

METOLACHLOR 915EC Reg. No. L 7841 Act No. 36 of 1947 HRAC HERBICIDE GROUP CODE: 15

ACTIVE INGREDIENTS:

Registration holder: UNIVERSAL CROP PROTECTION (PTY) LTD. Co. Reg. No. 1983/008184/07. P.O. Box 801, KEMPTON PARK, 1620 Tel. (011) 396 2233

WARNINGS

Hazard statements:
Harmful if swallowed.
Causes mild skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.
Harmful if inhaled.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting

- Handle with care.
- Keep under lock and key in a cool, dry, well-ventilated place.
- Keep 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 weeds against the remedy concerned, as well as 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 humans, animals 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

I RECACITORIO
Precautionary statements
Avoid breathing mists, vapours, or spray. (respiratory sensitization).
Wash hands thoroughly after handling. Do not touch eyes.
Do not eat, drink, or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Avoid release into the environment.
Wear impervious rubber gloves and boots, protective clothing, and chemical safety goggles.
IF SWALLOWED: Get medical help.
IF ON SKIN: Wash with plenty of water and non-abrasive soap.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Rinse mouth.
If skin irritation or rash occurs: Get medical help.
Collect spillage.
Dispose of content/container to suitable landfill in accordance with local regulations.

- Wash contaminated clothing after use.
- Wash with plenty of water and non-abrasive soap after accidental skin contact.
- Do not eat, drink or smoke whilst mixing or applying the product or before washing hands and face and change of clothing.
- Prevent drift onto other crops, grazing, rivers, dams and areas not under treatment or to nearby water sources.
- Thoroughly clean spraying equipment directly after use and dispose of wash water where it will not contaminate food, grazing, boreholes, rivers or dams.
- TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS: Invert the empty container over the spray or mixing tank and drain for at least 30 seconds after the flow has slowed down to dripping. Thereafter rinse the empty container three (3) times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler (www.croplife.co.za). Do not bury, burn or donate the container to any other parties that may use it as a container for food or beverages
- Prevent contamination of food, feeds, drinking water and eating utensils.
- Avoid release to the environment.

Relevant hazardous components		
Metolachlor Technical	915 g/ℓ	
Benoxacor	<5.0 %	
Ethoxylated tristyrylphenol	<1%	
Phenylsulphonate salt	<10 %	
Heavy aromatic solvent	<1 %	

SYMPTOMS OF HUMAN POISONING

Irritation effects on skin and mucous membranes are the most common reactions. Causes serious eye damage. Toxic if inhaled. Harmful if swallowed. May cause an allergic skin reaction. May cause genetic defects and cancer.

FIRST AID TREATMENT

- <u>Skin contact</u>: Remove contaminated clothing, shoes and leather goods immediately (e.g. watch bands and belts). Gently wipe off excess chemical. Wash skin gently and thoroughly with non-abrasive soap and large amounts of water. **METOLACHLOR 915 EC** causes mild skin irritation. Obtain medical attention if irritation persists.
- <u>Eye contact:</u> Flush eyes immediately with large amounts of gently flowing cold water or normal saline solution, for approximately 15 to 20 minutes, while holding the eyelid(s) open. If present, remove contact lenses after 5 minutes and continue rinsing. If irritation persists, get **Seek medical attention**.
- <u>Inhalation:</u> Immediately remove source of contamination or move the person to fresh air. Perform artificial respiration if necessary. Only qualified medical personnel should administer oxygen. Keep person calm and re-assured. **Seek medical attention immediately.**
- <u>Ingestion</u>: Have victim rinse thoroughly with water. **Do not induce vomiting, due to the aromatic** solvent. Seek medical advice immediately. Never give anything by mouth to an unconscious person. Establish and maintain airway. Treat respiratory difficulty with artificial respiration and oxygen. Only qualified medical personnel should administer oxygen or gastric lavage.

NOTE TO PHYSICIAN

No specific antidote. Treat symptomatically and supportively. Keep patient under observation. Perform gastric lavage and catharsis if the patient 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 m/ water.

RESISTANCE WARNING

METOLACHLOR 915EC is a group code 15 herbicide. Any weed population may contain individuals naturally resistant to **METOLACHLOR 915EC** and other group code 15 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 915EC** or any other group code 15 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 915EC to inbred parent plants of maize hybrids nor onto experimental or newly released maize cultivars, without referring to the registration holder or seed supplier before application.
- Do not apply **METOLACHLOR 915EC** 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 performance.
- **METOLACHLOR 915EC** 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 915EC** damage to dry beans is sometimes associated with hot, dry weather and a plough-sole in the soil.
- When **METOLACHLOR 915EC** 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.
- Use restrictions for any herbicides used in combination with **METOLACHLOR 915EC** must be adhered to.

Mode of action: Metolachlor 915 EC is a selective herbicide, absorbed predominantly by the hypocotyls and shoots which inhibits germination.

DIRECTIONS FOR USE: Use only as directed.

Compatibility:

- If tank mixtures are used 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.
- The compatibility of **METOLACHLOR 915EC** may be influenced by several factors. As these factors may vary, a physical compatibility test must always be performed before such a tank mixture is sprayed.
- When METOLACHLOR 915EC 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:

- Shake container well before use. Close container after use.
- Half fill the spray tank with clean water, add the required amount of **METOLACHLOR 915EC** while maintaining agitation. Complete the filling operation.
- When mixing **METOLACHLOR 915EC** with other herbicides, use the following procedure:
 - a) fill the spray tank three quarters with clean water. Add the required amount of complementary herbicide to the water, agitating continuously,
 - b) continue filling the spray tank with water and add the required amount of **METOLACHLOR 915EC** just before the tank is filled to its full capacity.
- 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 spraying equipment at the end of the spraying operation.

Application Recommendations:

- 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 915EC** or its tank mixtures preferably at planting or immediately after planting, but not later than 3 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 915EC** 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 915EC** has no post-emergence activity and can be applied post-emergence to the crop after a 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 915EC** 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:

- <u>Flying height</u>: 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 of, or during a dive, or when banking.
- Use suitable <u>atomising equipment</u> (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 spraying system must 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 <u>wingtip vortices</u>.
- The difference in <u>temperature</u> between the wet and dry bulb thermometers, of a whirling hygrometer should not exceed 8 °C.
- Stop spraying if the <u>wind speed</u> exceeds 15 km per hour.
- Aerial application of this product must not be done under <u>turbulent</u>, unstable conditions during the heat of the day when rising thermals and downdraughts occur.
- Spraying under temperature <u>inversion conditions</u> (spraying in or above the inversion layer) and/or <u>high</u> <u>humidity conditions</u> (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 aerial spray operator knows exactly which fields to spray.

Obtain 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:

- <u>Volume</u>: A spray mixture volume of 30 to 40 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.
- <u>Droplet coverage</u>: Droplet coverage of 20 to 30 droplets per cm² must be recovered at the target area.
- <u>Droplet size</u>: A droplet spectrum with a VMD of 350 to 400 micron is recommended. Limit the production of fine droplets less than 150 micron (high drift & evaporation potential) to a minimum.

APPLICATION RATES

A. <u>MAIZE</u>

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 cultivation i.e. pre-emergence of the weeds. **METOLACHLOR 915EC** alone does not control broadleaf weeds sufficiently and tank mixtures with **Agrizine 500 SC** or **TERBUSIEN SUPER 600 SC** (L 5435 / N-AR 1110) are recommended (in maize only) (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).

<u>Table 1:</u> Broadspectrum pre-emergence weed control with METOLACHLOR 915EC and Agrizine 500 SC or Terbusien Super 600 SC tank mixtures.

Soil Type	% Clay	METOLACHLOR 915EC // ha	Agrizine 500 SC // ha	Terbusien Super 600 SC // ha
Sand	0 to 10	0.8 to 1.2	1.6 to 2.0	1.3 to 1.7
Loamy sand / sandy loam	11 to 20	1.1 to 1.3	2.0 to 2.5	1.7 to 2.1
Sandy clay loam	21 to 30	1.3 to 1.6	2.5 to 3.0	2.1 to 2.5
Sandy clay loam / sandy clay	31 to 40	1.6 to 1.8	3.0 to 4.0	2.5 to 3.3
Sandy clay / turf	41 to 50	1.8 to 2.1	4.0 to 5.0	3.3 to 4.0

NOTE

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

The post-emergence applications that can be used, after a pre-emergence application of **METOLACHLOR 915EC** are given in Tables 2 and 3.

<u> Table 2:</u>	IETOLACHLOR 915EC applied pre-emergence followed by Metolachlor 960 EC plus	Terbusien
	Super 600 SC early post-emergence.	

Soil Type	% Clay	METOLĂCHLOR 915EC // ha	Metolachlor 960 EC // ha	PLUS	Terbusien Super 600 SC // ha
Sand	0 to 10	0.55 to 0.8	0.4 to 0.5	+	1.9
Loamy sand / sandy loam	11 to 20	0.8 to 1.0	0.4	+	2.3
Sandy clay loam	21 to 30	1.0 to 1.2	0.5	+	2.7
Sandy clay loam / sandy clay	31 to 40	1.15 to 1.35	0.5 to 0.7	+	2.7 to 4.0
Sandy clay/ turf	41 to 50	1.3 to 1.5	0.5 to 0.7	+	2.7 to 4.0

Table 3: METOLACHLOR 915EC applied pre-emergence followed by Terbusien Super 600 SC plus 2,4-D Amine 480 SL early post-emergence.

Soil Type	% Clay	METOLACHLOR 915EC // ha	Terbusien Super 600 SC PLUS 2,4-D Amine 480 SL ⁄/ ha
Sand	0 to 10	0.8 to 1.1	Recommendation for all soil types:
Loamy sand / sandy loam	11 to 20	1.1 to 1.3	1.25 <i>l</i> Terbusien Super 600 SC
Sandy clay loam	21 to 30	1.3 to 1.6	PLUS 0.75 ℓ 2.4-D Amine 480 SL
Sandy clay loam / sandy clay	31 to 40	1.6 to 1.8	OR
Sandy clay / turf	41 to 50	1.8 to 2.1	1.7 ℓ Terbusien Super 600 SC PLUS 0.5 ℓ 2,4-D Amine 480 SL

NOTES ON TABLES 1, 2 and 3

- Use the higher application rates of **METOLACHLOR 915EC** for improved control of *Cyperus esculentus* (Yellow nutsedge), or for improved control of heavy infestations of *Digitaria sanguinalis* (Crabfingergrass), or where **METOLACHLOR 915EC** is pre-plant incorporated, or where organic matter in the soil exceeds 1.0 %.
- Apply **Metolachlor 960 EC** + **Terbusien Super 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 content (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 **Terbusien Super 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 **Agrizine 500 SC** and **Terbusien Super 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-west 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 **Agrizine 500 SC** and **Terbusien Super 600 SC** (Table 1) should be used.
- Only use the recommendations 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 480 SL**.
- Consult Agrizine 500 SC, Terbusien Super 600 SC and 2,4-D Amine 480 SL labels for more particulars.

METOLACHLOR 915EC plus Terbusien Super 600 SC preceded by EPTC 720 EC (L 4859):

Apply EPTC 720 EC at normal recommended rates on soils up to 30 % clay and follow-up early postemergence with a tank mixture containing METOLACHLOR 915EC and Terbusien Super 600 SC (Table 4).

<u>Table 4:</u> METOLACHLOR 915EC plus Terbusien Super 600 SC applied early post-emergence as a tank mixture after initial application of EPTC 720 EC.

Soil Type	% Clay	METOLACHLOR 915EC // ha	PLUS	Terbusien Super 600 SC // ha
Sand	0 to 10	1.0	+	1.9
Loamy sand / sandy loam	11 to 20	1.2	+	2.3
Sandy clay loam	21 to 30	1.5	+	2.7

Improved initial broadleaf control with METOLACHLOR 915EC:

Apply the **METOLACHLOR 915EC** rates as recommended in Table 1, but split the **Terbusien Super 600 SC** recommendation and apply 33 % initially pre-emergence with **METOLACHLOR 915EC** and the balance early post-emergence. It will be advantageous to split the higher application rate of **Terbusien Super 600 SC** in Table 1.

Low application rates of METOLACHLOR 915EC:

Low application rates of **METOLACHLOR 915EC** can successfully be used in the North-western Free State and North West Province in tank mixture with **Terbusien Super 600 SC**.

<u>Table 5:</u> METOLACHLOR 915EC applied in tank mixture with Terbusien Super 600 SC in the Northwestern Free State and North West Province.

Soil Type	% Clay	METOLACHLOR 915EC // ha	PLUS	Terbusien Super 600 SC // ha
Sand	0 to 10	0.55	+	1.8
Loamy sand / sandy loam	11 to 20	0.6	+	2.0
Sandy clay loam	21 to 30	0.8	+	2.3

NOTE

- To avoid carry-over to sensitive follow-up crops, if needed, the Terbusien Super 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. <u>GROUNDNUTS, DRY BEANS, SUNFLOWERS, SOYBEANS AND LUPINS</u>

Table 6: METOLACHLOR 915EC recommendations for use in broadleaf crops.

Soil Type	% Clay	METOLACHLOR 915EC // ha
Sand / loamy sand / sandy loam	0 to 20	0.75 to 1.1
Sandy clay loam	21 to 30	1.5
Sandy clay loam / sandy clay	> 30	2.0

NOTE

 The higher application rates of METOLACHLOR 915EC are recommended for the control of Yellow nutsedge (*Cyperus esculentus*) and Crabfinger-grass (*Digitaria sanguinalis*) and on soils with > 1.0 % organic matter.

C. <u>POTATOES</u>

Pre-emergence in respect of weeds:

Apply 2.0 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 915EC is a pre-emergence herbicide. However, for early post weed emergence apply 2.0 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 915EC / Skoffel® 145 SL** mixtures **must not** be applied after 10 % potato emergence.

A rate of 1.5 litres per hectare **METOLACHLOR 915EC** can be applied under irrigation.

WEEDS CONTROLLED BY METOLACHLOR 915EC:			
Brachiaria eruciformis	Sweet signal grass		
Chloris virgata	Feather-top Chloris		
Dactyloctenium aegyptium	Crowfoot		
Digitaria sanguinalis	Crabfinger-grass		
Echinochloa crusgalli	Barnyard grass		
Eleusine indica	Goose grass		
Panicum maximum	Common buffalo grass		
Panicum schinzii	Sweet buffalo grass		
Pseudobrachiaria deflexa	False signal grass		
Setaria pallide-fusca	Red bristle grass		
Setaria verticillata	Bur bristle grass		
Tragus berteronianus	Small carrotseed grass		
Tragus racemosus	Large carrotseed grass		
Urochloa mosambicensis	Bushveld herringbone grass		
Urochloa panicoides	Herringbone grass		
WEEDS VARIABLY CONTROLLED BY METOLACHLOR 915EC:			
Amaranthus hybridus	Common pigweed		
Amaranthus spinosus	Thorny pigweed		
Amaranthus thunbergii	Red pigweed		
Chenopodium carinatum	Green goosefoot		
Cleome monophylla	Spindlepod		
Commelina benghalensis	Wandering Jew		
Cyperus esculentus	Yellow nutsedge		
Datura ferox	Large thorn apple		
Datura stramonium	Thorn apple		
Galinsoga parviflora	Gallant soldier		
Nicandra physaloides	Apple of Peru		
Portulaca oleracea	Purslane		

METOLACHLOR 915EC can also be applied post-emergence to the potatoes after ridging.

NOTE

The control of Yellow nutsedge (*Cyperus esculentus*) is dependent on a thorough ploughing immediately before planting, 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.

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

- **2,4-D AMINE 480 SL** (L 4505 / W 130459 / N-AR 1096)
- **METOLACHLOR 960 EC** (L 7136 / N-AR 1362 / W 130057)

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