
Volunteer sunflower	<i>Helianthus annuus</i>	5 cm
White goosefoot	<i>Chenopodium album</i>	5 cm
Wild radish	<i>Raphanus raphanistrum</i>	6 leaves

WHEN PRODUCT IS USED IN MIXTURES:

Common name	Botanical name	Maximum size of weeds at application.
Common wild mustard	<i>Sisymbrium thellungii</i>	8 cm diam.
Large thorn apple	<i>Datura ferox</i>	7 leaf
Pigweed	<i>Amaranthus spp.</i>	6 leaf
Sunflower volunteer	<i>Helianthus annuus</i>	8 leaf
Ramenas	<i>Raphanus raphanistrum</i>	6 leaf
Dwarf marigold	<i>Schukhria pinnata</i>	6 leaf
Prostrate knotweed	<i>Polygonum aviculare</i>	8 leaf
Climbing knotweed	<i>Fallopia convolvulus</i>	8 leaf
White goosefoot	<i>Chenopodium album</i>	8 leaf

Romex - Reg. No. L 6986
Allgral 94 - Reg. No. L 6543
Wet-All - Reg. No. L 8361



ROTANGA

Reg. Nr. L 6811 (Wet 36 van 1947)

'n Benatbare poeier na-opkom onkruiddoder,verpak in wateroplosbare sakkies vir die beheer van onkruidse soos aangedui in koring, gars en hawer in die Wes-, Suid- en Ooskaap en sekere onkruide in koring aangeplant in die somerreënval gebiede van die noordelike en noord – oostelike provinsies.

HRAC ONKRUIDDODER GROEP KODE B

AKTIEWE BESTANDEDEL:

Chlorsulfuron (sulfonielurea) 750 g/kg

GEREGISTREER DEUR:

BITRAD CONSULTING (PTY) LTD. Co. Reg. No. 2002/025636/07
PO Box 51454, Wierda Park, 0149

ROTANGA is 'n geregistreerde handelsmerk

WAARSKUWINGS:

- Bewaar in koel, droë plek.
- Bewaar weg van voedsel en voer.
- Hou buite bereik van kinders, oningeligte persone en diere.
- Die produk mag irritasie van oë, neus, keel en vel veroorsaak.
- Moet nie behandelde gebied binnegaan voordat neerslag droog is of beskermende klere gedra word nie.
- LUGTOEDIENING - Stel alle inwoners in die nabye omgewing in kennis van die gebied wat bespuit gaan word en reik die nodige waarskuwings uit. **ROTANGA** is 'n uiters aktiewe onkruiddoder, wat indien verkeerdelik aangewend, ernstige skade kan aanrig aan gewassaailinge, sagtevrugtebome en wingerde tydens bot en vroeë seisoensgroeï. Onder die volgende klimaatstoestande kan dit erntige skade aanrig vir sover as 3 – 5 km vanaf die naaste spuitbaan van die vliegtuig: Bewolkte weer met relatiewe humiditeit hoër as 80 % en stadige lugbeweging van minder as 5 km per uur. Waar sulke toestande heers, moet toedienings NIE gedoen word indien gewassaailinge, sagtevrugtebome of wingerde voorkom binne 5 km vanaf die naaste spuitbaan van die vliegtuig nie.
- Verkeerde tydstip van toediening in terme van gewasstadium en of oordosisse mag lei tot gewasskade.
- Tydlike vertraagde groei en vergeling van die gewas se blare, mag voorkom na toediening met **ROTANGA** onder sekere klimaatstoestande soos lang koue nat toestande.

Alhoewel hierdie middel omvattend onder 'n groot verskeidenheid toestande getoets is waarborg die registrasiehouer nie dat dit onder all toestande doeltreffend sal wees nie, aangesien die werking en effek daarvan beïnvloed 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 onkruid teen die betrokke middel sowel as die metode, tyd en akkuraathed van toediening. Verder aanvaar die registrasiehouer nie verantwoordelikheid vir skade aan gewasse, plantegroei, en omgewing of vir nadelige effek op mens of dier of vir 'n gebrek aan prestasie van die betrokke middel as gevolg van die ontstaan van toestande wat nie kragtens die registrasie voorsien kon word nie. Raadpleeg die verskaffer in die geval van enige onsekerheid.

VOORSORGMATREËLS:

- Hou die oplosbare sakkies ten alle tye droog – totdat vermenging plaasvind.
- Moenie eet, drink of rook terwyl produk gebruik word nie, of voordat hande en gesig gewas is nie.
- Vermý besoedeling van voedsel, voer, drinkwater en eetgerei.
- Dra beskermende klere wanneer produk gemeng word nl. oorpak, handskoene en gesigskerm.
- Was met seep en water na gebruik of toevallige velkontak.
- In geval van kontak met oë, spoel onmiddellik met water.
- Was besoedelde klere daaglik.
- Moet nie die spuitnewel inasem nie.
- Voorkom wegdrywing van die spuitnewel na ander gewasse, weiding, riviere, damme en gebiede wat nie behandel moet word nie.

- Skoonmaak van toedieningsapparaat:** Spesiale aandag moet gegee word aan die skoonmaak van spuittoerusting wat gebruik is vir **ROTANGA** – voordat dit gebruik word vir toedienings op ander gewasse:.

- Dreineer spuittenk en spoel deeglik met genoeg water. Pomp ook water deur die pype, spuitbalk en spuitpunte.
- Dreineer die spuittenk weer en hervul met skoon water.
- Voeg huishoudelike Ammoniak by water in spuittenk – 1 liter vir elke 100 liter water.
- Bloei die sisteem om te verseker dat alle pype, spuitbalk en spuitpunte gevul is met die Ammoniakoplossing
- Laat die Ammoniakoplossing vir ten minste een uur.
- Dreineer weer die spuittenk en spuitsisteem.
- Herhaal stappe 2 tot 6 .
- Verwyder die Ammoniakresidue deur die spuitsisteem goed te spoel met skoon water.
- Kontaminasie op die mengapparaat moet ook gewas word met 'n Ammoniak oplossing, terwyl residue op die buitekant van spuittoerusting met water afgewas kan word.
- Moet NIE waswater weggooi waar dit gewasse, weiding, riviere en damme kan besoedel nie, en weg van die woeltgebied van gewenste plante.
- Vernietig leë houers en moet dit nie gebruik vir enige ander doel nie.

WEERSTANDVERKLARING:

ROTANGA hoort tot die sulfonielureum groep onkruiddoders (groep B) en is 'n acetolaktaat sintase (ALS) inhibeerder. Sommige onkruidbiotipes, weerstandbiedend teen **ROTANGA** en ander ALS inhibeerders (groep B onkruiddoders) mag natuurlik voorkom deur normale genetiese variasie in die onkruidpopulasie. Hierdie weerstandbiedende onkruide kan uiteindelik die populasie domineer indien hierdie onkruiddoders herhaaldelik gebruik word. Hierdie weerstandbiedende onkruide sal nie beheer word deur **ROTANGA** of ander B-groep onkruiddoders nie.

Om die seleksie van weerstandbiedende onkruide te vertraag :

- Integreer grondbewerking of ander meganiese beheermetodes (insluitend die gebruik van nie-selektiewe onkruiddoders op braaklande) met onkruid beheerprogramme waar prakties moontlik.
- Voorkom herhaaldelike gebruik van onkruiddoders met dieselfde metode van werking. Beplan wisselbou om die gebruik van ander onkruiddoders (uit ander groepe) met verskillende werkingsmetodes moontlik te maak.
- Hou rekord van onkruiddoder gebruik vir elke land, om te voorkom dat dieselfde onkruiddoder herhaaldelik gebruik word op dieselfde land.
- Voorkom die verspreiding van weerstandbiedende onkruide se saad of steggies na ander lande deur implemente en oesmasjiene skoon te hou en plant skoon saad.
- Inspekteer elke land jaarliks, om die onwikkeling van weerstand vroeg te identifiseer.
- Indien bovermelde voorkomende maatreëls nie streng nagekom word nie, kan die registrasiehouer nie verantwoordelik gehou word indien **ROTANGA** nie weerstandbiedende onkruide beheer nie.

Nota: Sub-standaard toedienings sal lei tot onbevredigende beheer wat kan bydra tot die ontwikkeling van weerstand.

GBRUIKSBEPERKINGS:

- Die gebruik van **ROTANGA** is beperk tot Koring , Gars en Hawer in the Wes-, Suid- en Oos Kaap, en droëland koring in die somer reënvalgebied van die noordelike en noord oostelike p rovinsies.
- Opvolg gewasse.**
 - Na toediening met **ROTANGA**, moet die volgende tydsintervalle gehandhaaf word, voordat opvolg gewasse geplant word:

Koring - 6 maande

Gars, Hawer - 10 maande

Enige ander gewas - 20 maande
 - Gronde met pH vlakke wat 6,5 (KCl) oorskrei en/of gronde wat vry kalk bevat, mag lei tot langer residuele grondaktiwiteit van **ROTANGA** teenoor opvolg gewasse.
- Wisselvallige beheer/hergroeï** van onkruide mag voorkom onder enige van die volgende toestande:
 - Gronde wat loog en/of versuiping toon.
 - Vaste stowwe wat grondoppervlak bedek soos harde kluite en klippe.
 - Toedienings wat nie ooreenkom met die regte groeistadiums van onkruide nie – soos aanbeveel.
 - Groot onkruide wat voorplant bespuitings en/of bewerkings oorleef het, sal nie beheer word nie.
 - Die effek van grondoordraging op ontkiemende onkruide is beperk, wat weer afhang van faktore soos onkruidspesies, pH van grond, grondvog en temperatuur.
- Gewas stremmingstoestande.** Moet nie **ROTANGA** toedien indien gewas onder stremmingstoestande verkeer nie bv. versuiping,droogte, siektes, uiters koue toestande (min. nagtemperatuur < 5° C.), insekskade en voedingstekorte (veral Stikstof).
- Ondergesaaide kleingraan: ROTANGA** moet nie toegedien word op kleingraan wat ondergesaai is met weiding nie.
- Water kwaliteit:** Gebruik slegs water van goeie kwaliteit soos geskik vir besproeiing nl. neutrale pH en vry van soute/chemikalieë.
- Mengbaarheid:** Die veiligheid op gewasse van tenkmengsels moet getoets word voordat kommersiële toedienings plaasvind. Voeg altyd 'n benattingsmiddel by, teen geregistreerde dosis, met gebruik van **ROTANGA** en **ROTANGA** tenkmengsel met ROMEX (Metsulfuronmetiel) Dit is bekend dat Chlorpirifos in mengsel met **ROTANGA** nie veilig is op gewasse nie. Soortgelyk, moet benatter NIE bygevoeg word indien **ROTANGA** gebruik word in mengsel met ander vloeibare formulasies nie nl. Bromoksinil, MCPA, Dimetoaat ens. in die Wes-, Suid- en Oos Kaap streke nie. Indien MCPA gebruik word in tenkmengsels met **ROTANGA**, verseker dat die gewas in die regte groeistadium 7 tot 13 is, soos algemeen beskryf.

'n Tenkmengsel van **ROTANGA** en Diklofop word nie aanbeveel nie omdat onkruidbeheer beperk kan word onder klimaatstremming toestande. Indien 'n Diklofop toediening opgevolg word met 'n **ROTANGA** toediening, of **ROTANGA** tenkmengsel, laat 'n 7 dae wagtyd toe na die Diklofop behandeling.

- MOET NIE ongebruikte spuitmengsel ornag laat vir latere gebruik nie.
- Die effektiwiteit van **ROTANGA** mag negatief beïnvloed word indien reën voorkom na toediening voordat die spuitneerslag afgedroog het.

GBRUIKSAANWYSINGS:

GBRUIK SLEGS SOOS AANGEDUI

- Die gebruik van **ROTANGA** is beperk tot Koring, Gars en Hawer in die Wes-, Suid-, en Oos Kaap, en droëland koring in die somer reënvalgebied van die noordelike en noord oostelike provinsies.
- Moet nie **ROTANGA** toedien op kleingraan onder besproeiing nie.
- Spuit **ROTANGA** na-opkoms, binne 2-5 weke nadat onkruide ontkiem het , afhangend van streek en groeistadia van onkruid, en wanneer die gewas die 3-5 blaar stadium bereik het.
- ROTANGA** is geformuleer as 'n benatbare poeier en verpak in oplosbare sakkies om akkurate dosisse te verseker. Elke sakkie bevat 15 g produk.
- ROTANGA** kan in tenkmengsels gebruik word met ROMEX, MCPA en Bromoksinil.
- Indien MCPA gebruik word in tenkmengsel met **ROTANGA**, verseker dat die gewas in die
- regte groeistadium 7 tot 13 is, soos algemeen beskryf.
- Indien **ROTANGA**, of 'n **ROTANGA**/ROMEX tenkmengsel toegedien word, voeg altyd 'n benatter by teen geregistreerde dosis.
- Indien enige vloeibare formulasie bygevoeg word as tenkmengsel in die Wes-, Suid-, en Oos Kaap, moet GEEN benatter bygevoeg word nie.

VOORMENG PROSES:

- Moet nie die oplosbare sakkies met nat handskoene hanteer nie.
- Tel die getal sakkies af wat benodig word volgens die aantal hektaar wat behandel moet word en die kapasiteit van die spuittenk.
- Gooi die getelde sakkies in 'n emmer met water en meng om te verseker dat volle disintegrasie van die sakkies en volle dispersie van die inhoud in die water plaasgevind het.
- Voeg hierdie gekonsentreerde mengsel in die spuittenk terwyl roering plaasvind.

MENGINSTRUKSIES:

- Vul die spuittenk ½ vol met water.
- Voeg die gedispergeerde konsentraatmengsel in tenk deur 'n sif.
- Spoel die mengemmer uit met water in die spuittenk
- Voeg hierna die verkose mengkandidaat onkruiddoder by op dieselfde manier en/of die benatter
- Vul tenk tot verlangde kapasiteit terwyl voortdurend geroer word.

TOEDIENING:

Grondtoediening:

Dien toe in 150 tot 250 liter spuitmengsel per hektaar teen 'n konstante spuitdruk van 150 tot 300 kPa en konstante grondspoed.

Verseker 'n eweredige bedekking van die teikengebied, deur spuitbalk toegerus met soliede of holkeëlspuitpunte te gebruik. Voorkom oordosisse deur oorvleueling van spuitbane te vermy, asook bespuiting terwyl teen lae spoed beweeg word (onder kalibrasiespoed) en/of gestop word.

Lugtoediening: (SIEN WAARSKUWING HIERBO)

ROTANGA kan slegs deur 'n geregistreerde Lugbespuitingsoperateur met 'n korrek gekalibreerde, geregistreerde vliegtuig volgens die instruksies van SANS Kode 10118 (The Aerial Application of 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 35 ℓ per ha word aanbeveel. Hierdie produk is nie teen 'n verlaagde volume getoets nie. Die registrasiehouer kan nie effektiëit waarborg, of 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 350 mikrons word aanbeveel. Beperk die produksie van druppels kleiner as 150 mikrons (hoë drying 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, 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 vierkspan om te verhoed dat druppels binne-in die **vierkpuntvorteks** beweeg.
- Die verskil in **temperatuur** tussen die nat- en droëboltermometer van 'n swaaihgrometer, moet nie 8°C oorskry nie.
- Stop bespuiting indien die **windspoed** 15 km/uur oorskry.
- 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 volgende probleme aanleiding gee:
 - verlaagde effektiwiteit aangesien die druppels as 'n wolk in die lug bly hang en moontlik verdamp (onvoldoende bedekking op teiken).
 - skade aan nie-teiken gewasse of sensitiewe areas as gevolg van wegdrywing van die spuitwolk 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 vir toekomstige verwysing.

TOEDIENINGSTABEL: Wes -, Suid en Oos Kaap.

GEWAS	DOSIS/ha	AANWYSINGS VIR TOEDIENING
KORING GARS en HAWER	Grond toediening: Produk alleen gebruik: <p>15 g (1 sakkie/ha) ROTANGA - 17,5 g (1 sakkie/0,86 ha) ROTANGA</p> <p>plus</p> <p>50 mℓ Wet-All/100 liter spuitmengsel</p> <p>of</p> <p>ander benatter teen geregistreerde dosis. (Behalwe wanneer vloeibare formulasise in tenkmengsels gebruik word)</p>	Dien toe teen hoër dosis indien swaar onkruid druk voorkom. Beste onkruidbeheer word verkry wanneer toedienings saamval met optimale groeitoestande, wanneer onkruid e aktief groei onder ideale vogstatus. Dien toe as na-opkoms bespuiting op jong onkruide wat nie die groeistadium oorskry soos aangegee in die onderstaande tabel nie en wanneer die gewas in die 3 – 5 blaar groeistadium is. MOET NIE ROTANGA gebruik indien die gewas onder stremmingstoestande groei nie. Verwys asseblief na Gebruiksbeperkings van die produk in terme van: <ul style="list-style-type: none">Beheer van groot onkruide Gewas stremmingtoestande Wisselvallige beheer en hergroeï van onkruid. Wagperiode tov opvolggewasse. Beperking van gebruik op ondergesaaides. Mengbaarheid met ander produkte. Kwaliteit van water gebruik vir bespuitings.
	Produk in mengsels: <p>12,5 g ROTANGA (1 sakkie/1,2 ha) plus 500 mℓ Bromoksinil (225 EC)</p>	Hierdie mengsel word aanbeveel wanneer die groeistadium van onkruid e, veral <i>Emex australis</i> (Kaapse dubbeltjie) die vatbare stadium oorskry het teen tyd van toediening en/of die gevorderde groeistadium van die gewas, die gebruik van tradisionele hormoononkruid doders beperk.
	OF	Aanbeveel wanneer die groeistadium van onkruid e, veral <i>Raphanus</i> (ramenas), die vatbare stadium oorskry het teen tyd van toediening. Verseker dat die gewas in die korrekte groeistadium 7 tot 13 is soos beskryf.
	10 g ROTANGA (1 sakkie/1,5 ha) plus 1000 mℓ MCPA (400 SL)	
	OF	Aanbeveel wanneer die groeistadium van onkruid e, veral <i>Emex australis</i> (Kaapse dubbeltjie) die vatbare stadium oorskry het teen tyd van toediening en/of die gevorderde groeistadium van die gewas, die gebruik van tradisionele hormoononkruid doders beperk.
	8 g ROTANGA (1 sakkie/1,88 ha) plus 10 g ROMEX	
	plus	
	50 mℓ Wet-All /100 liter spuitmengsel	
	OF	
	ander benatter teen geregistreerde dosis.	
	OF	
	8 g ROTANGA (1 sakkie/1,88 ha) plus 10 g ROMEX plus 500 mℓ MCPA (400 SL)	Aanbeveel wanneer die groeistadium van onkruid e, veral <i>Raphanus</i> (ramenas), die vatbare stadium oorskry het teen tyd van toediening. Verseker dat die gewas in die korrekte groeistadium 7 tot 13 is soos beskryf.
	Met lugtoediening: <p>Volg dieselfde aanwysings as hierbo.</p> <p>plus</p> <p>Drywingsbeheerprodukt/Anti verdampingsmiddel indien nodig (teen geregistreerde dosis)</p>	

ONKRUIDE BEHEER:

In die **Wes -, Suid en Oos Kaap Streke** word die volgende onkruidspesies normaalweg beheer met **ROTANGA**, **wanneer alleen gebruik** vanaf opkoms tot die groeistadium aangedui:

Gewone naam	Botaniese naam	Maksimum onkruidgrootte met toediening
Eenjaargras	<i>Poa anua</i>	5 cm hoog
Sterremuur	<i>Stellaria media</i>	5 cm hoog
Gewone wildemosterd	<i>Sisymbrium thellungii</i>	2 blaar
Sydissel	<i>Sonchus oleraseus</i>	3 blaar
Sporrie	<i>Spergula arvensis</i>	3 cm hoog
Fioolnek	<i>Amsinckia augustifolius</i>	5 cm hoog
Duiwekerwel	<i>Fumaria officinalis</i>	3 cm hoog
Knopkruid	<i>Galinsoga parviflora</i>	2 cm hoog
Groot stinkkruid	<i>Pentzia grandiflora</i>	5 cm hoog
Klein stinkkruid	<i>Pentzia suffrutcosa</i>	5 cm hoog
Medics	<i>Medicago spp.</i>	5 blaar
Turknael	<i>Erodium moschatum</i>	5 cm deursnit
Smal weeblaar	<i>Plantago lanceolata</i>	2 blaar
Peperkruid	<i>Lepidium africanum</i>	5 cm hoog
Misbredie	<i>Amaranthus spinosus</i>	3 blaar
Pimpernel	<i>Anagallis arvensis</i>	2 cm hoog
Voëlduisendknop	<i>Polygonum aviculare</i>	5 cm hoog
Rooituinsuring	<i>Oxalis latifolia</i>	3 blaar
Geelsuring	<i>Oxalis pescaprae</i>	4 blaar
Kaapse dubbeltjie	<i>Emex australis</i>	2 saadlob stadium
Withondebossie	<i>Chenopodium album</i>	5 cm hoog
Ramenas	<i>Raphanus raphanistrum</i>	4 blaar

TOEDIENINGSTABEL: Somer Reënvaltreek (Slegs droëland koring)

GEWAS	DOSIS/ha	AANWYSINGS VIR TOEDIENING
KORING	Grond toediening: Produk alleen gebruik: <p>15 g (1 sakkie/ha) ROTANGA - 17,5 g (1 sakkie/0,86 ha) ROTANGA</p> <p>- plus</p> <p>50 mℓ Wet-All/100 liter spuitmengsel of</p> <p>ander benatter teen geregistreerde dosis.</p>	Dien toe teen hoër dosis indien swaar onkruid druk voorkom. Beste onkruidbeheer word verkry wanneer toedienings saamval met optimale groeitoestande, wanneer onkruid e aktief groei onder ideale vogstatus. Dien toe as na-opkoms bespuiting op jong onkruide wat nie die groeistadium oorskry soos aangegee in die onderstaande tabel nie en wanneer die gewas in die 3 – 5 blaar groeistadium is. MOET NIE ROTANGA gebruik indien die gewas onder stremmingstoestande groei nie. Verwys asseblief na Gebruiksbeperkings van die produk in terme van: <ul style="list-style-type: none">Beheer van groot onkruide Gewas stremmingtoestande Wisselvallige beheer en hergroeï van onkruid. Wagperiode tov opvolggewasse. Beperking van gebruik op ondergesaaides. Mengbaarheid met ander produkte. Kwaliteit van water gebruik vir bespuitings.
	Produk in mengsels: <p>10 g ROTANGA (1 sakkie/1,88 ha)</p> <p>+</p> <p>30 g ROMEX</p> <p>SL</p> <p>1,0 liter MCPA 400 SL</p> <p>OF</p> <p>300 ml 2,4-D Amien 480 SL</p> <p>+</p> <p>50 mℓ Wet-All/100 liter spuitmengsel</p> <p>OF</p> <p>100 mℓ ALLGRAL 94/100 liter spuitmengsel</p> <p>OF</p> <p>ander benatter teen geregistreerde dosis.</p>	Hierdie mengsel word aanbeveel wanneer die groeistadium van onkruid e die vatbare stadium oorskry het teen tyd van toediening.
	Met lugtoediening: <p>Volg dieselfde aanwysings as hierbo.</p> <p>plus</p> <p>Drywingsbeheerprodukt/Anti verdampingsmiddel indien nodig (teen geregistreerde dosis).</p>	

ONKRUIDE BEHEER:

In die **SOMERREËNVALSTREEK**, word die volgende onkruidspesies normaalweg beheer vanaf opkoms tot die groeistadium aangedui:

WANNEER PRODUK ALLEEN GEBRUIK WORD:

Gewone naam	Botaniese naam	Maksimum onkruidgrootte met toediening
Gewone wilde mosterd	<i>Sisymbrium thellungii</i>	4 blaar
Opslag sonneblom	<i>Helianthus annuus</i>	5 cm hoog
Withondebossie	<i>Chenopodium album</i>	5 cm hoog
Ramenas	<i>Raphanus raphanistrum</i>	6 blaar

WANNEER PRODUK IN MENGSELS GEBRUIK WORD:

Gewone naam	Botaniese naam	Maksimum onkruidgrootte met toediening
Gewone wildemosterd	<i>Sisymbrium thellungii</i>	8 cm diam.
Groot stinkblaar	<i>Datura ferox</i>	7 blaar
Misbredie	<i>Amaranthus spp.</i>	6 blaar
Sonneblom opslag	<i>Helianthus anuus</i>	8 blaar
Ramenas	<i>Raphanus raphanistrum</i>	6 blaar
Smal weeblaar	<i>Schkuhria pinnata</i>	6 blaar
Voëlduisendknop	<i>Polygonum aviculare</i>	8 blaar
Wilde bokviet	<i>Fallopia convolvulus</i>	8 blaar
Withondebossie	<i>Chenopodium album</i>	8 blaar

Romex - Reg. Nr. L 6986

Allgral 94 - Reg. Nr. L 6543

Wet-All - Reg. Nr. L 8361