

SHAKE THE BOTTLE WELL BEFORE USE.

BEFORE USING THIS PRODUCT READ THE LABEL CAREFULLY!

Herbicide



PALLADIUM ULTRA 660 SC

Reg. No. L 9922 Act/Wet No. 36 of/van 1947

1:9/10/2015 – May 2017

*A suspension concentrate herbicide with benoxacor for selective control of most annual broadleaf weeds as well as grasses in maize.*

*'n Suspensie konsentraat onkruidoder met benoxacor vir selektiewe beheer van die meeste eenjarige breëblaaronkruidе asook grasse in mielies.*

ACTIVE INGREDIENTS / AKTIEWE BESTANDELE

atrazine (triazine)	370 g/l	atrasien (triasien)
s-metolachlor (chloroacetanilide)	290 g/l	s-metolachloor (chloroasetanilied)
benoxacor (safener)	10.2 g/l	benoxacor (beveiligер)

HRAC HERBICIDE GROUP CODE **C1** HRAC ONKRUIDDODER GROEPKODE

HRAC HERBICIDE GROUP CODE **K3** HRAC ONKRUIDDODER GROEPKODE



**villa**

Registration holder / Registrasiehouer:

Villa Crop Protection (Pty) Ltd.

Co. Reg. No. / Mpy. Reg. Nr. 1992/002474/07

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UN Number: 3082

Willow Set & Print 011 394-4486



HARMFUL  
SKADELIK



GEBRUIKSAANWYINGS INGESLUIT

VERWYS NA BESONDERHEDE  
GEDRUK OP HOUER/SAK

Date formulated:  
Formuleringsdatum:

REFER TO DETAILS PRINTED  
ON CONTAINER/BAG

Batch number:  
Lotnommer:

DIRECTIONS FOR USE ENCLOSED

**PALLADIUM ULTRA 660 SC**

Reg. No. L 9922 Act/Wet No. 36 of/van 1947

HRAC HERBICIDE GROUP CODE / HRAC ONKRUIDDODER GROEPKODE: C1/K3

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s-metolachlor (chloroacetanilide) / s-metolachloor (chloorasetanilied)	.....290 g/ℓ
benoxacor (safener) / benoxacor (beveiliger)	.....10.2 g/ℓ

Registration holder / Registrasiehouer:

**VILLA CROP PROTECTION (PTY) LTD.**

Co. Reg. No. 1992/002474/07 Mpy. Reg. Nr.

P.O. Box / Posbus 10413

ASTON MANOR, 1620 Tel. (011) 396 2233

**HARMFUL****SKADELIK****WARNINGS**

- Handle with care.
- Harmful when swallowed.
- Mild skin and eye irritant.
- Toxic to aquatic organisms.
- Store under lock and key in a cool, dry, well-ventilated place, away from food, feeds, seed, fertilizers and other agricultural remedies.
- Keep out of reach of children, uninformed persons and animals.
- Product contains **Atrazine**, which has a potential for groundwater contamination.
- Re-entry: Do not enter treated area within 1 day after treatment unless wearing protective clothing.
- **In case of poisoning call a physician immediately and make this label available to him/her.**

**Aerial application:**

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

**PRECAUTIONS**

- Avoid inhalation of the spray mist or fumes.
- Avoid contact with skin and eyes.
- Wear protective rubber gloves, rubber boots and a facemask when handling the product and preparing the spray mixture.
- Wash with soap and water after use and accidental skin contact.
- Wash contaminated clothing after use.
- Do not eat, drink or smoke while mixing, applying or before washing hands and face or change of clothing.
- Prevent drift onto other crops, grazing, rivers, dams or areas not under treatment or to nearby water sources.
- Do not apply where roots of desirable plants can absorb the chemical.
- Do not mix and load within at least 15 m from boreholes, streams, rivers and dams.
- Do not apply within at least 60 m from dams.
- Ensure that no back siphoning to boreholes or dams takes place, where **Atrazine** is applied through the irrigation system.

- Clean the applicator thoroughly after use and before using with other products - dispose of wash water where it will not contaminate food, grazing, rivers or dams.
- **TRIPLE RINSE** empty containers in the following manner: Invert empty container over the spray or mixing tank and allow draining for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse empty container three times with a volume of clean water equal to a minimum of a third of the container. Add the rinsing to the contents of the spray tank before destroying the container in the prescribed manner.
- Destroy the empty container by perforation and flattening and dispose of it in a safe way.
- **Never** re-use the empty container for any other purpose.
- Prevent contamination of food, feeds, drinking water and eating utensils.

### **SYMPTOMS OF HUMAN POISONING**

Acute toxicity to this herbicide is expected to be low and no adverse effects from exposure have been reported. It can be absorbed orally, dermally and by inhalation. Symptoms of poisoning include abdominal pain, diarrhea and vomiting, eye irritation, irritation of mucous membranes and skin irritations.

### **FIRST AID TREATMENT**

- **Skin contact:** If irritation occurs, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts). Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. If irritation persists, obtain medical assistance.
- **Eye contact:** Immediately flush the contaminated eyes with gently flowing lukewarm water for 20 minutes, holding the eyelid(s) open until no evidence of chemical remains. More serious contamination may require medical treatment.
- **Ingestion:** Have the patient rinse his/her mouth thoroughly with water. Do not induce vomiting. **Obtain medical advice immediately.**
- **Inhalation:** Remove source of contamination or move patient to fresh air. Keep patient under observation and obtain medical attention if irritation persists.

### **NOTE TO PHYSICIAN**

No signs and symptoms of **triazine** poisoning are known or expected in humans. No specific antidote is available. Treat symptomatically and supportively when required. When large amounts have been ingested, consider gastric lavage or administer activated charcoal with water.

### **RESISTANCE WARNING**

**PALLADIUM ULTRA 660 SC** is a group code C1/K3 herbicide. Any weed population may contain individuals naturally resistant to **PALLADIUM ULTRA 660 SC** and other group code C1/K3 herbicides. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds may not be controlled with **PALLADIUM ULTRA 660 SC** or any other group code C1/K3 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 weed control programmes.

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

### **USE RESTRICTIONS**

- **Follow-up crops waiting periods:**

<b>Observe the following waiting periods to avoid injury to follow-up crops as listed below:</b>	
a) Maize, Grain sorghum and Sugarcane	None
c) Sunflowers, Groundnuts, Soybeans, Potatoes, Dry Beans, Forage Sorghum and Small Grains	12 months
d) All Other Crops a testing planting is recommended)	18 months

### **IMPORTANT**

The above-mentioned withholding periods are valid only if the correct dosage rate of **PALLADIUM ULTRA 660 SC** according to soil type was applied and normal or above average rainfall occurred after the **PALLADIUM ULTRA 660 SC** application.

- When **PALLADIUM ULTRA 660 SC** is applied to soils that expand on wetting and crack or crumble on drying out, such as turf soils, the **PALLADIUM ULTRA 660 SC** may remain active in the soil for much longer than the above-mentioned waiting periods. Thus, **PALLADIUM ULTRA 660 SC** should not be

used on such soils if sensitive crops might be planted in the foreseeable future. On such soils **PALLADIUM ULTRA 660 SC** may also give poor control of the weeds when applied pre-emergence.

- Do not apply **PALLADIUM ULTRA 660 SC** to inbred parent plants of maize and grain sorghum hybrids or experimental or newly released maize and grain sorghum cultivars without first referring to the distributor or seed supplier.
- **PALLADIUM ULTRA 660 SC** can cause damage to maize on poorly drained soils or soils which tend to form a compaction layer / crust.
- Stubble from previous harvest or dead plant material (e.g. dead weeds) on the soil surface at the time of application may have an adverse effect on weed control and the time of residual action of the herbicide. This adverse effect is thus not uncommon where minimum / no tillage practices are followed.
- **Risk of damage to triazine sensitive crops:**
  - The risk of crop injury increases dramatically in fields where triazine herbicides were previously applied if soils have been treated with lime to adjust the soil pH. This is caused by the triazine molecules being replaced with calcium cations on the clay particles and the triazine thus becoming more readily available in the soil-water system.
  - Only maize should be planted in the season directly after soil pH adjustment with lime.
  - No triazine sensitive crops should be planted in the season after the soil pH adjustment has been done with lime. This applies even if triazines were used at crop rotation rates in previous years.
  - Triazine sensitive crops include all broadleaf crops e.g. different bean crops, sunflowers and all cereals e.g. wheat.
  - These warnings however do not guarantee that no damage would be experienced to even the following maize crop as large volumes of previously applied triazines might now be available depending on the volume of lime applied and the rainfall experienced.
- **Risk of increased efficacy, phytotoxicity and residual action:**
  - If soil pH levels are increased above 7, conditions for increased efficacy and reduced selectivity can be created. The higher soil pH may also cause increase soil residual action by certain herbicides, which will influence the choice of follow-up crops (especially under irrigation).
  - Take care when sulphonyl urea herbicides, triazolopyrimidine sulfonanilide herbicides and imidazolinone herbicides (which are all sensitive to soil pH fluctuations), were applied, or will probably be used, in situations where pH adjustments has been done.
- **Contact your agrichemical representative to discuss crop rotation and follow-up crop protection programmes before a pH adjustment programme is implemented.**
- If dry conditions prevail for a period of one to two weeks after application, weeds may emerge and develop. In such cases it is recommended that a light cultivation be carried out with a rotary cultivator to destroy these weeds and to mix the herbicide into the top 10 to 20 mm of soil.
- Optimal weed control is obtained when application is followed by at least 10 to 20 mm of soft penetrating rain or irrigation to leach the herbicide into the soil prior to the emergence of *C. esculentus* (normally 7 to 10 days after ploughing). More rain or irrigation is required on heavier soils to obtain good results.

**DIRECTIONS FOR USE: Use only as directed.**

**Compatibility:**

- **The product may flocculate when tank mixed with paraquat, therefore do not mix with Paraquat.**
- The compatibility of **PALLADIUM ULTRA 660 SC** may be influenced by several factors. As factors influencing compatibility may vary, a physical compatibility test must always be performed before a tank mixture is sprayed.
- When **PALLADIUM ULTRA 660 SC** is used in conjunction with any other agricultural remedy, all **WARNINGS, PRECAUTIONS** and **DIRECTIONS FOR USE** mentioned on that label, must be adhered to.

**Mixing instructions:**

- Half fill the spray tank with water.
- Add the required amount of **PALLADIUM ULTRA 660 SC** through a 50-mesh sieve to the tank, while agitating.
- Fill the spray tank with water to the required level.
- When **PALLADIUM ULTRA 660 SC** is tank mixed with other pesticides, the **PALLADIUM ULTRA 660 SC** should be mixed first using a tank half filled with water and agitated well after which the spray tank should be filled almost to capacity. Only then should the other pesticides be added, whilst the spray tank is filled to its final volume.

- Maintain agitation during application.
- Prepared spray mixtures must not be left in the spray tank for any length of time, e.g. overnight.

#### **Application:**

**PALLADIUM ULTRA 660 SC** must be applied pre emergence within 3 days after planting. The soil must have a fine and smooth surface, free of clods.

#### **Ground application:**

**PALLADIUM ULTRA 660 SC** can be applied with any medium or high volume sprayer, with efficient agitation and which is capable of adequate coverage and even distribution. Best results are obtained using flat fan-type spray nozzles and applying a minimum spray volume of 200 litres per hectare spray mixture.

#### **Aerial application:**

**PALLADIUM ULTRA 660 SC** aerial application must be done according to the instructions of SANS Code 10118 (Aerial Application of Agricultural Pesticides) by a registered aerial application operator with a correctly calibrated registered aircraft. 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 litres per hectare is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy, or be held responsible for any adverse effects if this product is applied aurally at a lower volume rate than recommended above.
- Droplet coverage: 20 to 30 droplets per cm<sup>2</sup> must be recovered at the target area.
- Droplet size: The following droplet spectrum is recommended – a VMD of 350 to 400 micron. Limit the production of fine droplets less than 150 micron (high drift and evaporation potential) to a minimum.
- Flying height: Maintain the height of the spray boom at 3 to 4 meters above the target. Do not spray when aircraft dives, is in a climb or when banking.
- Use suitable atomizing 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 atomizers 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 per hour.
- Stop spraying under turbulent, unstable and dry conditions during the heat of the day.
- Spraying under temperature inversion conditions (spraying in or above the inversion layer) and/or high humidity conditions (relative humidity 80 % and above) may lead to the following:
  - a) reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage),
  - b) damage to other sensitive crops and/or non-target areas through drifting of the suspended spray cloud away from the target field.
- Ensure that the aerial spray operator knows exactly which fields to spray.

Obtain an assurance from the aerial spray operator that the above requirements will be met and that relevant data will be compiled in a logbook and kept for future reference.

## **APPLICATION RATES**

### **MAIZE**

**Table 1:** PALLADIUM ULTRA 660 SC applied pre-emergence.

<i>Soil type</i>	<i>% Clay</i>	<i>Overall application ℓ / ha</i>
Light sand / sand	0 to 10	1.25
Loamy sand / sandy loam	11 to 20	1.7
Sandy clay loam	21 to 35	2.1
Sandy clay	>35	2.5

**PALLADIUM ULTRA 660 SC** can only be applied post-emergence if broadleaved weeds have not developed beyond the 4-leaf stage and grasses have not yet emerged. Where grasses have already emerged and broadleaf weeds have developed beyond the 4-leaf stage, these weeds must first be destroyed by cultivation and **PALLADIUM ULTRA 660 SC** then applied on to clean soil surface. When **PALLADIUM ULTRA 660 SC** is applied post-emergence to the weeds, a suitable surfactant, e.g. **Villa 51**, should be added to the spray mixture.

**Table 2:** Post emergence application of **TERBUSIEN SUPER 600 SC** (L 5435 / N-AR 1110) plus **Pentium 960 EC** for extended residual control of weeds after the initial pre-emergence application as listed in **Table 1**.

<i>Soil type</i>	<i>% Clay</i>	<i>Terbusien Super 600 SC ℓ / ha</i>	<i>Pentium 960 EC mℓ / ha</i>
Light sand / sand	0 to 10	1.1	280
Loamy sand / sandy loam	11 to 20	1.3	380
Sandy clay loam	21 to 35	1.4	450

#### **Crop rotation with triazine sensitive crops:**

In the Northwest Province and North Western Free State, on 11 to 20 % clay soils where the carry-over effect of **triazines** to groundnuts or other sensitive crops needs to be avoided, a maximum application rate of 2.7 litres per hectare **PALLADIUM ULTRA 660 SC** is recommended. On soils with high lime content these rates might however still damage follow-up crops.

#### **IMPORTANT**

Ensure that sufficient fertilizer is band-placed near the seed at planting to promote vigorous seedling growth.

<b>WEEDS NORMALLY CONTROLLED BY PALLADIUM ULTRA 660 SC (Pre-emergence application):</b>	
<b>Broadleaf weeds:</b>	
<i>Acanthospermum australe</i>	Eight-seeded prostrate starbur
<i>Acanthospermum glabratum</i>	Five-seeded prostrate starbur
<i>Acanthospermum hispidum</i>	Upright starbur
<i>Amaranthus deflexus</i>	Perennial pigweed
<i>Amaranthus hybridus</i>	Common pigweed
<i>Amaranthus thunbergii</i>	Red pigweed
<i>Bidens bipinnata</i>	Spanish blackjack
<i>Bidens pilosa</i>	Blackjack
<i>Chenopodium album</i>	White goosefoot
<i>Chenopodium carinatum</i>	Green goosefoot
<i>Cleome monophylla</i>	Spindlepod
<i>Cleome rubella</i>	Pretty lady
* <i>Commelina benghalensis</i>	Bengal wandering Jew
* <i>Cosmos bipinnatus</i>	Cosmos
<i>Crotalaria sphaerocarpa</i>	Mealie Crotalaria
* <i>Datura ferox</i>	Large thorn apple
* <i>Datura stramonium</i>	Thorn apple
<i>Galinsoga parviflora</i>	Gallant soldier
<i>Gisekia pharnaceoides</i>	Gisekia
<i>Hibiscus trionum</i>	Bladderweed
<i>Nicandra physaloides</i>	Apple of Peru
<i>Physalis angulata</i>	Wild gooseberry
<i>Portulaca oleracea</i>	Purslane
<i>Richardia brasiliensis</i>	Tropical Richardia
<i>Schkuhria pinnata</i>	Dwarf marigold
<i>Tagetes minuta</i>	Khaki weed
<b>Grasses:</b>	
<i>Brachiaria eruciformes</i>	Sweet signal grass
<i>Chloris virgata</i>	Feathertop Chloris
<i>Dactyloctenium aegyptium</i>	Crowfoot
<i>Digitaria sanguinalis</i>	Crab finger-grass
<i>Echinochloa crusgallii</i>	Barnyard grass
<i>Eleusine indica</i>	Goose grass
<i>Panicum maximum</i>	Common buffalo grass
<i>Panicum schinzi</i>	Sweet buffalo grass
<i>Setaria pallide-fusca</i>	Red bristle grass
<i>Setaria verticillata</i>	Sticky bristle grass
<i>Sorghum bicolor</i>	Common wild sorghum
<i>Tragus racemosus</i>	Large carrotseed grass
<i>Urochloa panicoides</i>	Herringbone grass
* If dry conditions prevail for a period of 7 to 14 days after pre-emergence application these weed species may not be adequately controlled, especially on heavy soils: Under abnormal wet conditions late-season weed control may be inadequate.	

Consult all products labels mentioned in this label for **WARNINGS, PRECAUTIONS, USE RESTRICTIONS** and **DIRECTIONS FOR USE**.

The following products mentioned in this label may be replaced with equivalent products:

- **PALLADIUM 960 EC** (L 9360 / W 130772) = **PENTIUM 960 EC** (L 9830) and
- **VILLA 51** (L 8050 / W 130454 / N-AR 1090) = **WEN 51** (L 8315).

**PENTIUM 960 EC** is a registered product of / is 'n geregistreerde produk van  
**UNIVERSAL CROP PROTECTION (PTY) LTD.**

**PALLADIUM 960 EC, TERBUSIEN SUPER 600 SC, VILLA 51** and **WEN 51** are registered products of / is  
geregistreerde produkte van  
**VILLA CROP PROTECTION (PTY) LTD.**