

HARVEST SULCOTRIONE 250 EC

Distributed by: Harvest Chemicals
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 Ltd.
 Reg.No. 2014/187205/07
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CAUTION / VERSIGTIG
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HARVEST
 CHEMICALS



HARVEST SULCOTRIONE 250 SC is a suspension concentrate herbicide for the pre- and post-emergence control of most annual grasses and broadleaf weeds in maize.

HARVEST SULCOTRIONE 250 SC is 'n suspensie konsentraat onkruidodder vir die voor- en na-opkoms beheer van eenjarige grasse en breëblaaronkruid in mielies.

UN No./Nr.:

Batch No	Reg. No. LXXXX, Act No 36 of 1947.	Reg Nr LXXX, Wet Nr. 36 van 1947.	Lot Nr
<input type="text"/>	HRAC HERBICIDE GROUP CODE F2	HRAC ONKRUIDODDER GROEPKODE	<input type="text"/>
Expires	Active Ingredient Sulcotrione (triketone)	Aktiewe Bestandeel: Sulcotrion (triketone)	Vervaardigingsdatum
<input type="text"/>	250g/l		<input type="text"/>
Date of manufacture	Nett Volume	Netto Volume	Verval
<input type="text"/>	l		<input type="text"/>



**HARMFUL
SKADELIK**

WARNINGS:

- Allow 70 days between last application and harvest of maize and sweetcorn.
 - Handle with care.
 - May cause eye and skin irritation as well as skin sensitisation.
 - Store under lock and key in a cool place.
 - Store away from food, feed, fertilizer and other agricultural products.
 - Keep out of reach of children, uninformed persons and animals.
 - Aerial application: Notify all inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warnings.
- Do not apply over water bodies and ensure that spray drift will not contaminate areas under treatment.

although this remedy has been extensively tested under a large variety of conditions, the registration holder does not warrant that it will be effective under all conditions. the activity 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, 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 by 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:

- Do not inhale fumes or spray mist.
- Avoid skin and eye contact by wearing protective clothing when mixing the product.
- In case of accidental eye contact, flush with plenty of water and get medical attention if necessary.
- Wash with soap and water after use and accidental skin contact as well as contaminated clothing.
- Do not eat, drink or smoke while mixing or applying the product or before washing hands and face.
- Avoid drift of spray onto other crops, grazing, rivers, dams and areas not under treatment.
- Clean applicator after use. Dispose of rinsate where it will not contaminate crops, grazing, rivers, dams and boreholes.
- Prevent contamination of food, feeds, drinking water and eating utensils.
- Invert the empty container over the spray or mixing tank and allow draining for at least 30 seconds after the flow has slowed to a drip. Thereafter rinse the empty container three times with a volume of water equal to a minimum of 10% of that of the container. Add the rinsate to the contents of the spray tank.
- Destroy the empty container and do not use for any other purpose.

USE RESTRICTIONS:

- Do not use **HARVEST SULCOTRIONE 250 SC** on experimental or newly released cultivars / varieties without first consulting your supplier or the seed company concerned.
- Do not use **HARVEST SULCOTRIONE 250 SC** on poorly drained soils or soils with a compaction layer, as under these conditions water logging can occur and the herbicide may cause crop injury.
- Do not apply **HARVEST SULCOTRIONE 250 SC** to any crop or situation not mentioned in this instruction leaflet.
- Only apply **HARVEST SULCOTRIONE 250 SC** using an accurate and safe application technique.
- Heavy rain on very sandy soils low in organic matter as well as flood irrigation can reduce weed control performance.
- Optimum weed control is obtained on a fine even seedbed, free of clods, trash and weeds. **HARVEST SULCOTRIONE 250 SC** will also give weed control in stubble mulch or minimum tillage situations.
- If **HARVEST SULCOTRIONE 250 SC** is used in a tank mix with other recommended herbicides, consideration should be given to the restrictions of those respective products.
- Use the lower rates on soils in the Northwest Province, North- and Western Free State.
- Use lower rates on lighter soils and where the weed population pressure is low.
- Make sure the sufficient fertilizer is applied and correctly placed at the time of planting to promote the growth of the seedlings.

RESISTANCE WARNING:

For resistance management **HARVEST SULCOTRIONE 250 SC** is group code F2 herbicide. Any weed population may contain individuals naturally resistant to **HARVEST SULCOTRIONE 250 SC** and other group codes F2 herbicides. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds may not be controlled by **HARVEST SULCOTRIONE 250 SC** or any other group codes F2 herbicides.

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 the control methods (chemical, cultural, biological) into weed control programmes.

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

Follow-on crops:

To avoid damage to follow-up crops, the following waiting periods should be adhered to:

Maize and Sweet corn		Nil
Grain Sorghum	1 month	
Sunflowers, Groundnuts, Soya beans, Potatoes, Dry beans, Forage Sorghum and Cotton	3 months	
HARVEST SULCOTRIONE 250 SC plus Acetochlor 840 g/l EC Sunflowers, Wheat, Broccoli, Carrots, Lucerne, Cucurbits, Tobacco, Green beans, peas (less than 400 ml) and Green peppers	4 months	
Other Small grains and Peas	18 months	
All Other Crops	24 months	

NOTE: The waiting periods mentioned are only valid if the correct amount of **HARVEST SULCOTRIONE 250 SC** plus mixture products have been applied and normal or above normal rains occurred during the season, and normal cultivation practices carried out. In the case of 'All Other Crops' a test planting is recommended in all cases.

DIRECTIONS FOR USE: USE ONLY AS DIRECTED

Poisons Helpline: 0861 555 777

MIXING INSTRUCTIONS:

Half-fill the spray tank with suitable water, then add the required amount of **HARVEST SULCOTRIONE 250 SC** to the water tank while agitating. Fill the spray tank to the desired volume. Should tank mixtures with other herbicides be made, follow the respective manufacturers label recommendations. Tank mixtures must be sprayed out immediately and not allowed to stand in the spray tank overnight. Spraying equipment must be thoroughly flushed out at the end of the spraying operation.

COMPATIBILITY:

The compatibility of **HARVEST SULCOTRIONE 250 SC** with other products depends on the formulation of the respective products as well as the quality of the spray water to be used. As formulation change from time to time it is recommended that a physical compatibility test be done prior to the tank mixture being made. **HARVEST SULCOTRIONE 250 SC** is compatible with most pyrethroid insecticides, **Acetochlor 840 g/ℓ EC** and, **Atrazine 900 g/kg WG**.

APPLICATION METHODS:

Ensure that the equipment is correctly calibrated and is checked regularly during application to ensure even and accurate application. Knapsack sprayers or tractor mounted boom sprayers may be used. A spray volume of 200-300 ℓ/ha should be used for ground application and can be applied via flat fan-type nozzles, preferably the low drift type to avoid fine droplets. Use 40 ℓ/ha for aerial application. **Constant agitation throughout the spray operation is essential. Only clean water should be used.**

Rain is essential to leach the product into the zone of the germinating weeds and therefore 10 – 15 mm of rain or irrigation is needed within 7 days of application to ensure optimum results. Under drier conditions, weeds may emerge. These should be controlled with a shallow cultivation, which will also incorporate the herbicide into the upper 10 – 20 mm of soil. If soil crusting becomes a problem, rotary harrow in the same direction that the rows are planted, to assist maize germination. Harrowing after application may reduce weed control if untreated soil is thrown into deep planter furrows. Ensure that sufficient fertiliser is placed near the seed at planting to promote vigorous seedling growth.

Apply **HARVEST SULCOTRIONE 250 SC** preferably with or directly after planting but not later than three days after planting. Always use the lower rates on lighter soils and where the weed pressure is lower.

Ground application:

HARVEST ACETOCHLOR 700 EC may be applied with any properly calibrated medium or high volume sprayer which is equipped with an efficient agitation mechanism 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 ℓ/ha.

AERIAL APPLICATION

Aerial application may only be done by a registered aerial application operator using a registered and correctly calibrated aircraft according to the instructions of SABS Code 0118 (Aerial Application of Agricultural Remedies). 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;

Equipment:

- Use suitable atomising equipment (hydraulic nozzles or rotary atomisers) that will produce the desired droplet size and coverage of the target area and will ensure the minimum loss of product through drift.
- The operator must use a nozzle set-up that will produce a droplet spectrum with the lowest possible relative span.
- All nozzles and atomisers should be positioned within the inner 75 % of the wingspan to prevent droplets from entering the wingtip vortices.

Application Parameters:

- A minimum volume of 40 ℓ spray mixtures per ha is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy nor be held responsible for any adverse effects if this product is applied aurally at a lower volume rate than recommended.
- A droplet coverage of 30 – 40 droplets per sq cm must be recovered at the target.
- A droplet spectrum with a VMD of 250 – 280 microns is recommended. Ensure that the production of fine droplets, with a VMD less than 150 microns, is restricted to a minimum.
- The height of the spray boom should be maintained at between 3 and 4m above the target.
- Do not spray when the aircraft is in a climb, at the top of a turn or during a dive or when banking.
- Apply before the crop growth becomes too dense, which will interfere with overall plant coverage.

Meteorological Conditions:

- The difference between the wet and dry bulb readings as determined by a whirling hygrometer must not exceed 8 °C.
- Do not spray under turbulent, unstable conditions or during the heat of the day when rising thermals and downdraughts occur.
- Do not spray under temperature inversion conditions (spraying in or above the inversion layer).
- Do not spray when the wind speed exceeds 15 km per hour.

General:

- Ensure that 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.

Pre-emergence aerial application:

- A minimum spray volume of 40 l/ha.
- A minimum of 20 to 30 droplets per cm² must be recovered on the target area.
- Employ a droplet spectrum with VMD of 450 micron. Ensure that the production of fine droplets (less than 150 microns with high drift and evaporation potential) is restricted to a minimum.

Factors affecting weed control:

- The performance of **HARVEST SULCOTRIONE 250 SC** and its mixtures can be influenced by a number of factors which affect plant growth and therefore the herbicidal activity of the product. Factors such as soil pH, soil moisture, organic matter and weeds present may affect the residual action of the herbicide.
- Dry soil conditions after pre-emergence application may result in reduced control of germinating weeds. This can be corrected by surface blending or a post-emergence application of **HARVEST SULCOTRIONE 250 SC** at the correct growth stage of the weeds and after rain.
- Continual overcast and rainy conditions after a post-emergence application may reduce the efficacy of the product.
- In areas with a high soil organic matter content the period of weed control may be shorter than indicated on the table.

The period of weed control expected should be 4 – 8 weeks depending on cultivation practices above conditions and weed species present.

- When a post-emergence application of **HARVEST SULCOTRIONE 250 SC** is anticipated, avoid the following:
 - Stress conditions of weeds caused by drought, cold conditions, disease, insect damage, mineral element deficiencies and water logging.
 - Application to weeds beyond the optimum growth stage.
 - Application to weeds that are not actively growing.
- Should one or more of these conditions prevail at the time of a **HARVEST SULCOTRIONE 250 SC** application, herbicidal efficacy may be reduced.

MAIZE and SWEETCORN (excluding the super sweet cultivars):

- Use only the recommended quantities of tank mixture products as laid out in the tables below.
- Apply **HARVEST SULCOTRIONE 250 SC** as a pre-emergence application at planting or in a herbicide programme, or as an early post-emergence spray to the weeds and crop. When **HARVEST SULCOTRIONE 250 SC** is applied alone or **HARVEST SULCOTRIONE 250 SC** plus **Acetochlor 900 g/l EC** post-emergence, the addition of a suitable surfactant is recommended (only where emerged weeds are present).
- The addition of such a surfactant may cause temporary yellowing of maize when applied before the 4-leaf stage.
- There are no known cultivar restrictions for commercial maize. **HARVEST SULCOTRIONE 250 SC** may be applied to the following sweet corn varieties: Commander, Dynasty, Excellency, Jubilee RR, Melody, More, Napier, Rival, Shieldcrest, Sweety 82.
- **Acetochlor 840 g/l EC** at planting is recommended if grasses are a problem followed up with **HARVEST SULCOTRIONE 250 SC** plus **Atrazine 900 g/kg WG** as an early post-emergence application to control the broadleaf weeds. Weeds which are beyond the optimum growth stage at time of application will not be controlled. Under conditions of high weed pressure and / or heavier soil always select the higher application rate.

RECOMMENDATIONS:

TABLE 1. HARVEST SULCOTRIONE 250 SC in tank mixture with **Atrazine 900 g/kg WG plus Acetochlor 840 g/l EC** for broad spectrum pre-emergence weed control as a single application in maize.

Crop	Clay %	DOSAGE RATE (l/ha)		
		Acetochlor 840 g/l EC	Atrazine 900 g/kg WG	HARVEST SULCOTRIONE 250 SC
Maize Pre-emergence tank mixtures	0 – 10	0,5	0,17 – 0,47	0,25 – 0,7
	11 – 15	0,75	0,17 – 0,47	0,25 – 0,7
	16 – 20	0,9	0,33 – 0,5	0,5 – 0,75
	21 – 50	1,0	0,33 – 0,5	0,5 – 0,75

Remarks:

- When applied pre-emergence, **HARVEST SULCOTRIONE 250 SC** should be applied during or immediately after planting on a weed-free seedbed. The seedbed should ideally be fine and even without excessive crop residue to ensure that even distribution of **HARVEST SULCOTRIONE 250 SC** on the soil surface.
- Where minimum tillage or stubble mulching is practised, weeds may already have come up at the time of planting. If maize or grain sorghum is planted under such circumstances, or if they are planted into an old seedbed where grasses have already germinated and/or broadleaf weeds have developed past the four-leaf stage, it is recommended that paraquat be added to the **HARVEST SULCOTRIONE 250 SC** spray solution, at a dosage rate recommended by the manufacturer. The paraquat will destroy the existing weeds and create a clean pre-emergence condition that will allow **HARVEST SULCOTRIONE 250 SC** to work effectively.

NOTE:

1. When paraquat is added, the application must take place before the crop emerges otherwise paraquat will cause damage to the crop.
 2. In case of minimum tillage or stubble mulching, the amount of stubble and organic material at the soil surface may reduce efficacy of **HARVEST SULCOTRIONE 250 SC**. The representative of the manufacturer or distributor should be consulted.
- **HARVEST SULCOTRIONE 250 SC** can be used as a pre-emergence herbicide in tank mixtures with **Acetochlor 840 g/l EC and Atrazine 900 g/kg WG**.
 - **HARVEST SULCOTRIONE 250 SC** and **Atrazine 900 g/kg WG** can be used in a programme with **Acetochlor 840 g/l EC** where the **Acetochlor 840 g/l EC** is applied at planting followed by a **HARVEST SULCOTRIONE 250 SC** plus **Atrazine 900 g/kg WG** application pre-emergence of weeds.

TABLE 2. HARVEST SULCOTRIONE 250 SC in tank mixture with **Atrazine 900 g/kg WG** for broad spectrum post-emergence weed control in maize.

Crop	DOSAGE RATE (l/ha)	
	Maize Pre- emergence tank mixtures	Atrazine 900 g/kg WG 0,27 – 0,47

Remarks:

- The above application is recommended as a follow-up application to maize which has already been treated with a pre-emergence mixture containing a herbicide such as **Acetochlor 840 g/l EC** or **Metolachlor 800 g/l EC**. Failure to apply such a pre-emergence treatment is likely to result in abnormal weed pressure with consequent weed competition and poor follow-up post-emergence results.
- The above mixture may be applied immediately following mechanical cultivation on a pre-emergence basis in which case no additional surfactant is required.
- For a post-emergence application, the maize must be at least in the 4-leaf stage.
- Should cold and wet weather conditions prevail or occur during or shortly after application of **HARVEST SULCOTRIONE 250 SC**, chlorosis may occur but yield should not be affected.
- Broadleaf weeds should not be further developed that the 4-leaf stage and grasses not further than the 3- leaf stage should they be present at the time of application.
- A registered surfactant with penetrate activity such as Polyether-polymethylsiloxane-copolymer 300 g/l + Vegetable Oil 650 g/l, Medium mineral oil 363 g/l and Mineral oil 363 g/l (medium grade) must be added to the spray mixture for all post-emergence applications where weeds have already emerged.
- The dosage rate selected from the table above is purely dependent upon weed species to be controlled and duration of control required.

NOTE: TABLE 1. and TABLE 2. can be used as a program where **HARVEST SULCOTRIONE 250 SC**, **Atrazine 900 g/kg WG** and **Acetochlor 840 g/l EC** are applied together pre-emergence of maize and weeds and then followed up with **HARVEST SULCOTRIONE 250 SC** and **Atrazine 900 g/kg WG** on a post-emergence of maize basis at the rates given in the tables above.

TABLE 3. HARVEST SULCOTRIONE 250 SC in tank mixture with **Atrazine 900 g/kg WG plus Acetochlor 900 g/l EC** for broad spectrum post-emergence weed control in maize.

Crop	DOSAGE RATE (l/ha)		
	Maize Pre- emergence tank mixtures	Atrazine 900 g/kg WG	HARVEST SULCOTRIONE 250 SC
	0,27 – 0,47	0,4 – 0,7	0,18 – 0,35

Remarks:

- The above application is recommended as a follow-up application to maize which has already been treated with a pre-emergence mixture containing a herbicide such as **Acetochlor 840 g/l EC** or **Metolachlor 800 g/l EC**. Failure to apply such a pre-emergence treatment is likely to result in abnormal weed pressure with consequent weed competition and poor follow-up post-emergence results.
- The above mixture may be applied immediately following mechanical cultivation on a pre-emergence basis in which case no additional surfactant is required.
- For a post-emergence application, the maize must be at least in the 4-leaf stage.
- Should cold and wet weather conditions prevail or occur during or shortly after application of **HARVEST SULCOTRIONE 250 SC**, chlorosis may occur but yield should not be affected.
- Broadleaf weeds should not be further developed that the 4-leaf stage and grasses not further than the 3- leaf stage should they be present at the time of application.
- A registered surfactant with penetrate activity such as Polyether-polymethylsiloxane-copolymer 300 g/l + Vegetable Oil 650 g/l, applications where weeds have already emerged.
- The dosage rate selected from the table above is purely dependent upon weed species to be controlled and duration of control required.

WEEDS CONTROLLED BY HARVEST SULCOTRIONE 250 SC PLUS ATRAZINE 900 G/KG WG PLUS ACETOCHLOR 840 G/ℓ

(TABLE 1.):

<i>Amaranthus deflexus</i>
<i>Amaranthus hybridus</i>
<i>Chenopodium album</i>
<i>Chloris virgate</i>
<i>Cleome monophylla</i>
<i>Cosmos bipinnatus</i>
<i>Crotalaria sphaerocarpa</i>
<i>Datura ferox</i>
<i>Digitaria sanguinalis</i>
<i>Eleusine indica</i>
<i>Gisekia pharnaceiodes</i>
<i>Lepidium africanum</i>
<i>Nicandra physaloides</i>
<i>Portulaca oleracea</i>
<i>Spermacoce sinensis</i>
<i>Tagetes minuta</i>
<i>Tragus racemosus</i>

Where the higher rates are used the following weeds may be additionally controlled:

<i>Acanthospermum hispidum</i>
<i>Amaranthus spinosus</i>
<i>Bidens pilosa</i>
<i>Brachiaria eruciformis</i>
<i>Cassia spp</i>
<i>Chenopodium carinatum</i>
<i>Emex australis</i>
<i>Hibiscus cannabinus</i>
<i>Hibiscus trionum</i>
<i>Lolium multiflorum</i>
<i>Medicago sativa</i>
<i>Panicum schinzii</i>
<i>Physalis angulate</i>
<i>Raphanus raphanistrum</i>
<i>Richardia brasiliensis</i>
<i>Schkuhria pinnata</i>
<i>Setaria pallide-fusca</i>
<i>Sida cordifolia</i>
<i>Solanum nigrum</i>
<i>Tribulus terrestris</i>
<i>Urochloa panicoides</i>

WEEDS CONTROLLED BY HARVEST SULCOTRIONE 250 SC PLUS ATRAZINE 900 G/KG WG PLUS ACETOCHLOR 840 G/ℓ EC

(TABLE 2.):

<i>Amaranthus deflexus</i>
<i>Amaranthus hybridus</i>
<i>Chenopodium album</i>
<i>Chloris virgate</i>
<i>Commelina benghalensis</i>
<i>Datura ferox</i>
<i>Datura stramonium</i>
<i>Digitaria sanguinalis</i>
<i>Hibiscus trionum</i>
<i>Nicandra physaloides</i>
<i>Schkuhria pinnata</i>
<i>Spermacoce senensis</i>
<i>Tagetes minuta</i>

The following weeds may be controlled in addition to the above when Acetochlor 900 g/ℓ EC is added at the recommended rate:

<i>Amaranthus spinosus</i>
<i>Cosmos bipinnatus</i>
<i>Eleusine indica</i>
<i>Galinsoga parviflora</i>
<i>Panicum schinzii</i>
<i>Portulaca oleracea</i>
<i>Setaria verticillata</i>
<i>Tribulus terrestris</i>
<i>Urochloa panicoides</i>

NOTES:

The variable control of weeds mentioned directly above is dependent upon environmental conditions and rate of application. The pre-emergence control of *Cyperus esculentus* is dependent on the following:

- Where a dosage choice is given, use the higher rate.
- Planting into a firm and fine seedbed must be preceded by a deep ploughing.
- **Metolachlor 800 g /ℓ EC** or **Acetochlor 840 g/ℓ EC** must be applied within 2 days after planting.
- Sufficient continual soaking rain or irrigation (at least 15 mm on light soils and 25 mm on heavy soils) must fall within 7 days of spraying to leach the herbicide into the germination zone.

The registration holder does not accept any liability in respect of the control of unlisted