



syngenta®

Reg. Nr. L1174 Act / Wet No 36 of / van 1947 N-AR 0987 (NAMIBIË / NAMIBIA) W130350 (Botswana)

ONKRUIDDODER GROEP D HERBICIDE GROUP

Aktiewe Bestanddeel / Active Ingredient:

parakwat ion (bipiridiel) /  
paraquat ion (bipyridyl) ..... 200 g/l  
(as dichloriedsout) / (as dichloride salt) ..... 276 g/l

UN 1760

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'n Waterige oplossing kontak  
onkruiddoder vir die beheer van  
eenjarige grasse en eenjarige  
breëblaaronkruid in gewasse soos  
aangedui.

An aqueous solution contact her-  
bicide for the control of annual  
grasses and annual broadleaf  
weeds in crops as indicated.

EMERGENCY TEL / NOOD TEL  
++27 (0) 82 446 8946  
(Griffon)

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Registration holder / Registrasiehouer:  
Syngenta SA (Pty) Ltd. / (Edms) Bpk.  
(Co./Mpy Reg. No. 1998/013761/07)  
Private Bag / Privaatsak X 60  
HALFWAY HOUSE, 1685 RSA.  
Tel. (011) 541-4000

Batch No

Date of Manufacture



## 1. WARNINGS:

- **Withholding periods:** (Minimum number of days between last application and feeding) :

**Sugarcane (feeding and grazing) ..... 21 days**

- Keep out of reach of children, uninformed persons and animals.
- Handle with care.
- Flammable.
- Harmful by inhalation, in contact with skin and if swallowed.
- Toxic in contact with skin and if swallowed.
- Very toxic by inhalation.
- Irritating to eyes, respiratory system and skin.
- Risk of serious damage to eyes.
- Toxic: danger of serious damage to health by prolonged exposure if swallowed.
- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- **In case of poisoning contact a doctor and make this label available to him.**
- **Re-entry:** Do not enter treated area within 1 day after application unless wearing protective clothing.
- **Aerial application: (for seedbed preparation only)** Notify all inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warnings. Do not spray over or allow the drift to contaminate water or adjacent areas.

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 the weed 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 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.

## 2. PRECAUTIONS:

- Do not eat, drink or smoke while handling this product.
- Avoid contamination of food, feed, drinking water and eating utensils.
- Do not use application equipment or spray pressures which result in the formation of a fine spray mist e.g. mistblowers, ULV applicators and other similar equipment.
- Do not use muddy water.
- With knapsack and hand-held sprayers, mix each 1 part of **GRAMOXONE** with at least 40 parts of water.

- Wear rubber gloves and face shield when handling the concentrate. If you get it in your eyes, flush it out at once. If you get it on your skin, wash it off at once. If you spill it on your clothes, change and wash them. (**See first aid**).
- Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of 10 % of that of the container. Add the rinsings to the contents of the spray tank before destroying the container.
- Wear rubber gloves and face shield while spraying.
- Do not inhale the spray mist and avoid contact with the spray as much as you can.
- Avoid spray drift onto other crops, grazing rivers or dams.
- Avoid spray drift onto adjacent crops because the spray will damage green plant tissue.
- Do not use the empty container for any other purpose. Crush or cut it then burn or bury it. Keep unused **GRAMOXONE** in this container, tightly closed, away from food.
- Dispose of wash water where it will not contaminate crops, grazing, rivers or dams.
- Change and wash your work clothes.
- Wash yourself.

## Symptoms of human poisoning

Epigastric discomfort and vomiting. General malaise and weakness. There may be irritation of mouth, pharynx and oesophagus with local burning. After one or two days, signs of kidney and possible liver damage will appear if appreciable quantities have been swallowed, and after 1 - 2 weeks there may be dyspnoea with pulmonary oedema leading to massive pulmonary fibrosis and death due to respiratory insufficiency. With very large doses there may be excitement and convulsions.

## First aid treatment

Make person vomit if not already occurring. Take patient to hospital immediately, show the doctor the label.

## Medical Treatment:

No antidote is available.

Give 1 ℓ suspension of Fuller's Earth (15 %) or Bentonite (7 %) or activated charcoal. Also give purgative e.g. Mannitol (20 % solution).

Continue with purging until faecal matter shows signs of the adsorbent. Blood dialysis or blood perfusion may be necessary

See booklet "Paraquat poisoning. A practical Guide to diagnosis, first aid and Hospital treatment." (available from **GRAMOXONE** distributors) or contact Bateleur 911 at +27 (0) 8312 33 911.

**Eye contact:** Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediately medical attention.

**Skin contact:** Take off immediately all contaminated clothing. Wash skin immediately with water, followed by soap and water. Obtain medical attention. Contaminated clothing should be laundered before re-issue.

**Inhalation:** Remove patient from exposure, keep warm and at rest. Obtain medical attention.

**Ingestion:** Induce vomiting. Immediately take person and this container and label to hospital for emergency medical treatment.

OBTAIN IMMEDIATE MEDICAL ATTENTION.

#### NOTE TO PHYSICIAN

1. Refer to the booklet 'Paraquat Poisoning. A Practical Guide to Diagnosis, First Aid and Hospital Treatment' ([www.syngenta.com/pqmedguide/](http://www.syngenta.com/pqmedguide/)).
2. Administer either activated charcoal (100 g for adults or 2 g/kg body weight in children) or Fuller's Earth (15% solution; 1 litre for adults or 15 ml/kg body weight in children).
3. NOTE: The use of gastric lavage without administration of an adsorbent has not shown any clinical benefit.
4. Do not use supplemental oxygen.
5. Eye splashes from concentrated material should be treated by an eye specialist after initial treatment.
6. With the possibility of late onset corneal ulceration it is advised that patients with paraquat eye injuries are reviewed by an eye specialist the day after first presentation.

#### 3. RESISTANCE MANAGEMENT

For resistance management, **GRAMOXONE** is a group code D herbicide. Any weed population may contain individuals naturally resistant to **GRAMOXONE** and other group code D (herbicides). The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly and exclusively in programs. These resistant weeds may not be controlled by **GRAMOXONE** or any other group code D herbicide.

To delay herbicide resistance:

- Avoid exclusive repeated use of herbicides from the same herbicide group code. Alternate or tank mix with products from different herbicide group codes.
- Integrate other control methods (chemical, cultural, biological) into disease control programs.

Situations of resistance of weeds against paraquat and glyphosate applications are known. These weed populations might be resistant against **GRAMOXONE** too.

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

#### 4. APPLICATION

##### Aerial Application: (for seedbed preparation only)

Aerial application of this product may only be done by a registered aerial application operator using a correctly calibrated, registered aircraft according to the instructions of SANS 10118 (Aerial Application of Agricultural Remedies). It is important to 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 are met:

##### a) Application parameters:

- **Volume:** A volume of 35 - 45 l/ha 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 the product is applied aerially at a lower volume rate than recommended above.
- **Droplet coverage:** A droplet coverage of 35 - 40 droplets per cm<sup>2</sup> must be recovered at the target.
- **Droplet size:** A droplet spectrum with a VMD of 350 - 400 microns is recommended. Ensure that the production of fine droplets (less than 150 microns - high drift & evaporation potential) is restricted to a minimum.
- **Flying height:** The height of the spray boom should be maintained at 3 - 4 metres above the target. Do not spray when aircraft is in a climb, at the top or during a dive, or when banking.

##### b) Equipment:

Use suitable atomising equipment (hydraulic nozzles) that will produce the desired droplet size and coverage but which will ensure the minimum loss of product either through endodrift (within target field) or exodrift (outside target field). The operator must use a setup that will produce a droplet spectrum with the lowest possible relative span.

All nozzles / atomisers should be positioned within the inner 60% to 75% of the wingspan to prevent droplets from entering the wingtip vortices.

##### c) Meteorological conditions:

The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8°C. The addition of a suitable anti-evaporant is recommended if the VMD of the droplets is less than 200 - 250 microns.

Stop spraying if the wind speed exceeds 15 km/h or reduces to less than 5 km/h.

Aerial application of this product must not be done under turbulent, unstable conditions during the heat of the day when rising thermals and downdraughts occur.

Also note that the application of this product under temperature inversion conditions (spraying in or above the inversion layer) 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 the movement of the suspended spray cloud away from the target field.

Notify all inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warnings. Do not spray over or allow drift to contaminate water or adjacent areas.

**Avoid drift onto adjacent crops as green plant tissue will be damaged by the spray.**

##### NOTE:

Repeat application of **GRAMOXONE** may be necessary for suppression of deep rooted weeds such as:

<i>Convolvulus arvensis</i>	(field bind weed),
<i>Malva parviflora</i>	(small mallow),
<i>Plantago lanceolata</i>	(narrow-leaved ribwort) and
<i>Rumex angiocarpus</i>	(sheep sorrel).

#### 5. DIRECTIONS FOR USE:

Use only as indicated.

##### 5.1 Compatibility:

**GRAMOXONE** is compatible with COMPLEMENT SUPER (L8196), DUAL GOLD (L5749), FALCON GOLD (L5750), GARDOMIL GOLD (L6246), GESAPRIM SUPER (L3914), LUMAX (L7483), MEDAL GOLD (L6396), METAGAN GOLD (L5748), MIDSTREAM (L4532), PREEGLONE (L3304), PRIMAGRAM GOLD (L6247), REGLONE (L1115) and TERBUZIN 600 SC (L4683).

If **GRAMOXONE** needs to be used in tankmix combinations with other herbicides, first mix small quantities of the chemicals in the same ratio in which they will be used, separately with water. Add these mixtures together while agitating and check for any signs of incompatibility e.g. flocculation, etc. In this instance, full cognisance must be taken of all warnings, precautions and directions for use mentioned on the labels of the products concerned.

##### 5.2 Mixing instructions:

Mix the required quantity of **GRAMOXONE** with **clean** water in the spray tank.

When **GRAMOXONE** is used in a tank mixture with another herbicide(s) follow the mixing instructions on that label. Continuous agitation is essential when applying tank mixtures.

**GRAMOXONE** is a contact herbicide and should only be applied

to weeds in the early growth stages for optimum control. **AVOID** spraying large established weeds since the control will not be satisfactorily and more than one application may be needed. Re-growth may also occur under these conditions.

### 5.3 Application rates

- Apply by ground sprayers or by knapsack sprayer.
- USE HIGH VOLUME AND HIGH DOSAGE RATE FOR SPRAYING DENSE WEED GROWTH.
- Ensure thorough coverage of the weeds.
- Do not spray buds or green parts of any crop. **GRAMOXONE** kills green tissue but does not harm brown mature bark.

A. HERBICIDE - ROW CROPS		
Add Complement Super at 100 ml/ha.		
CROP	DOSAGE / ha	REMARKS
<b>A1. Maize</b> Post-emergence weed control during the fallow period i.e. between harvest and planting	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha	Apply in 200 - 500 ℓ water/ha. The dosage rate will depend on weed size and density. Where the control of well established winter weeds is required apply 2 - 3 ℓ <b>2,4-D</b> /ha followed by 2 - 3 ℓ <b>GRAMOXONE</b> /ha 3 to 4 weeks later.
<b>A2. Maize</b> Inter-row weed control	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha  For residual weed control use 1 - 2 ℓ <b>GRAMOXONE</b> plus a suitable registered residual herbicide	Apply in 200 - 300 ℓ water/ha as a low pressure directed spray to weeds not taller than 10 cm. Use "flood-jet" or "LP" nozzles with drop arms or drop legs.  <b>Maize plants must be at least 30 cm tall. Do not apply to maize under stress or maize with a low yield potential or during windy conditions or to fields with uneven surfaces.</b>  <b>IMPORTANT:</b> Consult all the label(s) of the product(s) in the mixture with <b>GRAMOXONE</b> for directions for use, safety precautions, rates, use restrictions, mixing instructions and weeds controlled.  <b>NOTE:</b> Scorch of the lower leaves of the maize plant will occur. Care must be taken to avoid spray contact with more than the 2 lower leaves as more damage to the maize plant may result in yield reduction.
<b>A3. Sugarcane</b>	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha  For residual weed control use 0,5 - 3 ℓ <b>GRAMOXONE</b> /ha plus a suitable registered residual herbicide	<b>The dosage will depend on weed size and density.</b>  <b>IMPORTANT:</b> Consult all the label(s) of the product(s) in the mixture with <b>GRAMOXONE</b> for safety precautions, rates, mixing instructions and weeds controlled.

CROP	DOSAGE / ha	REMARKS
<b>Sugarcane</b> (cont.)	0,5 ℓ/ha <b>GRAMOXONE</b> / ha + 4 - 5ℓ LUMAX/ ha	Apply in 200 - 300 ℓ water/ha for early post emergence weed control.  Add Complement Super at 100 ml/ha or adjuvants <b>as specified on the LUMAX</b> label.  Applications with <b>LUMAX + GRAMOXONE</b> can be applied broadcasted in ratoon cane up to a height of 30 cm.  In plant cane <b>GRAMOXONE</b> should not be applied later than the spike stage of the crop.
<b>A4. Wheat, Barley, Oats and Rye</b> Post-emergence weed control during the fallow period i.e. between harvest and planting	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha	Apply in 200 - 500 ℓ water/ha before planting. Where <b>Cape marigold</b> ( <i>Arctotheca calendula</i> ) is present half the <b>GRAMOXONE</b> should be replaced by MIDSTREAM or REGLONE. (Refer to MIDSTREAM or REGLONE label).
	1 - 2 ℓ <b>GRAMOXONE</b> / ha	Ground application: Apply in 150 - 300 ℓ water/ha. Weeds in the 2 - 4 leaf stage. Use a boomspray fitted with flat-fan nozzles.
	2 - 4 ℓ <b>GRAMOXONE</b> / ha in 200 - 500 ℓ water.	Apply in 200 - 500 ℓ water/ha. Weeds bigger than the 4 leaf stage. Use a boom-spray fitted with flat fan nozzles.
	2 - 4 ℓ <b>GRAMOXONE</b> / ha in 30 ℓ water.	Aerial application: (for seed-bed preparation only) Apply in 30 ℓ water/ha. Do not use less than 30 ℓ water/ha. Add Complement Super at 100 ml/ha.

B. HERBICIDE - TREE CROPS (Fruit crops)		
Add Complement Super at 100 ml/ha.		
CROP	DOSAGE / ha	REMARKS
<b>B1. Deciduous fruit orchards</b> e.g. Apples, Pears, etc.	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha	Apply in 200 - 750 ℓ water/ha as necessary in spring. Mix with simazine for residual effect. ( <b>in pome fruit only</b> ).  Where <b>Cape marigold</b> is present, replace half <b>GRAMOXONE</b> with MIDSTREAM. (Refer to MIDSTREAM label).
	1,5 - 2,5 ℓ <b>GRAMOXONE</b> / ha plus 5 ℓ MCPA / ha	Apply in 200 - 750 ℓ water/ha for the control of <b>ribwort</b> ( <i>Plantago</i> spp.), <i>Convolvulus</i> spp. as well as annual winter grasses.

CROP	DOSAGE / ha	REMARKS
<b>B2. Vineyards</b>	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha	Apply in 200 - 750 ℓ water/ha as an overall application before bud burst. Subsequently as a directed spray. Where <b>Cape marigold</b> is present, replace half the <b>GRAMOXONE</b> with MID-STREAM. (Refer to MID-STREAM label). For longer residual control add Simazine at the registered rate.
	1,5 - 2,5 ℓ <b>GRAMOXONE</b> / ha plus 5 ℓ MCPA / ha	Apply in 200 - 750 ℓ water/ha to control <b>ribwort</b> ( <i>Plantago</i> spp.) and <i>Convolvulus</i> spp. as well as annual winter grasses.
<b>B3. Subtropical fruit and nut orchards:</b> avocados, bananas, citrus, coffee, macadamias, pecans, papaya and tea.	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha	Apply in 200 - 750 ℓ water/ha using a low pressure floodjet nozzle.  <b>In citrus only:</b> can be mixed with a suitable registered residual herbicide.
<b>B4.1 Hops</b> Cuttings	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha	Apply in 200 - 500 ℓ water/ha.  Apply as an overall application or on plant rows before emergence of Hops cuttings to control young annual grasses and broad-leaf weeds. Apply prior to the emergence of first year cuttings.  <b>GRAMOXONE</b> can be used together with recommended registered pre-emergence herbicides.  In established hop plants <b>GRAMOXONE</b> can be used to control young weeds and can also be used as a burn-down agent in mature hops during winter but not later than September.
<b>B4.2 Hops</b> Established plants	3 - 5 ℓ <b>GRAMOXONE</b> / ha	Apply in 200 - 500 ℓ water/ha.  <b>GRAMOXONE</b> can be used to control young weeds and can also be used as a burn-down agent in mature hops when hops is in the latent phase during winter but not later than September.  Apply to control annual grasses and broadleaf weeds between plant rows and/or on plant rows when the hop plants are in a dormant stage.  Can be applied together with other registered pre-emergence herbicides.

C. Vegetable crops		
Add Complement Super at 100 ml/ha		
CROP	DOSAGE / ha	REMARKS
<b>C1. Vegetables</b>	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha	Apply in 200 - 500 ℓ water/ha as a directed inter-row spray for all row crops where weeds have already germinated but are not bigger than 10 cm <b>OR</b> use a knapsack sprayer fitted with a shield.
<b>C2. Cassava Post-emergence weed control</b>	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha  For longer residual action, use 1,5 - 2 ℓ <b>GRAMOXONE</b> plus a suitable registered residual herbicide	Apply as a directed spray after plants have lost their leaves.  The application rate depends on the growth stages of the weeds.
<b>C3. Potatoes Weed control (early post-emergence)</b>	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha	Apply in 300 - 500 ℓ water/ha. For residual grass control, spray lands with a mixture of 1 ℓ <b>GRAMOXONE</b> plus Dual Gold or Metagan Gold at the registered rates before the crop has reached 10 % emergence.

D. HERBICIDE - NON ROW CROPS		
Add Complement Super at 100 ml/ha.		
CROP	DOSAGE/ha	REMARKS
<b>D1. Lucerne</b> (over 6 months old)	1,25 - 5 ℓ <b>GRAMOXONE</b> / ha	Apply in 300 ℓ water/ha just before dormancy breaks or after harvesting before re-growth of lucerne occurs.
	1 - 2 ℓ <b>GRAMOXONE</b> / ha	"Spray topping" to control "steekgras" <b>Wild barley</b> - <i>Hordeum murinum</i> , <b>Ripgut brome</b> - <i>Bromus diandrus</i> , <b>Rat's tail fescue</b> - <i>Vulpia</i> spp.  Apply when 85 % of the seedheads have emerged from the leaf sheath. (Not later than soft dough stage). Keep livestock out of treated area for 7 days.

E. OTHER USES		
Add Complement Super at 100 ml/ha.		
CROP	DOSAGE / ha	REMARKS
<b>E. Industrial areas</b>	2,5 - 5 ℓ	Apply in 500 - 1 000 ℓ water/ha. Use high spray volume and high dosage rates for dense weeds.

**NB:** Avoid drift onto adjacent crops as green plant tissue will be damaged by the spray.

**Weeds which are controlled by GRAMOXONE:**

Most annual weeds that have already germinated.

**Weeds mentioned below will only be controlled variable:**

perennial grasses and broadleaf weeds,  
volunteer maize, peanuts and potatoes,  
Domonia weed,  
*Commelina benghalensis*,  
*Chenopodium* spp.,  
*Conyza bonariensis*,  
*Lolium* spp.,  
*Plantago lanceolata*,  
*Portulaca oleracea* and  
tuft-grasses (>15 cm diameter)

**GRAMOXONE** scorches and controls the green above soil parts of most annual weeds. Regrowth often happens due to subsoil parts regenerating e.g. from stolons or bulbs.

Inconsistent and variable control of weeds even at these high rates may be experienced due to a number of reasons namely:

- drought stress,
- cold or heat stress,
- plants with waxy layers e.g. *Portulaca oleracea*, *Chenopodium album*, *Gisekia pharnecoides*,
- natural resistance to the control with paraquat based products e.g. *Commelina benghalensis*, *Ipomoea* spp., *Malva parviflora*

and *Conyza bonariensis*,

- acquired resistance due to the repeated use of paraquat and/or glyphosate, e.g. *Lolium* spp. and *Conyza bonariensis* (confirmed resistance in the RSA),
- poor coverage and penetration of exposed leaves e.g. *Argemone subfusiformis*,
- plants with bulbs and tubers e.g. *Cyperus* spp. (regrowth),
- growth tips being protected either by leave sheets covering growth points or subsurface growth points and
- inconsistent relationship between above soil parts and below soil parts e.g. *Conyza bonariensis* after dry periods or growth during the winter.

**COMPLEMENT<sup>®</sup>, DUAL<sup>®</sup>, GARDOMIL<sup>®</sup>, GESAPRIM<sup>®</sup>, GRAMOXONE<sup>®</sup>, LUMAX<sup>®</sup>, MEDAL<sup>®</sup>, METAGAN<sup>®</sup>, MIDSTREAM<sup>®</sup>, PREEGLONE<sup>®</sup>, PRIMAGRAM, REGLONE<sup>®</sup>** = Registered Trade Marks of a Syngenta Group Company.

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SA. Reg. 2013-11-25