HARVEST
S-METOLACHLOR 915 EC

Distributed by: Harvest Chemicals
Registration Holder/Registrasiehouer Harvest Crop Solutions (Pty)Ltd.
Reg.No. 2014/187205/07
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HARVEST CHEMICALS

An emulsifiable concentrate herbicide with safener for the pre-emergence control of annual grasses and broad leaf weeds under certain conditions in maize, dry beans and soybeans.

'n Emulgeerbare konsentraat onkruiddoder met beveiliger vir die vooropkomsbeheer van eenjarige grasse en breë-blaar onkruide onder sekere omstandighede in mielies, droëbone en sojabone.

UN No./Nr.: 3082

Batch No	Reg. No. L XXXX, Act No 36 of 1947.		Reg Nr LXXX, Wet Nr. 36 van 1947.	Lot Nr
	HERBICIDE GROUP CODE	**K3**	**ONKRUIDODDER GROEPKODE**	
Expires	**Active Ingredient** s-metolachlor (chloro-acetanilide) benoxacor (safener)	**915g/ℓ** **25g/ℓ**	**AktieweBestandeel:** s-metolachloor (chloorasetanalied) benoxacor (safener)	Vervaardigingsdatum
Date of manufacture	**Nett Volume**	**ℓ**	**Netto Volume**	Verval

WARNINGS:

- Handle with care.
- Keep out of reach of children, uninformed persons and animals.
- Harmful if swallowed, inhaled, or absorbed through the skin.
- May irritate the skin and eyes.
- Should poisoning be suspected, consult a doctor and present this label to him/her.
- Toxic to fish and aquatic organisms.
- Prevent contamination of dams, rivers and any water body.
- **FLAMMABLE** - Keep away from heat and flame.
- Store in the original container under lock and key, tightly closed, away from sun and damp in a well ventilated and cool area (20°C). Avoid storage temperatures below 10°C and above 35°C.
- Store away from food, feed and seed.
- Re-entry: Do not enter the treated field until the spray deposit has dried unless wearing protective clothing.
- Aerial application: Notify all inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warning. Do not spray over or allow drift to contaminate water or adjacent areas.

Although this herbicide has been tested extensively under a wide range of conditions, the registration holder does not warrant that it will be efficacious under every possible condition because the action and effect thereof may be affected by factors such as abnormal soil, climate 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, timing and accuracy of the 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 when handling the concentrate (face shield, rubber boots, gloves).
- Do not inhale fumes or spray mist.
- Avoid contact with skin and eyes.
- Wash contaminated clothing after use.
- Do not eat, drink or smoke whilst mixing or applying or before washing hands and face and change of clothing after use.
- Prevent contamination of food, feedstuff, eating utensils and drinking water.
- Prevent the drift of spray mist onto other crops, grazing, rivers, dams or areas not under treatment.
- Rinse empty 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 in the prescribed manner. Destroy the empty container by perforation and flattening and never use for any other purpose.
- Clean application equipment after use and dispose of waste water in safe and responsible manner

SYMPTOMS OF HUMAN POISONING

- There are no records of human poisoning.
- Observed poisoning symptoms of laboratory animals under controlled conditions were: sedation, dyspnoea, exophthalmos, curved posture and ruffled fur.

FIRST AID TREATMENT

- Remove patient away from source of poisoning to a well-ventilated, cool area and keep patient reassured and quiet.
- All contaminated clothing must be removed, and the contaminated body area properly washed with plenty of clean, soapy water. Don't rub hard on the area of affected skin.
- If eyes are contaminated rinse eyes out with clean water for at least 15 minutes.
- If swallowed, do not induce vomiting. Promptly administer a large quantity of milk, egg whites, gelatine solution or, if these are not available, large quantities of water. Do not give anything by mouth to an unconscious person.
- Seek medical attention and show this container or label to the physician.

NOTE TO PHYSICIAN

- There is no known specific antidote.
- If ingested, induce emesis or lavage stomach.
- Administration of an aqueous slurry of activated charcoal may be considered.
- Apply symptomatic therapy.

RESISTANCE MANAGEMENT

- For resistance management, **HARVEST S-METOLACHLOR 915 EC** is a group code K3 herbicide.
- Any weed population may contain individuals naturally resistant to **HARVEST S-METOLACHLOR 915 EC** and other group code K3 herbicides. The resistant individuals can eventually dominate the weed popu¬lation if these herbicides are used repeatedly and exclusively in programs. **HARVEST S-METOLACHLOR 915 EC** or any other group code K3 herbicides may not control these resistant weeds.

To delay herbicide resistance

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

For specific information on resistance management con¬tact the registration holder of this product.

USE RESTRICTIONS

HARVEST S-METOLACHLOR 915 EC may damage certain crops under the following conditions:

Maize and sweet corn
- Poorly drained soils.
- Soils with a compaction layer.
- Wet and cold conditions directly after an application
- Inbred parent plants of maize hybrids. Consult the registration holder, the distributor or seed supplier.

Dry beans and soybeans
- Fields with a high incidence of soil borne diseases and/or where monoculture is practiced.
- Hot and dry conditions, especially in the presence of a com¬paction layer in the soil. Under these conditions beans may also be susceptible to wind damage.
- Waterlogged, shallow, sandy soils of < 100 mm depth with an impermeable clay sub soil.

When applying HARVEST S-METOLACHLOR 915 EC in combination with any other agricultural remedy the WARNINGS, PRECAUTIONS, RECOMMENDATIONS and USE RESTRICTIONS on the labels must be complied with.

DIRECTIONS FOR USE: USE ONLY AS DIRECTED

WEEDS CONTROLLED

The weed species below are normally controlled by a pre-emergence application of **HARVEST S-METOLACHLOR 915 EC** at the dosage rates indicated on this label.

Brachiaria eruciformis	Sweet signal grass
Chloris virgata	Feather top Chloris
Chenopodium murale	Nettle-leaved goose foot
Dactyloctenium aegyptium	Crowfoot
Digitaria sanguinalis	Crab finger-grass
Echinochloa crusgalli	Barnyard grass
Eleusine africana	Goose grass
Eleusine coracana	African goosegrass
Panicum schinzii	Sweet buffalo grass
Panicum maximum	Common buffalo grass
Pseudobrachiaria deflexa	False signal grass
Setaria pallide-fusca	Red bristle grass
Setaria verticillata	Sticky bristle grass
Tragus berteronianus	Small carrotseed grass
Tragus racemosus	Large carrot seed grass
*Urochloa mosambicensis***	Bushveld herringbone grass
*Urochloa panicoides***	Herringbone grass
Richardia brasiliensis	Mexican richardia

Control of the weeds below is variable

Amaranthus hybridus	Cape pigweed
Amaranthus spinosus	Thorny pigweed
Amaranthus thunbergii	Red pigweed
Chenopodium carinatum	Green goosefoot
Cleome monophylla	Spindle pod
Commelina benghalensis	Bengal 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
Schkuhria pinnata	Dwarf Marigold

* ***Cyperus esculentus*** (*Yellow nutsedge*) control can be improved provided the following are adhered to:

- Thorough ploughing with a mouldboard plough immediately before planting.
- Preparation of a relatively fine, even and firm seedbed.
- The application of **HARVEST S-METOLACHLOR 915 EC** should be done at or immediately after planting into moist soil. Planting in dry soil means insufficient moisture for C. esculentus germination.
- Soft penetrating rain (10 to 20 mm) or irrigation to leach the herbicide into the soil prior to the emergence of C. esculentus within 7 to 10 days after ploughing. These rainy conditions are more likely during the latter half of the planting season.
- More rain is required on heavier soils to obtain good results. This is the main reason for the very poor control sometimes observed on turf soils.

** ***Urochloa species*** (Bushveld herringbone grass and herringbone grass) control can be poor due the very shallow germination, even on the soil surface, and the lack of seed incorporation into the soil profile in fields where no tillage or minimum tillage is used.

Compatibility

HARVEST S-METOLACHLOR 915 EC compatibility with other products is influenced by the formulation of the products involved and the quality of the spray water. It is advised that a physical compatibility test always be carried out prior to application. **HARVEST S-METOLACHLOR 915 EC** is compatible with the following tank mix partner herbicide formulations: Atrazine 500 SC; Paraquat 200 SL; 2,4-D Amine 480 SL or Atrazine/Terbuthylazine 600 SC, when mixed according to recognized standard procedures on the various crops for which **HARVEST S-METOLACHLOR 915 EC** is registered.

Mixing instructions

- Shake the **HARVEST S-METOLACHLOR 915 EC** container thoroughly before pouring.
- Half fill the spraying tank with clean water, add the required amount of **HARVEST S-METOLACHLOR 915 EC** to the water to form an emulsion.
- Ensure thorough agitation of the mixture in the spray tank during mixing and spraying.
- Replace cap after pouring **HARVEST S-METOLACHLOR 915 EC** into the tank.
- When a wettable powder is sprayed as a tank mix with **HARVEST S-METOLACHLOR 915 EC** the wettable powder should be mixed first and agitated until dissolved before adding the **HARVEST S-METOLACHLOR 915 EC** to the spray tank, then fill to its final volume with clean water.
- Mixtures must be sprayed out immediately and not allowed to stand in the spray tank.

Application techniques

Ground application

Apply in 200ℓ water/ha and use low spray pressure (100-200kPa) to avoid spray drift. An even application with complete

coverage is essential for good results.

HARVEST S-METOLACHLOR 915 EC may be applied with conventionally used high-volume spray equipment. Nozzles should be fitted with hollow cone tips to ensure medium to fine droplets.

Aerial application
HARVEST S-METOLACHLOR 915 EC may only be done as an aerial application 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). Ensure that during application the spray mixture is distributed evenly over the target area and that the loss of spray material is restricted to a minimum. It is therefore essential to meet the following criteria:

- Volume: It is recommended that a spray mixture volume of 30ℓ per hectare is used. 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: 30 to 40 (for pre-emergence application 20 to 30) droplets per cm^2 must be recovered at the target area.
- Droplet size: A droplet spectrum with a VMD of 250 to 280 (for pre-emergence application 350 to 400) microns is recommended. Fine droplets less than 150 microns (high drift and evaporation potential) to be limited to a minimum.
- Flying height: The height of the spray boom to be maintained at 3 to 4 metres above the target. When the aircraft dives, is in a climb or when banking, do not spray.
- Suitable atomising equipment is to be used 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.
- All the atomisers to be positioned within the inner 60 to 75 % of the wingspan to prevent droplets from entering the wingtip vortices.
- The difference in temperature should not exceed 8°C between the wet and dry bulb thermometers, of a whirling hygrometer.
- Stop spraying if the wind speed exceeds 15 km/h.
- Stop spraying under turbulent, unstable and dry conditions during the heat of the day.
- Spraying when temperature inversion conditions exist (spraying in or above the inversion layer) and/or high humidity conditions (relative humidity 80 % and above) 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 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.

Centre pivot irrigation application
- **HARVEST S-METOLACHLOR 915 EC** may be added to irrigation water as pre-emergence (after planting but before weeds or crop emerge) application at recommended rates on this label.
- Only use centre pivot systems that apply water uniformly.
- Inject a prepared mixture (minimum of one part of water to one part of herbicide) into the centre pivot system by using a positive displacement pump. Injection of a larger volume of a more dilute mixture per hour will usually provide a more accurate calibration of the metering equipment.
- Agitate adequately to keep the herbicide in suspension.
- Apply in 12.5 to 25 mm of water.
- The lower water volume (12.5 mm) to be used on coarser textured soils and the higher volume (25 mm) on finer textureds oils. Applying more than 25 mm of water may reduce weed control by leaching the herbicide past the effective zone in the soil.

Precautions for centre pivot applications
- Only apply through irrigation systems with anti-siphon and check valves to prevent contamination of the well during shutdown and overflow of the solution tank.
- Injection ahead of any right angle turn in the main line to ensure adequate mixing.
- Chemical injection pumps and water pumps must have interlocking controls to ensure simultaneous shut-off.
- Application in conditions when drift may occur, such as windy conditions, or when system joints and connections leak, or when uniform distribution is not provided by nozzles, crop damage may occur.
- Sprinkler distribution patterns that do not overlap sufficiently may result in poor weed control.
- Where sprinkler distribution patterns overlap excessively it may result in crop damage or unacceptable residue levels.

APPLICATION RECOMMENDATIONS

MAIZE AND SWEET CORN
- **HARVEST S-METOLACHLOR 915 EC** can be applied as a pre-emerge treatment immediately after planting for maize, sweetcorn and weeds. **HARVEST S-METOLACHLOR 915 EC** can also be shallowly incorporated into the soil immediately before planting. It may also be applied post-emergence after cultivation.
- In fields where Yellow nutsedge (C. esculentus) constitutes a significant part of the weed population and planting is done during the first half of the planting season (prior to 20 October), **HARVEST S-METOLACHLOR 915 EC** is to be incorporated into the soil with a shallow cultivation.
- In fields where Yellow nutsedge is not a problem or where planting is done only during the latter part of the planting season (after 20 October), it is recommended that **HARVEST S-METOLACHLOR 915 EC** not be incorporated into the soil.
- The use of a broadleaf herbicide in combination with **HARVEST S-METOLACHLOR 915 EC** is recommended. The broadleaf herbicide may be applied pre- or post-emergence. A post-emergence treatment ensures more effective and also more reliable control of particularly deep germinating broadleaf weeds such as *Datura species, Xanthium species, Tribulus terrestris, Commelina benghalensis and Cucumis myriocarpus.*

HARVEST S-METOLACHLOR 915 EC applied pre-emergence or pre-plant incorporated as follows:

Soil type	% CLAY	HARVEST S-METOLACHLOR 915 EC (ℓ/ha)
Sand / Loamy sand / sandy loam	0 to 20	0,7 to 0,9
Sandy clay loam	21 to 30	0,8 to 1,0
Sandy clay loam / sandy clay	31 to 40	0,95 to 1,1
Sandy clay / Turf	41 to 50	0,95 to 1,3

Comments

- **Apply the higher application rates of HARVEST S-METOLACHLOR 915 EC**
  - o for improved control of C. esculentus (Yellow nutsedge);
  - o in fields with heavy infestations of D. sanguinalis (Crab finger- grass);
  - o for improved control of B. eruciformis (Sweet signal grass);
  - o when **HARVEST S-METOLACHLOR 915 EC** is pre-plant incorporated;
  - o where organic matter in the soil exceeds 1%;
  - o Fields with more than 30 % clay, pre-emergence control may not be satisfactory for broadleaf weeds and preference should be given to post-emergence control of broadleaf weeds.
- Grasskillers (chloroacetamide group of herbicides) are absorbed via the coleoptile of grass. Therefore, lethal concentrations in the top ± 50 mm of the soil profile should be present for good grass control. The adsorptive capacity of these herbicides in soil, including the amount of water that drains through the soil profile due to rain/irrigation, determine the resultant concentration of these herbicides in the top layers of the soil. As a result of the low adsorption capacity of sandy soils (0 to 15% clay, <1% organic matter) the concentrations of these herbicides can be below the lethal levels in the top ± 50 mm after permeating rain (25 mm and more within one day). Persistent rain (50 mm and more over 3 to 7 days) will have the same effect. It can result in grasses thatgerminate when such conditions occur.
- Apply **HARVEST S-METOLACHLOR 915 EC** to glyphosate tolerant maize and sweet corn shortly after a glyphosate application and before new weed growth occurs as a post-emergence treatment.

Stale seedbed / Minimum tillage / Stubble mulch (Glyphosate tolerant maize, sweet corn)

- Weeds may have emerged at the time of planting in fields where minimum tillage or stubble mulch is used.
- Crops planted under such conditions or into a stale seedbed, when grass weeds have already emerged and/or the broadleaf weeds have developed beyond the seedling stage, the addition of glyphosate to **HARVEST S-METOLACHLOR 915 EC** is recommended according to the label of the manufacturer. The emerged weeds would be destroyed by glyphosate to create a pre-emergence situation for the **HARVEST S-METOLACHLOR 915 EC** to act.
- In the case of minimum tillage or stubble mulch the density of the stubble and humus may affect the efficacy of **HARVEST S-METOLACHLOR 915 EC.** Therefore, consult the registration holder of this product or your distributor.

Important

All dosage rates given above apply to full cover sprays. In the case of band treatment over the rows the corresponding amount of herbicide should be calculated in accordance with the band and row widths. Ensure proper fertilisation of the crop for vigorous seedling growth.

DRY BEANS AND SOY BEANS

The following **HARVEST S-METOLACHLOR 915 EC** application rates are recommended pre-emergence on various soil types and for the control of certain weeds.

Soil type	% CLAY	HARVEST S-METOLACHLOR 915 EC (ℓ/ha)
Sand / Loamy sand / sandy loam	0 to 20	0,7 to 0,9
Sandy clay loam	21 to 30	0,8 to 1,0
Sandy clay loam / sandy clay / Turf	>30	1,0 to 1,3

- Apply the higher application rate of **HARVEST S-METOLACHLOR 915 EC**
  - o for improved control of C. esculentus (Yellow nutsedge);
  - o in fields with heavy infestations of D. sanguinalis (Crab finger- grass);
  - o where organic matter in the soil exceeds 1%.

- Apply **HARVEST S-METOLACHLOR 915 EC** to glyphosate tolerant soy beans shortly after a glyphosate application and before new weed growth occurs as a post-emergence treatment.