

BEFORE USING THIS PRODUCT READ THE LABEL CAREFULLY!

SHAKE THE BOTTLE WELL BEFORE USE.

Herbicide



TERBUCLEAR 600 SC

Reg. No. L 10506 Act/Wet No. 36 of/van 1947

1: 11/10/2018 - Oct2018

*A suspension concentrate herbicide for selective control of annual broadleaf weeds as well as grasses in Grain sorghum.*

*'n Suspensie konsentraat onkruidodder vir selektiewe beheer van die eenjarige breëblaaronkruid asook grasse in Graansorghum.*

ACTIVE INGREDIENTS / AKTIEWE BESTANDELE

terbutylazine and related compounds (triazine) **497.2 g/l** terbutielasien en verwante verbindings (triasien)  
s-metolachlor (chloroacetanilide) **102.8 g/l** s-metolachloor (chloroasetanilied)

HRAC HERBICIDE GROUP CODE **C1** HRAC ONKRUIDDODER GROEPPKODE  
HRAC HERBICIDE GROUP CODE **K3** HRAC ONKRUIDDODER GROEPPKODE



**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



CAUTION  
VERSIGTIG



GEBRUIKSAANWYSYNGS INGESLUIT

VERWYS NA BESONDERHEDE  
GEDRUK OP HOUER/SAK

Date formulated:  
Formuleringsdatum:

DIRECTIONS FOR USE ENCLOSED

REFER TO DETAILS PRINTED  
ON CONTAINER/BAG

Batch number:  
Lotnommer:

**TERBUCLEAR 600 SC**

Reg. No. L 10506 Act/Wet No. 36 of/van 1947

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/ terbutielasien en verwante verbindings (triasien)	497.2 g/l
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Registration holder / Registrasiehouer:

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

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

P.O. Box / Posbus 801

KEMPTON PARK, 1620 Tel. (011) 396 2233

**CAUTION / VERSIGTIG****WARNINGS**

- Handle with care.
- Poisonous if swallowed.
- 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.
- Re-entry: Do not enter treated area within 1 day after treatment unless wearing protective clothing.

**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 the product 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 one 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.

### **RESISTANCE WARNING**

**TERBUCLEAR 600 SC** is a group code C1/K3 herbicide. Any weed population may contain individuals naturally resistant to **TERBUCLEAR 600 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 **TERBUCLEAR 600 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**

- **Pre-emergence applications:**

**Pre-treatment of the sorghum seed with the safener THEORY 960 EC will be required before TERBUCLEAR 600 SC, Palladium Plus 915 EC or Palladium 960 EC can be applied pre-emergence on Grain sorghum crops.**

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

The above mentioned dosage rates of **TERBUCLEAR 600 SC** recommended above may damage triazine sensitive follow-up crops such as groundnuts, dry beans, soya beans, sunflowers, wheat, vegetables, cotton and tobacco.

<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 **TERBUCLEAR 600 SC** according to soil type was applied and normal or above average rainfall occurred after the **TERBUCLEAR 600 SC** application.

- On soils with 0 - 10% clay in the North West Province and North Western Free State and high lime content soils (refer below), the lower rates of **TERBUCLEAR 600 SC** may still damage follow-up crops. These low rates may result in poorer broadleaf control and shorter residual effect especially on soils with more than 20 % clay.
- Post-emergence control of broadleaf weeds is recommended when crop rotation with sensitive crops is practised.
- When **TERBUCLEAR 600 SC** is applied to soils that expand on wetting and crack or crumble on drying out, such as turf soils, the **TERBUCLEAR 600 SC** may remain active in the soil for much longer than the above-mentioned waiting periods. Thus, **TERBUCLEAR 600 SC** should not be used on such soils if sensitive crops might be planted in the foreseeable future. On such soils **TERBUCLEAR 600 SC** may also give poor control of the weeds when applied pre-emergence.
- Do not apply **TERBUCLEAR 600 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.
- **TERBUCLEAR 600 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.
  - Where triazine sensitive crops are to be planted as follow-up crops, the application rate of **TERBUCLEAR 600 SC** should not exceed 2.1 litres per hectare (refer below to Table).
  - 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:**

- **TERBUCLEAR 600 SC** is compatible with **Palladium Plus 915 EC**, **Palladium 960 EC** and **Villa 51**.
- The compatibility of **TERBUCLEAR 600 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.
- **The product may flocculate when tank mixed with paraquat, therefore do not mix with Paraquat.**
- When **TERBUCLEAR 600 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 **TERBUCLEAR 600 SC** through a 50-mesh sieve to the tank, while agitating.
- Fill the spray tank with water to the required level.
- When **TERBUCLEAR 600 SC** is tank mixed with other pesticides, the **TERBUCLEAR 600 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:**

**TERBUCLEAR 600 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:**

**TERBUCLEAR 600 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:**

**TERBUCLEAR 600 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.

**1. PRE-EMERGENCE APPLICATION IN GRAIN SORGHUM:**

**Table 1.1:** Pre-emergence application rates of **TERBUCLEAR 600 SC** or **TERBUCLEAR 600 SC PLUS Palladium Plus 915 EC** or **Palladium 960 EC** in Grain sorghum.

<b>Soil type</b>	<b>% Clay</b>	<b>TERBUCLEAR 600 SC ℓ / ha</b>	<b>TERBUCLEAR 600 SC PLUS Palladium Plus 915 EC / Palladium 960 EC ℓ / ha</b>
Sand / Sandy loam	0 to 20	<b>Not recommended</b>	
Sandy clay loam	21 to 30	3.0	3.0 + 0.5
Sandy clay loam	31 to 35	3.7	3.7 + 0.6
Sandy clay loam	> 35	<b>Not recommended</b>	

**NOTES**

- Pre-treatment of the sorghum seed with the safener **THEORY 960 EC**, will be required before **TERBUCLEAR 600 SC**, **Palladium Plus 915 EC** or **Palladium 960 EC** can be applied pre-emergence.
  - This tank mix with **Palladium Plus 915 EC** or **Palladium 960 EC** may be used to control grasses other than those listed above as well as Yellow *nutsedge* (*Cyperus esculentus*) under certain conditions.
  - Refer to the **Palladium Plus 915 EC** or **Palladium 960 EC** label for for **WARNINGS, PRECAUTIONS, USE RESTRICTIONS** and **DIRECTIONS FOR USE**.
- 2. POST-EMERGENCE APPLICATION IN GRAIN SORGHUM:**
- **TERBUCLEAR 600 SC** may be applied post-emergence in Grain sorghum.
  - However, the crop must at least be at the 5-leaf stage before application.

**Table 2.1:** Post-emergence application rates of **TERBUCLEAR 600 SC** applied post-emergence in Grain sorghum.

Soil type	% Clay	TERBUCLEAR 600 SC ℓ / ha
Sand / laomy sand	0 to 15	Not recommended
Sandy loam	16 to 20	2.6
Sandy clay loam	21 to 30	3.0
Heavier soil (turf soils included)	> 35	

**NOTES**

- Pre-treatment of the sorghum seed with the safener **THEORY 960 EC** will not be required.
- Always add the surfactant **Villa 51** to post-emergence **TERBUCLEAR 600 SC** spray mixtures.
- The treatments listed above will not provide adequate control of grass weeds.
- Refer to the **Palladium Plus 915 EC** or **Palladium 960 EC** label for for **WARNINGS, PRECAUTIONS, USE RESTRICTIONS** and **DIRECTIONS FOR USE**.

**Table 2.2:** Pre-emergence application rates of **Palladium Plus 915 EC** or **Palladium 960 EC** followed by a post-emergence application of **TERBUCLEAR 600 SC** in Grain sorghum.

Soil type	% Clay	Pre-emergence: Palladium Plus 915 EC / Palladium 960 EC ℓ / ha	Post-emergence: TERBUCLEAR 600 SC ℓ / ha
Sand / laomy sand	0 to 15	Not recommended	
Sandy loam	16 to 20	0.5	2.6
Sandy clay loam	21 to 30	0.6	3.0
Heavier soil (turf soils included)	> 35	0.7 to 1.0	3.0

**NOTES**

- **TERBUCLEAR 600 SC** may be applied early post-emergence in Grain sorghum as a follow-up treatment after the pre-emergence application of **Palladium Plus 915 EC** or **Palladium 960 EC**.
- Pre-treatment of the sorghum seed with the safener **THEORY 960 EC**, will be required before **Palladium Plus 915 EC** or **Palladium 960 EC** can be applied pre-emergence.
- Always add the surfactant **Villa 51** to post-emergence **TERBUCLEAR 600 SC** spray mixtures.
- The higher dosage rate of **Palladium Plus 915 EC** or **Palladium 960 EC** on heavier soils can be used to improve the control of Yellow nutsedge (*Cyperus esculentus*) and Sweet signal grass (*Brachiaria eruciformis*) on turf.
- Refer to the **Palladium Plus 915 EC** or **Palladium 960 EC** label for for **WARNINGS, PRECAUTIONS, USE RESTRICTIONS** and **DIRECTIONS FOR USE**.
- Application of sufficient fertilizer, band placed near the seed at planting, is recommended to enhance vigorous seedling growth.

Refer to the **Palladium Plus 915 EC** or **Palladium 960 EC** label for for **WARNINGS, PRECAUTIONS, USE RESTRICTIONS** and **DIRECTIONS FOR USE**.

### 3. Follow-up crops:

#### **IMPORTANT**

Refer to “USE RESTRICTIONS” above.

- Where triazine sensitive crops are to be planted as follow-up crops the application rate of **TERBUCLEAR 600 SC** should not exceed 2.1 litre per hectare.

**Table 3.** Palladium Plus 915 EC applied pre-emergence or pre-plant incorporated followed by TERBUCLEAR 600 SC early post-emergence in a crop rotation scenario.

Soil type	% Clay	TERBUCLEAR 600 SC ℓ / ha	Palladium Plus 915 EC ℓ / ha
Sand	0 to 10	2.1	0.3 to 0.5
Loamy sand / Sandy loam	11 to 20		0.5 to 0.6
Sandy clay loam	21 - 30		0.6 to 0.8
Sandy clay loam / sandy clay	31 to 40		0.8 to 0.9
Sandy clay / turf	41 to 50		0.9 to 1.1

### **WEEDS CONTROLLED**

<b>WEEDS NORMALLY CONTROLLED BY TERBUCLEAR 600 SC (Pre-emergence application):</b>	
<b>Broadleaf weeds:</b>	
<i>Amaranthus deflexus</i>	Perennial pigweed
<i>Amaranthus hybridus</i>	Common 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>Commelina benghalensis</i>	Bengal wandering Jew
<i>Crotalaria sphaerocarpa</i>	Mealie Crotalaria
* <i>Datura ferox</i>	Large thorn apple
<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>	
<b>Reliable control of grasses is only obtained with pre-emergence applications of TERBUCLEAR 600 SC.</b>	
<b>This also implies reliable control if application is done after an interrow cultivation.</b>	
<i>Chloris virgata</i>	Feathertop Chloris
<i>Digitaria sanguinalis</i>	Crab finger-grass
<i>Eleusine indica</i>	Goose grass
<i>Panicum schinzi</i>	Sweet buffalo 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 PLUS 915 EC** (L 9359) = **PENTIUM PLUS 915 EC** (L 9741) (**S-metolachlor + benoxacor**),
- PALLADIUM 960 EC** (L 9360) = **PENTIUM 960 EC** (L 9830) (**S-metolachlor**),
- VILLA 51** (L 8050 / W 130454 / N-AR 1090) = **WEN 51** (L 8315) and
- THEORY 960 EC** (L 10494) = **NOTION 960 EC** (L 10496) (**fluxofenim**).

**PENTIUM 960 EC and PENTIUM PLUS 915 EC and/en NOTION 960 EC** are registered products of / is  
geregistreeerde produkte van  
**UNIVERSAL CROP PROTECTION (PTY) LTD.**

**PALLADIUM PLUS 915 EC, PALLADIUM 960 EC, VILLA 51, WEN 51 and/en THEORY 960 EC** are  
registered products of / is geregistreeerde produkte van  
**VILLA CROP PROTECTION (PTY) LTD.**