



ROTANGA

Reg.No. L6811 Act No. 36 of 1947

Reg.Nr. L6811 Wet Nr. 36 van 1947

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

LEES DIE INGESLOTE ETIKET VOOR GEBRUIK
HOU BUITE BEREIK VAN KINDERS EN DIERE

HERBICIDE GROUP B

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.



WARNING

ACTIVE INGREDIENT

Chlorsulfuron (sulfonyl urea)

.....750 g/kg.....

AKTIEWE BESTANDEEL

Chlorsulfuron (sulfonielurum)

Net Mass

Netto Massa

Registered by/Geregistreer deur:

BITRAD CONSULTING (PTY) LTD

41 Rudolph Str, Sunderland Ridge, Centurion. Tel: 012 666 7331

BATCH NUMBER
DATE MANUFACTURED

LOTNOMMER
DATUM VERVAARDIG

Expiry date



< 2 years/jaar

Vervaldatum

UN No.
Emergency number

3077
082 446 8946

VN nr.
Noodnommer

WARNINGS:

- **Hazard Statement**

Very toxic to aquatic life

Very toxic to aquatic life with long lasting effects
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- **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

Relative humidity above 80%

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.

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:

- **Prevention**

Avoid release to the environment. Avoid drift of spray mist onto other crops, grazing, rivers, dams and areas not under treatment.
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- **Response**

Collect spillage

- **Storage**

Store under lock and key. Keep the soluble sachets dry at all times until mixing takes place
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- **Disposal**

Dispose of empty container or contents to an approved waste disposal facility

- **Cleaning of Application Equipment:**

Pay attention to 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 litres of 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.
10. Do NOT dispose the wash water where it will contaminate crops, grazing, rivers, dams, and the root zone of desirable plants.

RELEVANT SUBSTANCES:

Hazardous Component	Weight %	GHS Classification
Chlorsulfuron	75 %	Acute and Chronic Aquatic Toxicity - Category 1

FIRST AID:

Product may be irritating to eyes and skin and respiratory system. No antidote is available. Treat symptomatically and supportively

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 programs 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-mentioned 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 e.g. 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 under sown 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 Diclofop is not recommended since weed control can be impaired under climatic stress conditions. If a Diclofop application is followed with a **ROTANGA** or **ROTANGA** tank mix, allow a 7 day interval following the Diclofop 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.

MODE OF ACTION:

ROTANGA is a member of the sulfonylurea group of herbicides (HRAC group B) and is an acetolactate synthase (ALS) inhibitor.

DIRECTIONS FOR USE:

USE ONLY AS DIRECTED

- **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.
- 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.
- **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 $\frac{1}{2}$ 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 (SEE WARNING ABOVE):

ROTANGA can be applied aerially provided that the spray mixture is distributed evenly over the target area and the loss of spray material during application is restricted to a minimum.

To achieve this, it is necessary that the following requirements be met:

- Use a minimum of 30 litre spray mixture/ha.
- Use a conventional boom.
- Nozzles must be equipped with hollow cone or flat fan tips.
- A minimum spray volume of 30 litres per ha must be applied and minimum 30 - 35 droplets per cm² must be recovered on the target area.
- The CV for droplet distribution must not exceed 50 %.
- The following flying heights must be maintained above the target area:
 - At wind speeds of: 0 - 8 km per hour - 3 m
 - 8 - 15 km per hour - 2 m
 - more than 15 km per hour - do not spray.
- The difference between the wet and dry bulb readings, as determined by a whirling hygrometer, must not exceed 8° C.
- Do NOT spray during the heat of the day.
- Ensure that the aerial spray operator knows exactly which fields to spray and that the fields are accurately marked to avoid overlapping of spray swaths. Obtain assurance from the aerial spray operator that the above requirements are met.

APPLICATION TABLE: Western-, Southern and Eastern Cape

CROP	DOSAGE/ha	DIRECTIONS FOR APPLICATION
WHEAT, BARLEY and OATS	Ground application: Product used alone: 15 g (1 sachet/ha) ROTANGA - 17,5 (1 sachet/0,86 ha) ROTANGA - plus 50 ml Wet-All/100 litre spray mixture or other 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) OR 10 g ROTANGA (1 sachet/1,5 ha) plus 1000 ml MCPA (400 SL)	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: *Controlling large weeds *Crop stress conditions *Erratic control and regrowth of weeds. *Pre-plant intervals of follow-up crops. *Warning on under sown crops. *Compatibility with other products. *Quality of Water used in applications. 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. 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 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) For Aerial application with mixtures: Follow recommendations as for ROTANGA used alone. plus Anti Drift Agent/Anti-evaporant if needed (both at registered rates.)	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. 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.
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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 annua</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 oleraceus</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 suffructosa</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 sachets/ha) ROTANGA - 17,5 g (1 sachets/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 sachets/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 Allgrall 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: *Controlling large weeds *Crop stress conditions *Erratic control and regrowth of weeds *Pre-plant intervals of follow-up crops *Warning on under sown 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>Schkuhria 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

WAARSKUWINGS:

- **Gevaarklousule**

Uiters giftig vir waterlewe

Uiters giftig vir waterlewe met langwerkende gevolg

- **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 onkruidodder, wat indien verkeerdelik aangewend, ernstige skade kan aanrig aan gewassaailinge, sagtevrugtebome en wingerde tydens bot en vroeë seisoensgroei. Onder die volgende klimaatstoestande kan dit ernstige skade aanrig vir sover as 3 – 5 km vanaf die naaste spuitbaan van die vliegtuig:
Bewolkte weer
Relatiewe humiditeit hoër as 80 %
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.

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 akkuraatheid 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.

VOORSORGMAATREËLS:

Voorkoming

Voorkom vrystelling van produk in die omgewing. Voorkom wegdrywing van spuitnewel na ander gewasse, weiding, riviere, damme en gebiede wat nie behandel word nie.

- **Reaksie**

Versamel gemorsde produk

- **Storing**

Stoor agter slot en grendel. Hou oplosbare sakkies droog totdat vermenging plaasvind
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- **Wegdoening**

Doen weg met leë houers en inhoud deur te lewer aan goedgekeurde afval hanterings fasiliteit
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- **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:
 1. Dreineer spuittenk en spoel deeglik met genoeg water. Pomp ook water deur die pype, spuitbalk en spuitpunte.
 2. Dreineer die spuittenk weer en hervul met skoon water.
 3. Voeg huishoudelike Ammoniak by water in spuittenk – 1 liter vir elke 100 liter water.
 4. Bloei die sisteem om te verseker dat alle pype, spuitbalk en spuitpunte gevul is met die Ammoniakoplossing
 5. Laat die Ammoniakoplossing vir ten minste een uur.
 6. Dreineer weer die spuittenk en spuitsisteem.
 7. Herhaal stappe 2 tot 6.
 8. Verwyder die Ammoniakresidue deur die spuitsisteem goed te spoel met skoon water.
 9. Kontaminasie op die mengapparaat moet ook gewas word met 'n Ammoniak oplossing, terwyl residue op die buitekant van spuittoerusting met water afgewas kan word.
 10. Moet NIE waswater weggooi waar dit gewasse, weiding, riviere en damme kan besoedel nie, en weg van die wortelgebied van gewenste plante.

BETROKKE BESTANDDELE:

Gevaarlike komponent	Massa %	GHS Klassifikasie
Chlorsulfuron	75 %	Akute and Kroniese Gigtigheid vir Waterlewe - Kategorie 1

EERSTEHULP:

Produk mag oë en vel irriteer. Geen behandeling word voorgeskryf nie. Behandel simptome en ondersteunend.

WEERSTANDVERKLARING:

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

Om die seleksie van weerstandbiedende onkruid te vertraag :

- Integreer grondbewerking of ander meganiese beheermetodes (insluitend die gebruik van nie-selektiewe onkruidodders op braaklande) met onkruid beheerprogramme waar prakties moontlik.
- Voorkom herhaaldelike gebruik van onkruidodders met dieselfde metode van werking.
Beplan wisselbou om die gebruik van ander onkruidodders (uit ander groepe) met verskillende werkingsmetodes moontlik te maak.
- Hou rekord van onkruidodder gebruik vir elke land, om te voorkom dat dieselfde onkruidodder herhaaldelik gebruik word op dieselfde land.
- Voorkom die verspreiding van weerstandbiedende onkruid se saad of steggies na ander lande deur implemente en oesmasjiene skoon te hou en plant skoon saad.
- Inspekteer elke land jaarliks, om die ontwikkeling 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 onkruid beheer nie.

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

ROTANGA behoort tot die sulfoniel urea groep onkruidodders (HRAC groep B) en is 'n asetolaktaat sintase (ALS) inhibeerder

GEBRUIKSBEPERKINGS:

1. 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 provinsies.
2. **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 (KCI) oorskrei en/of gronde wat vry kalk bevat, mag lei tot langer residuele grondaktiwiteit van **ROTANGA** teenoor opvolg gewasse.
3. **Wisselvallige beheer/hergroei** van onkruid 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 onkruid nie – soos aanbeveel.
- Groot onkruid wat voorplant bespuitings en/of bewerkings oorleef het, sal nie beheer word nie.
- Die effek van grondoordraging op ontkiemende onkruid is beperk, wat weer afhang van faktore soos onkruidspesies, pH van grond, grondvog en temperatuur.
- 4. **Gewas stremmingstoestande.** Moet nie **ROTANGA** toedien indien gewas onder stremmingstoestande verkeer nie bv. versuiping, droogte, siektes, uitsers koue toestande (min. nagtemperatuur < 5° C.), inseksskade en voedingstekorte (veral Stikstof).
- 5. **Ondergesaaide kleingraan: ROTANGA** moet nie toegedien word op kleingraan wat ondergesaai is met weiding nie.
- 6. **Water kwaliteit:** Gebruik slegs water van goeie kwaliteit soos geskik vir besproeiing nl. neutrale pH en vry van soute/chemikalieë.
- 7. **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, Dimetoeat 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.
- 8. MOET NIE ongebruikte spuitmengsel oornag laat vir latere gebruik nie.
- 9. Die effektiwiteit van **ROTANGA** mag negatief beïnvloed word indien reën voorkom na toediening voordat die spuitneerslag afgedroog het.

WERKINGSMETODE:

ROTANGA behoort tot die sulfonielurea groep onkruidodders (groeikode Bonder HRAC) en is 'n asetolaktaat sintese inhibeerder. (ALS inhibitor).

GEBRUIKSAANWYSINGS:

GEBRUIK 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 onkruid 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.
- Verkeerde tydstop van toediening in terme van gewasstadium en of oordosisse mag lei tot gewasskade.
- Tydelike vertraagde groei en vergeling van die gewas se blare, mag voorkom na toediening met **ROTANGA** onder sekere klimaatstoestande soos lang koue nat toestande.
- **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:

1. Vul die spuittenk $\frac{1}{2}$ vol met water.
2. Voeg die gedispergeerde konsentraatmengsel in tenk deur 'n sif.
3. Spoel die mengemmer uit met water in die spuittenk.
4. Voeg hierna die verkose mengkandidaat onkruidodder by op dieselfde manier en/of die benatter.
5. 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 holkeëlsputpunte 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 d.m.v. lugbespuiting toegedien word, mits die spuitstof egalig oor die teikengebied versprei word en die verlies aan spuitmiddel tot 'n minimum beperk word. Ten einde hieraan te voldoen moet die volgende vereistes nagekom word:

- Gebruik 'n minimum van 30 liter spuitmengsel per hektaar.
- Gebruik 'n konvensionele spuitbalk wat met holkeël- of platwaaiersputpunte toegerus is.
- Dien 'n minimum van 30 liter spuitmengsel per ha toe en verseker dat 30 druppels per vk. cm op die teikengebied herwin word.
- Die KV vir druppelverspreiding moet nie 50 % oorskry nie.
- Die volgende vlieghoogtes bo die teikengebied moet gehandhaaf word:
 - Teen windsnelheid van: 0 - 8 km per uur - 3 m
 - 8 - 15 km per uur - 2 m
 - meer as 15 km per uur - staak bespuiting
- Die verskil tussen die nat- en die droëbollesing, soos met 'n swaaihigrometer bepaal, moet nie 8° C oorskry nie.
- Moenie tydens die hitte van die dag spuit nie.
- Sorg dat die lande akkuraat gemerk is en dat die spuitoperator presies weet watter lande gespuut moet word.
- Verkry versekering van die spuitoperator dat aan die bogenoemde vereistes voldoen sal word.

TOEDIENINGSTABEL: Wes -, Suid en Oos Kaap

GEWAS	DOSIS/ha	AANWYSINGS VIR TOEDIENING
KORING GARS en HAWER	Grond toediening: Produk alleen gebruik: 15 g (1 sakkie/ha) ROTANGA - 17,5 (1 sakkie/ 0,86 ha) ROTANGA plus 50 ml Wet-All/100 liter spuitmengsel of ander benatter teen geregistreerde dosis. (behalwe wanneer vloeibare formulasise in tenkmengsels gebruik word) Produk in mengsels: 12,5 g ROTANGA (1 sakkie/1,2 ha) plus 500 ml Bromoksinil (225 EC) OF 10 g ROTANGA (1 sakkie/1,5 ha) plus 1000 ml MCPA (400 SL) OF 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) Met lugtoediening:: Volg dieselfde aanwysings as hierbo. plus Drywingsbeheerproduk/Anti verdampingsmiddel indien nodig (teen geregistreerde dosis)	Dien toe teen hoër dosis indien swaar onkruiddruk voorkom. Beste onkruidbeheer word verkry wanneer toedienings saamval met optimale groeistoestand, wanneer onkruid aktief groei onder ideale vogstatus. Dien toe as na-opkoms bespuiting op jong onkruid 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 stremmingstoestand groei nie. Verwys asseblief na Gebruiksbeperkings van die produk in terme van: *Beheer van groot onkruid *Gewas stremmingstoestand *Wisselvallige beheer en hergroei van onkruid.*Wagperiode tov opvolggewasse.*Beperking van gebruik op ondergesaaides. *Mengbaarheid met ander produkte.*Kwaliteit van water gebruik vir bespuitings. Hierdie mengsel word aanbeveel wanneer die groeistadium van onkruid, 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 hormoononkruidmiddels beperk. Aanbeveel wanneer die groeistadium van onkruid, 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. Aanbeveel wanneer die groeistadium van onkruid, 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 hormoononkruidmiddels beperk. Aanbeveel wanneer die groeistadium van onkruid, 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.

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 annua</i>	5 cm hoog
Sterremuur	<i>Stellaria media</i>	5 cm hoog
Gewone wildestoerd	<i>Sisymbrium thellungii</i>	2 blaar
Sydissel	<i>Sonchus oleraceus</i>	3 blaar
Sporrie	<i>Spergula arvensis</i>	3 cm hoog
Fioolnek	<i>Amsinckia augustifolia</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 suffructosa</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
Voëlduisendknoop	<i>Polygonum aviculare</i>	5 cm hoog
Rooituinsuring	<i>Oxalis latifolia</i>	3 blaar
Geelsuring	<i>Oxalis pes-caprae</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 Reënvalstreek (Slegs droëland koring)

GEWAS	DOSIS/ha	AANWYSINGS VIR TOEDIENING
KORING	Grond toediening: Produk alleen gebruik: 15 g (1 sakkies/ha) ROTANGA - 17,5 g (1 sakkie/0.86 ha) ROTANGA - plus 50 ml Wet-All/100 liter spuitmengsel of ander benatter teen geregistreerde dosis. Produk in mengsels: 10 g ROTANGA (1 sakkie/1.88 ha) + 30 g ROMEX + 1,0 liter MCPA 400 SL OF 300 ml 2,4-D Amien 480 SL + 50 ml Wet-All/100 liter spuitmengsel OF 100 ml ALLGRAL 94/100 liter spuitmengsel OF ander benatter teen geregistreerde dosis.	Dien toe teen hoër dosis indien swaar onkruiddruk voorkom. Beste onkruidbeheer word verkry wanneer toedienings saamval met optimale groeistoelstande, wanneer onkruid aktief groei onder ideale vogstatus. Dien toe as na-opkoms bespuiting op jong onkruid 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 stremmingstoelstande groei nie. Verwys asseblief na Gebruiksbeperkings van die produk in terme van: *Beheer van groot onkruid *Gewas stremmingstoelstande *Wisselvallige beheer en hergroei van onkruid. *Wagperiode tov opvolggewasse. *Beperking van gebruik op ondergesaaides. *Mengbaarheid met ander produkte. *Kwaliteit van water gebruik vir bespuitings. Hierdie mengsel word aanbeveel wanneer die groeistadium van onkruid die vatbare stadium oorskry het teen tyd van toediening.

	Met lugtoediening:: Volg dieselfde aanwysings as hierbo. plus Drywingsbeheerprodukt/Anti verdampingsmiddel indien nodig (teen geregistreerde dosis).	
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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 annuus</i>	8 blaar
Ramenas	<i>Raphanus raphanistrum</i>	6 blaar
Smal weebblaar	<i>Schkuhria pinnata</i>	6 blaar
Voëlduisendknoop	<i>Polygonum aviculare</i>	8 blaar
Wilde bokwiet	<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