

BEFORE USING THIS PRODUCT READ THE LABEL CAREFULLY!

Herbicide



METOLACHLOR 800 EC

Reg. No. L 7433 Act/Wet No. 36 of/van 1947

2.02/09/03-Feb2017

A pre-emergence emulsifiable concentrate herbicide with dichlormid for the control of most annual grasses and certain broad-leaved weeds in maize, groundnuts, soybeans, dry beans, sunflowers, potatoes and lupins.

'n Emulgeerbare konsentraat vooropkomsonkruidodder met diklormied vir die beheer van meeste eenjarige grasse en sekere breëblaaronkruiden in mielies, grondbone, sojabone, droëbone, sonneblomme, aartappels en lupiene.

ACTIVE INGREDIENT / AKTIEWE BESTANDEDEL

metolachlor (chloroacetanilide) **800 g/l** metolachloor (chloroasetanilied)
dichlormid (safener) **42 g/l** diklormied (beveiliging)

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

PO Box / Posbus 10413, Aston Manor, 1630

Tel: 011 396 2233

Website / Webblad: www.villacrop.co.za

UN Number: 3082



**HARMFUL
SKADELIK**

Willow Set & Print 011 394-4486



GEBRUIKSAANWYSINGS 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:

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VILLA CROP PROTECTION (PTY) LTD.

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

PO Box / Posbus 10413, ASTON MANOR, 1630

Tel. (011) 396 2233

HARMFUL  **SKADELIK**

WARNINGS

- Handle with care.
- Harmful if swallowed.
- May cause eye and skin irritation. May cause skin sensitization.
- Toxic to fish.
- Store in a cool place away from food, feeds, seed, fertilizers and other agricultural chemicals.
- Keep out of reach of children, uninformed persons and animals.
- **In case of poisoning call a doctor and make this label available to him/her.**
- Re-entry: Do not enter treated field within 1 day after application unless wearing protective clothing.

Aerial application:

Notify all inhabitants in the immediate vicinity of the lands to be sprayed and issue the necessary warnings. Do not spray over or allow 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 event of any uncertainty.

PRECAUTIONS

- Wear protective clothing, suitable mask, rubber gloves and boots when handling the product.
- Do not inhale fumes or spray mist.
- In case of accidental contact with skin or eyes, flush with plenty cold water and get medical attention if necessary.
- Do not eat, drink or smoke while mixing, applying or before washing hands and face or change of clothing.
- Prevent spray drift and/or contamination onto susceptible crops, grazing, rivers, dams or any other areas not under treatment.
- **TRIPLE RINSE** empty containers in the following manner: Invert the 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 the container three times with a volume of water equal to a minimum of a third of that 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.
- **Never** re-use for any other purpose.
- Prevent contamination of food, feeds, drinking water and eating utensils.

SYMPTOMS OF HUMAN POISONING

Irritation effects on skin and mucous membrane are the most common reactions. May cause irritation to the eyes. Allergic skin reaction may occur. May cause skin sensitization. Large ingestions can cause nausea, vomiting, abdominal distress and diarrhoea.

FIRST AID TREATMENT

- **Skin contact:** Remove contaminated clothing, shoes and leather goods immediately. Wash skin gently and thoroughly with non-abrasive soap and large amounts of water. Seek medical advice if necessary.
- **Eye contact:** Flush eyes immediately with large amounts of gently flowing, cold water or normal saline solution, for approximately 15 to 20 minutes. Occasionally lift the upper and lower lids. If irritation persists, get medical attention.
- **Inhalation:** Immediately remove source of contamination or move victim to fresh air. Perform artificial respiration and administer oxygen if necessary. Keep person warm and at rest. **Seek medical advice immediately.**
- **Ingestion:** **Do not induce vomiting.** Get medical attention immediately. Administration of gastric lavage or oxygen should be performed by qualified medical personnel.

NOTE TO PHYSICIAN

No specific antidote available. Treat symptomatically and supportively. Keep patient under observation. Perform gastric lavage and catharsis if the victim is not unconscious. If less than 10 mg per kg body weight was ingested, administer 30 to 60 g activated charcoal in 150 to 300 ml water.

RESISTANCE WARNING

METOLACHLOR 800 EC is a group code K3 herbicide. Any weed population may contain individuals naturally resistant to **METOLACHLOR 800 EC** and other group code K3 herbicides. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds may not be controlled by **METOLACHLOR 800 EC** or any other group code 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

- Do not apply **METOLACHLOR 800 EC** to inbred parent plants of maize hybrids nor onto experimental or newly released cultivars, without referring to the registration holder and seed supplier, before application.
- Do not apply **METOLACHLOR 800 EC** to poorly drained soils or soils with a compaction layer as waterlogging and herbicide injury may occur.
- Heavy rain (25 mm per day or 50 mm over a 3 to 7 day period) on very sandy soils (< 15 % clay), low in organic matter (< 1 %), as well as flood irrigation, can reduce weed control.
- **METOLACHLOR 800 EC** may damage the following crops under conditions as mentioned: Dry beans on fields where monoculture is practiced and soil borne diseases are prevalent, also dry beans and sunflowers on shallow, sandy, waterlogged soils with an impermeable clay layer at less than 100 cm depth. **METOLACHLOR 800 EC** damage to dry beans is sometimes associated with hot, dry weather and a plough-sole in the soil.
- Use restrictions for any herbicides used in combination with **METOLACHLOR 800 EC**, must be adhered to.
- When **METOLACHLOR 800 EC** is applied to dry beans, ensure that the seeds are treated with effective fungicides to control seedling diseases caused by *Pythium* spp., *Rhizoctonia* spp. etc.

DIRECTIONS FOR USE: Use only as indicated.**Compatibility:**

- If tank mixtures are performed with other products, small quantities of the products in the correct ratio should be mixed with the appropriate quantity of water, to determine compatibility.
- Water quality and formulation of other products may influence compatibility.

Mixing instructions:

- Shake container well before use. Close container after use.

- Half fill the spray tank with clean water; add the required amount of **METOLACHLOR 800 EC** while maintaining agitation. Then complete the filling operation.
- When mixing **METOLACHLOR 800 EC** with other herbicides, use the following procedure:
 1. Fill the spray tank three quarters with clean water. Add the required amount of complementary herbicide to the water, agitating continuously,
 2. Continue filling the spray tank with water and add the required amount of **METOLACHLOR 800 EC** just before the tank is filled to its full level.
- Ensure thorough agitation of the mixture in the tank during mixing and spraying.
- Spray mixtures must be sprayed out immediately and not allowed to stand in the spray tank overnight.
- Thoroughly flush out spraying equipment at the end of the spraying operation.

Application recommendation:

- Use accurately calibrated equipment with properly arranged, suitable nozzles and an efficient agitation mechanism.
- Prepare a fine, even and firm seedbed, free of weeds, trash and clods.
- Apply **METOLACHLOR 800 EC** or its tank mixtures preferably at planting or immediately after planting, but not later than (3) three days after planting. Use 200 litres spray mixture per hectare, for overall ground application, and 30 to 40 litres per hectare for aerial application.
- **METOLACHLOR 800 EC** can also be shallowly incorporated early in the season, to improve reliability of weed control.
- **10 to 20 mm rain within 7 to 10 days after application is necessary for good results.**
- Under dry conditions, weed seedlings may emerge. These are usually stunted and can be controlled with a shallow cultivation, which also mixes the herbicide with the top 10 to 20 mm of soil.
- If soil crusting becomes a problem, rotary harrow in the same direction that the rows are planted, to assist crop germination.
- Harrowing after application may reduce weed control, if untreated soil is thrown into deep planter furrows.
- **METOLACHLOR 800 EC** has no post-emergence activity and can be applied post-emergence to the crop after cultivation, when no weeds are present.
- Ensure that sufficient fertilizer is placed near the seed at planting, to promote vigorous seedling growth.

Aerial application:

Aerial application of **METOLACHLOR 800 EC** may only be done by a registered Aerial Application Operator using a correctly calibrated, registered aircraft according to the instructions of SANS Code 10118 (Aerial Application of Agricultural Pesticides). 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 be met:

- Flying height: The height of the spray boom should be maintained at 3 to 4 metres above the target. Do not spray when aircraft is in a climb, at the top, during a dive, or when banking.
- Use suitable atomising equipment (hydraulic nozzles or rotary atomisers) 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.
- 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.
- 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.
- 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 the movement of the suspended spray cloud away from the target field.
- Ensure that the fields are accurately marked and 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 spray log and kept for future reference.

• **Pre-emergence aerial application:**

- **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 aerially at a lower volume rate than recommended above.
- **Droplet coverage:** Droplet coverage of 20 to 30 droplets per cm² must be recovered at the target.
- **Droplet size:** A droplet spectrum with a VMD of 350 to 400 micron is recommended. Ensure that the production of fine droplets (less than 150 micron with high drift & evaporation potential) is restricted to a minimum.

APPLICATION RATES

A. MAIZE

Pre-emergence of the crop and the weeds:

Application to be performed at planting or not later than 3 days after planting (use the correct rates for different row and band widths). It can also be applied post-emergence of the crop but after a cultivation i.e. pre-emergence of the weeds. **METOLACHLOR 800 EC** alone does not control broadleaf weeds sufficiently and tank mixtures with **Atrazine 500 SC** or **Atrazine + Terbutylazine 600 SC** are recommended (Table 1). Where deep germinating broadleaf weeds such as *Datura* spp., *Xanthium* spp., *Tribulus*, *Commelina* and *Cucumis* are present, a post-emergence application is more effective (refer Tables 2 & 3).

Table 1: Broad spectrum pre-emergence weed control with **METOLACHLOR 800 EC** and **Atrazine 500 SC** or **Atrazine + Terbutylazine 600 SC** tank mixtures.

Soil Type	% Clay	METOLACHLOR 800 EC ℓ / ha	Atrazine 500 SC or Atrazine + Terbutylazine 600 SC ℓ / ha
Sand	0 to 10	0.9 to 1.2	1.6 to 2.0
Loamy sand / sandy loam	11 to 20	1.2 to 1.6	2.0 to 2.5
Sandy clay loam	21 to 30	1.6 to 1.75	2.5 to 3.0
Sandy clay loam / sandy clay	31 to 40	1.75 to 1.9	3.0 to 4.0
Sandy clay / turf	41 to 50	1.9 to 2.3	4.0 to 5.0

NOTES

- When short soil persistence is required in view of follow-up crops use only 2.0 litres per hectare of **Atrazine 500 SC** or **Atrazine + Terbutylazine 600 SC** on all soil types, except soils in North West Province and North-western Free State with 0 to 10 % clay and less than 1 % organic matter where 1.5 litres per hectare **Atrazine 500 SC** or **Atrazine + Terbutylazine 600 SC** should not be exceeded.

The post-emergence applications that can be used after a pre-emergence application of **METOLACHLOR 800 EC** are given in Tables 2 & 3.

Table 2: **METOLACHLOR 800 EC** applied pre-emergence followed by **Metolachlor 960 EC** plus **Atrazine + Terbutylazine 600 SC** early post-emergence.

Soil Type	% Clay	METOLACHLOR 800 EC ℓ / ha	Metolachlor 960 EC ℓ / ha	plus	Atrazine + Terbutylazine 600 SC ℓ / ha
Sand	0 to 10	0.55 to 0.65	0.45 to 0.55	+	2.2
Loamy sand / sandy loam	11 to 20	0.9 to 1.1	0.4	+	2.5
Sandy clay loam	21 to 30	1.1 to 1.4	0.5	+	3.0
Sandy clay loam / sandy clay	31 to 40	1.3 to 1.6	0.5 to 0.7	+	3.0
Sandy clay / turf	41 to 50	1.4 to 1.75	0.5 to 0.7	+	3.0

Table 3: METOLACHLOR 800 EC applied pre-emergence followed by **Atrazine + Terbutylazine 600 SC** plus **2,4-D Amine SL** early post-emergence.

Soil Type	% Clay	METOLACHLOR 800 EC ℓ / ha	Atrazine + Terbutylazine 600 SC plus 2,4-D Amine SL ℓ / ha
Sand	0 to 10	0.9 to 1.2	Recommendation for all soil types: 1.5 ℓ Atrazine + Terbutylazine 600 SC PLUS 0.75 ℓ 2,4-D Amine SL OR 2.0 ℓ Atrazine + Terbutylazine 600 SC PLUS 0.5 ℓ 2,4-D Amine SL
Loamy sand / sandy loam	11 to 20	1.2 to 1.6	
Sandy clay loam	21 to 30	1.6 to 1.75	
Sandy clay loam / sandy clay	31 to 40	1.75 to 1.9	
Sandy clay / turf	41 to 50	1.9 to 2.3	

NOTES ON TABLES 1, 2 & 3

- Use the higher application rates of **METOLACHLOR 800 EC** for improved control of *Cyperus esculentus* (Yellow nutsedge), or for improved control of heavy infestations of *Digitaria sanguinalis* (Crabfinger-grass), or where **METOLACHLOR 800 EC** is pre-plant incorporated, or where organic matter in the soil exceeds 1.0 %.
- Apply **METOLACHLOR 960 EC + Atrazine + Terbutylazine 600 SC** (Table 2) early post-emergence after the first cultivation.
- Early post-emergence treatments give more effective broadleaf weed control on soils with > 30 % clay (Tables 2 & 3).
- Under adverse weather conditions or with poor initial control on soils with 31 to 40 % and 41 to 50 % clay the application rates of **Atrazine + Terbutylazine 600 SC** in Table 2, can be increased to 4.0 and 5.0 litres per hectare respectively.
- If triazine sensitive crops such as groundnuts, dry beans, soybeans, sunflowers, wheat, vegetables, cotton and tobacco are planted as follow-up crops, the application rates of **Atrazine 500 SC** and **Atrazine + Terbutylazine 600 SC** (Tables 1 & 2) should not exceed 2.0 litres per hectare. These low rates may still damage follow-up crops on the very sandy soils of the North-western Free State and North West Province or on calcareous soils and weed control may not always be satisfactory. The recommendations in Table 3 are best suited to avoid carry-over problems and still obtain good weed control.
- If heavy rain occurs on light, sandy soils (< 15 % clay and < 0.5 % organic matter), poor weed control may result and a split application as in Table 2 is preferred.
- If longer residual broadleaf weed control is required the higher rates of **Atrazine 500 SC** or **Atrazine + Terbutylazine 600 SC** (Table 1) should be used.
- Only use the recommendations as in Table 3 for weed control in sweetcorn.
- Use a suitable penetrant with all post-emergence applications, with the exception of mixtures containing **2,4-D Amine SL**.
- Consult the **Atrazine + Terbutylazine 600 SC**, **Atrazine 500 SC** and **2,4-D Amine SL** labels for more particulars.

METOLACHLOR 800 EC plus Atrazine + Terbutylazine 600 SC preceded by EPTC:

Apply **EPTC** at normal recommended rates on soils up to 30 % clay and follow up early post-emergence with a tank mixture containing **METOLACHLOR 800 EC** and **Atrazine + Terbutylazine 600 SC** (Table 4).

Table 4: METOLACHLOR 800 EC plus Atrazine + Terbutylazine 600 SC applied early post-emergence as a tank mixture after initial application of **EPTC**.

Soil Type	% Clay	METOLACHLOR 800 EC ℓ / ha	plus	Atrazine + Terbutylazine 600 SC ℓ / ha
Sand	0 to 10	1.1	+	2.2
Loamy sand / sandy loam	11 to 20	1.4	+	2.5
Sandy clay loam	21 to 30	1.7	+	3.0

Improved initial broadleaf control of METOLACHLOR 800 EC:

Apply the **METOLACHLOR 800 EC** rates as recommended in Table 1, but split the **Atrazine + Terbutylazine 600 SC** recommendation and apply 33 % initially pre-emergence with **METOLACHLOR 800 EC** and the balance early post-emergence. It will be advantageous to split the higher application rate of **Atrazine + Terbutylazine 600 SC** in Table 1.

Low application rates of METOLACHLOR 800 EC:

Low application rates of **METOLACHLOR 800 EC** can successfully be used in the North-western Free State and North West Province in tank mixture with **Atrazine + Terbutylazine 600 SC**.

Table 5: METOLACHLOR 800 EC applied in tank mixture with **Atrazine + Terbutylazine 600 SC** in the North-western Free State and North West Province.

Soil Type	% Clay	METOLACHLOR 800 EC ℓ / ha	plus	Atrazine + Terbutylazine 600 SC ℓ / ha
Sand	0 to 10	0.65	+	2.2
Loamy sand / sandy loam	11 to 20	0.7	+	2.2
Sandy clay loam	21 to 30	0.9	+	2.8

NOTE

- To avoid carry-over to sensitive follow-up crops, if needed, the **Atrazine + Terbutylazine 600 SC** rate on all soil types should not exceed 2.0 litres per hectare.
- These low application rates will not be very dependable against high grass populations and have a short residual effect.

B. GROUNDNUTS, DRY BEANS, SUNFLOWERS, SOYBEANS AND LUPINS

Table 6: METOLACHLOR 800 EC recommendations for use in broadleaf crops.

Soil Type	% Clay	METOLACHLOR 800 EC ℓ / ha
Sand / loamy sand / sandy loam	0 to 20	1.1 to 1.5
Sandy clay loam	21 to 30	1.5 to 1.85
Sandy clay loam / sandy clay	> 30	1.85 to 2.4

NOTE

- The higher application rates of **METOLACHLOR 800 EC** are recommended for control of Yellow nutsedge (*Cyperus esculentus*) and Crabfinger-grass (*Digitaria sanguinalis*) and on soils with >1.0 % organic matter.

C. POTATOES**Pre-emergence in respect of weeds:**

Apply 2.3 litres per hectare, under dry land conditions, pre-emergence to potatoes and weeds, after the first summer rains.

Early post-emergence in respect of weeds:

METOLACHLOR 800 EC is a pre-emergence herbicide. However, for early post weed emergence apply 2.3 litres per hectare under dry land conditions, after the first summer rains in a tank mixture with **SKOFFEL® 145 SL** (L 4347) at 1 to 2 litres per hectare.

METOLACHLOR 800 EC / Skoffel® 145 SL mixtures **must not** be applied after 10 % potato emergence.

A rate of 1.75 litres per hectare **METOLACHLOR 800 EC** can be applied under irrigation.

METOLACHLOR 800 EC can also be applied post-emergence to the potatoes, after ridging.

WEEDS CONTROLLED BY METOLACHLOR 800 EC:	
<i>Brachiaria eruciformis</i>	Sweet signal grass
<i>Chloris virgata</i>	Feather-top Chloris
<i>Dactyloctenium aegyptium</i>	Crowfoot
<i>Digitaria sanguinalis</i>	Crabfinger-grass
<i>Echinochloa crusgalli</i>	Barnyard grass
<i>Eleusine indica</i>	Goose grass
<i>Panicum maximum</i>	Common buffalo grass
<i>Panicum schinzii</i>	Sweet buffalo grass
<i>Pseudobrachiaria deflexa</i>	False signal grass
<i>Setaria pallide-fusca</i>	Red bristle grass
<i>Setaria verticillata</i>	Bur bristle grass
<i>Tragus berteronianus</i>	Small carrotseed grass
<i>Tragus racemosus</i>	Large carrotseed grass
<i>Urochloa mosambicensis</i>	Bushveld herringbone grass
<i>Urochloa panicoides</i>	Herringbone grass
WEEDS VARIABLY CONTROLLED BY METOLACHLOR 800 EC:	
<i>Amaranthus hybridus</i>	Common pigweed
<i>Amaranthus spinosus</i>	Thorny pigweed
<i>Amaranthus thunbergii</i>	Red pigweed
<i>Chenopodium carinatum</i>	Green goosefoot
<i>Cleome monophylla</i>	Spindlepod
<i>Commelina benghalensis</i>	Wandering Jew
<i>Cyperus esculentus</i>	Yellow nutsedge
<i>Datura ferox</i>	Large thorn apple
<i>Datura stramonium</i>	Thorn apple
<i>Galinsoga parviflora</i>	Gallant soldier
<i>Nicandra physaloides</i>	Apple of Peru
<i>Portulaca oleracea</i>	Purslane

NOTE

- The control of Yellow nutsedge (*Cyperus esculentus*) is dependent on a thorough ploughing immediately before planting and application 1 to 2 days after planting, which is followed by about 10 to 20 mm rain within 7 to 10 days after ploughing. More rain is required on heavy soils.

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