

# STARKEM™ 600 WG

SEE ENCLOSED LEAFLET FOR USE INSTRUCTION  
RAADPLEEG INGESLOTE PAMFLET VIR GEBRUIKSAANWYSINGS

REGISTRATION NO. L 8697 ACT 36 OF 1947/ REGISTRASIE NR L 8697 WET 36 VAN 1947

A post-emergence herbicide for the control of annual broadleaf weeds as listed in wheat and barley in the winter rainfall areas as well as for the control of Eucalyptus stumps and American bramble in conservation areas and pastures.

'n Na-opkomsonkruiddoder vir die beheer van eenjarige brenblaaronkruide soos aangedui in koring en gars in die winterregenvalgebiede asook die beheer van Eucalyptus stompe en Amerikaanse braam in bewaringsgebiede en weidings.

HRAC HERBICIDE GROUP CODE - B - HRAC ONKRUIDDODERGROEP KODE

ACTIVE INGREDIENT

Metsulfuron-methyl  
(Sulfonylurea)

600 g/kg

AKTIEWE BESTANDDEEL

Metsulfuron-metiel  
(Sulfonielureum)



REGISTERED BY/ GEREGISTREER DEUR:

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STARKEM is die Handelsmerk van DVA Agro GmbH Duitsland

Batch number/ Lotnommer:  
Date manufacture/ Datum vervaardig:  
UN Number/ VN Nommer: 3077

Net content/ Netto inhoud  
5 x 35g WSB Bags

175 g



# STARKE™ 600 WG

## WARNINGS

- Irritating to eyes, nose, throat and skin.
- Keep out of reach of children, uninformed persons and animals.
- Store in a cool, dry place in original container away from direct sunlight, food and feed.
- Re-entry:** Do not enter treated area until spray deposit has dried unless wearing protective clothing.
- Where lengthy cold and wet periods after application prevail, yellowing of the leaves of the crop plants and even temporarily retarded growth may occur.
- Do not apply more than once per season in the same growing area.
- To prevent damage to the crop the dosage rate should not be exceeded and the recommended application timing should be adhered to.
- Aerial application: Notify all the inhabitants in the immediate vicinity of the area 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 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 of 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 or registration holder in the event of any uncertainty.

## PRECAUTIONS

- Avoid contact with the spray as much as possible and do not inhale spray mist.
- Do not eat, drink or smoke while handling the product or before washing hands and face.
- Wear protective gloves and a face shield when preparing the spray mixture.
- Wash contaminated clothing after use with soap and water.
- Avoid spray drift onto susceptible crops, rivers, dams and areas not under treatment.
- To avoid damage to susceptible crops, the applicator, spray tank and mixing container must be thoroughly cleaned out immediately after use as follows:
  - Drain the system completely.
  - Flush system with clean water and drain system again.
  - Fill spray tank to approximately 25% of its capacity with clean water and add 1,0 liter sodium hypochlorite (5,2% solution) for every 200 liter of water.
  - Circulate the solution through the spray system for at least 10 minutes.
  - Spray solution through nozzles for at least 1 minute.
  - Drain the system.
  - Rinse the spray system with clean water to remove traces of the bleaching agent.
- Ensure that all aluminium bags which will be disposed are empty and do not contain any unused water soluble bags before disposing of the outer container and aluminium bags.
- Destroy the empty outer container and aluminium bags by perforation and flattening and do not use these containers for any other purpose.
- Avoid contamination of food, feed, drinking water and eating utensils.

## RESISTANCE WARNING

For resistance management STARKE™ 600 WG is a group code B herbicide from the sulfonylurea group of herbicides and an acetolactate synthase or ALS inhibitor. The continuous use of herbicides which have the same mode of action, in this case group code B herbicides in the same area, might lead to the selection of resistant weed species in a natural occurring weed population. Because these resistant species are not controlled effectively, it will propagate and eventually dominate the weed population. A weed species is resistant to a herbicide if it survives a treatment which was carried out correctly at the recommended dosage rate and application timing. Resistance of certain weed species against the group code B herbicides e.g. sulfonyl-ureas, has been confirmed. It is important to note that if a weed species is resistant to one group code B herbicide sulfonyl-urea it will be resistant to all group code B herbicide herbicides.

To avoid the development of resistance against STARKE™ 600 WG

- it should be alternated, or tank mixed, with products with a different mode of action from group code B herbicides;
- integrate other control methods (chemical, cultural, biological) into weed control programmes.

Since the occurrence of resistant weeds is difficult to detect prior to use, it is of the importance that all of the above precautions are strictly adhered to. The registration holder or distributor cannot be held responsible if STARKE™ 600 WG fails to control resistant weeds. For further advice on the prevention of herbicide resistance, contact the distributor's local representative.

## USE RESTRICTIONS

### 1. Wheat and barley

#### Withdrawal period: FOLLOW UP CROPS

- Allow 12 months to elapse after the application of STARKE™ 600 WG before planting any crop other than wheat or barley.
- Allow one month to elapse before planting wheat.
- Allow 6 months to elapse before planting barley or oats.
- Soils with a pH (water) of 7,0 and more, or soils that contain free lime can result in longer residual activity which may cause damage to follow-on crops.
- STARKE™ 600 WG has a limited residual activity in the soil on germinating weeds.
- STARKE™ 600 WG must not be applied to cereals undersown with legumes.
- Do not apply STARKE™ 600 WG to cereals under stress caused by heat, drought, water logging, disease, insect damage, or nutrient deficiencies, etc.
- Unused spray mixtures must never be kept overnight.

### 2. Undersown cereals

STARKE™ 600 WG must not be applied to cereals undersown with pastures.

### 3. Conservation areas and pastures

- No other crop must be planted within 10 months after the last application of STARKE™ 600 WG.
- Unused spray mixtures must never be kept overnight.
- Only use water of a high quality with a pH of not higher than 7,0. It is recommended to use a suitable buffer to correct the pH higher than 7,0.

## TIMING OF APPLICATION

- STARKE™ 600 WG should not be applied to wheat within 14 days before or after a diclofop-methyl, or a fenoxaprop-P-ethyl application.
- Do not apply diclofop-methyl, or fenoxaprop-P-ethyl after a STARKE™ 600 WG application.
- STARKE™ 600 WG should not be applied within 10 days before or after a tralkoxydim application.

## APPLICATION RATES OF STARKE™ 600 WG: Wheat, Oats and Barley

CROP	DOSAGE RATE g/ha	REMARKS
Wheat, Oats & Barley Ground and aerial application Winter rainfall area only.	Ground application: 3,5 – 4,2g + 0,01% adjuvant OR 3,5 – 4,2g + 0,01% adjuvant PLUS 500ml MCPA (400g potassium salt) Aerial application: 4,0 - 5,0g + 0,05% adjuvant	Apply STARKE™ 600 WG as a post-emergence spray at the 3- to 5-leaf stage of the crop when weeds and crop are growing actively. Apply the higher rate where Emex, Fumaria and Raphanus are a problem or where weed growth stage exceeds the 3-leaf stage or where soil moisture conditions are deteriorating.

## CONSERVATION AREAS AND PASTURES

Where Pinus and Eucalyptus species are to be planted into areas treated with STARKE™ 600 WG the following waiting periods must be observed:

Coppice and cut stump applications: 8 weeks.

In the event of areas treated with STARKE™ 600 WG being transplanted to other tree species (seedlings) a withholding period of 12 months after application is recommended.

TARGET SPECIE	STARKE™ 600 WG DOSAGE RATE	REMARKS
Eucalyptus coppice (E. grandis) Knap sack application	80g / 100l water + 500ml mineral oil adjuvant / 100l spray mixture.	Apply to actively growing coppice between 0,5 - 2,0 m high. Do not apply when plants are subjected to stress conditions e.g. low temperatures, drought, etc. Ensure thorough wetting of all plant parts, but avoid run-off onto the soil. Should re-growth occur, it should be treated by a spot spray application.
Eucalyptus cut stump (E. grandis)	180g / 100l water + 500ml mineral oil adjuvant / 100l spray mixture.	A directed application to the cambium layer of the stumps should be made directly after felling but definitely within two hours. Efficacy will be reduced if application is made more than two hours after felling. Apply 15 to 20 ml spray mixture for every 10 cm stump diameter measured at ground level. For multistem trees a minimum of 15 ml spray mixture must be used for every 10 cm stem diameter. A knapsack sprayer or dosing gun can be used for application. Avoid run-off onto the soil.
American bramble (Rubus cuneifolius)	25g / 100l water + 500ml mineral oil adjuvant / 100 l spray mixture.	Apply to the leaves and canes of actively growing plants during the latter part of summer. A follow-up spot treatment might be necessary for up to three years after the initial treatment if regrowth appears. Application can be done by knapsack or any other suitable applicator.
Trifid Weed (Chromolaena odorata) Knapsack application	25g / 100l water + adjuvant	Plants should be 0,5 to 0,75 m high at application and actively growing. Plants taller than 0,75 m should be slashed and regrowth treated when 0,5 to 0,75 m high. Timing: Apply to active growing plants during spring and summer and do not apply during the dry months of April through till the onset of first good spring rains. Regrowth: Spot-spraying may be necessary where regrowth occurs.
Bracken Fern (Pteridium aquilinum) Knapsack application	20g / 100t water + adjuvant	Timing: Application to be made at the end of summer, well before the onset of winter senescence. Target: Apply to the fronds of actively growing plants. Regrowth: Spot-spraying may be necessary where regrowth occurs.

## WEEDS CONTROLLED IN CEREALS

BOTANICAL NAME	COMMON NAME	BOTANICAL NAME	COMMON NAME	BOTANICAL NAME	COMMON NAME
Anagallis arvensis	Pimpernel	Oxalis latifolia *	Red garden sorrel	Raphanus raphanistrum	Wild radish
Chenopodium album	White goosefoot	Pentzia suffruticosa	Karobush	Sisymbrium thellungi	Common wild mustard
Emex australis *	Spiny Emex	Plantago lanceolata *	Narrow-leaved ribwort	Spergula arvensis	Corn spurry
Fumaria muralis *	Fumitory	Polygonum aviculare	Prostrate knotweed	Stellaria media	Chickweed

\* Weeds suppressed



# STARKE™ 600 WG

## WAARSUKWINGS

- Irriterend vir oë, neus, keel en vel.
- Hou buite bereik van kinders, oningesigte persone en diere.
- Bewaar in 'n koel, droë plek in oorspronklike houer weg van voedsel en voer.
- Herbetreding:** Moet nie behandelde gebied betree alvorens sputneerslag droog is nie tensy beskermende klere gedra word.
- Waar langdunge koue en nat toestande na toediening voorkom, mag tydelike vergeling van die blare van die gewas of selfs tydelike verdwering daarvan, voorkom.
- Moet nie meer as een bespuiting per groeiseisoen toedien nie.
- Om moontlike beskadiging van die gewas te voorkom, moet die toedieningshoeveelheid nie oorskry word nie. Daar moet ook by die voorgeskrewe toedieningstyd gehou word.
- Lugtoediening:** Stel alle invloede in die onmiddellike omgewing van die gebied wat bespuit gaan word in kennis en reik die houdige waarskuwings uit. Moet nie oor water of aangrensende gebiede spuit of die sputnewel foelaat om dit te besoedel nie.

Ahewel hierdie middel omvatte onder in groot verskeidenheid toestande getoet is, waarborg die registrasiehouer nie dat dit onder alle toestand doeltreffend sal wees nie, aangesien die werkings en effek daarvan beïnvloed kan word deur faktore soos abnormal grond-, klimaats- en bergingstoestande, kwaliteit van verdunningswater, verenigbaarheid met ander stowwe wat op die grond gebruik word, en die toedieningstyd. Die toediening moet dus vinnig gemaak word om die effek van die metode, tyd en akkuraatheid van toediening. Verder aanvaar die registrasiehouer nie verantwoordelikheid vir skade aan gewasse, plantegroei, die omgewing of vir nadelige effek op mens of dier of vir 'n gebrek aan prestaties van die betrokke middel as gevolg van die versuim van die gebruiker om stiketaanwyssings na te kom of as gevolg van die ontstaan van toestande wat nie kragtig die registrasie voorseen kon word nie. Raadpleeg die verskaffer in geval van enige onsekerheid.

## VOORSORGMAATREËLS

- Vooroom aanbring met die sproei so ver as moontlik en moet nie sputnewel inasem nie.
- Moet nie eet, drink of rook tydens hantering van die produk of voordat hande en gesig gewas is nie.
- Dra rubberhandske en gesigskerm tydens vermening.
- Was besoedelende klere na gebruik met seep en water.
- Vooroom die orwaai van sputnewel na gevoleerde gewasse, riviere, damme en gebiede wat nie onder behandeling is nie.
- Om skade aan gevoleerde gewasse te voorkom, moet die toediening, sputtenk en menghouer deeglik en onmiddelliek na gebruik soos volg skoongehou word:
- Dreineer die hele sputtisisteem.
- Spoe die sputtisisteem met skoon water uit en dreineer sisteme weer.
- Vul die sputtent tot ongeveer 25% van dié se kapasiteit met skoon water en voeg 1,0 liter natriumhipochloriet (5,2% oplossing) by vir elke 200 liter water.
- Sirkuleer die oplossing deur die sisteem vir ten minste 10 minute.
- Spuit die oplossing deur die sputpunte vir ten minste 1 minut.
- Dreineer die sisteem.
- Spoe die sputtisisteem met skoon water uit om al die reste van die bleekmiddel uit te was.
- Dra sorg dat al die aluminiumakkies wat weggegooi kan word leeg is en nie enige wateroplosbare sakkies bevatt nie voor van die buitense houer en aluminium sakkies ontslae geraak word.
- Vernietig die buitense houer en aluminium sakkies deur gate daarin te maak en plat te maak en moet nie hierdie houers nie vir enige ander doel gebruik nie.
- Vooroom besoedeling van voedsel, voer, drinkwater en eetgerei.

## WEERSTANDWAARSUKWING

Vir weerstandsbestendigheid STARKE™ 600 WG is groepkode B onkruiddoder van die sulfoniurea groep onkruiddoders 'n asset van die groep van Al Chemos. Die groepkode B van STARKE™ 600 WG is 'n goed voorbeeld van die werkingshet, in hierdie geval groepkode B, mag tot die seleksie van weerstandsbiedende onkruidspesies in 'n natuurlike onkruidpopulasie lei. Omdat hierdie weerstandsbiedende onkruidspesies nie doeltreffend beheer word nie, verminder hulle vinnig en uiteindelik die onkruidpopulasie dominere. 'n Onkruidspesie kan as weerstandsbiedend beskou word as dit 'n behandeling wat op die regte wiese uitgevoer, teen die regte toedieningshoeveelheid en toedieningstyd toegediend is, ofoorleef. Weerstandsbiedendheid van sekere onkruidspesies teen die groepkode B, sulfoniureums, is bevestig. Dit is baie belangrik om daarop te let dat indien 'n onkruidspesie weerstandsbiedend is teen een sulfoniureum-onkruiddoder, dit weerstandsbiedend sal wees teen alle groepkode B onkruiddoders.

Om die ontwikkeling van weerstandsbiedende onkrude te voorkom is STARKE™ 600 WG te verhoed, moet:

- 'n Onkruiddoder met 'n ander wyse van werking as groepkode B daarmee afgewissel word of dit moet in 'n mengsel met 'n nie-verantwoord middel gebruik word;
- intregerer ander beheermaatreels (chemies, verbouing, biologies) in onkruiddoder programme.

Aangesien dit onmoontlik is om te bepaal of 'n onkruidspesie weerstandsbiedend gaan wees voordat STARKE™ 600 WG toegediend word, is dit belangrik dat al die bogenoemde voorsorgmaatreels streng nagekom word en kan die registrasiehouer of verspreider nie verantwoordelik gehou word vir enige verliese of skade wat mag ontstaan as gevolg van weerstandsbiedendheid van onkruidspesies teen STARKE™ 600 WG nie.

## GEbruIKSAANWYINGS

### 1. Koring en gars:

#### Wagperiode: OPVOLGGEWASSE

- Geen ander gewas behalwe koring, gars en hawer moet binne 12 maande op enige grond wat met STARKE™ 600 WG behandel is, geplant word nie.
- Koring kan binne een maand na 'n STARKE™ 600 WG toediening, aangeplant word.
- Gars en hawer kan binne ses maande na 'n STARKE™ 600 WG toediening, aangeplant word.
- Gronde wat in pH (water) van 7,0 of hoer is, of waar vry kalk voorkom, kan tot gevolg hê dat h langer grondresiduale werking mag voorkom wat opvolgewasse kan beskadig.
- STARKE™ 600 WG het 'n beperkte nawerking in die grond op ontkiemende onkrude.
- STARKE™ 600 WG moet nie in kleingraan wat met peulgewasse ondersaai is, toediening word nie.
- STARKE™ 600 WG moet nie in kleingraan wat aan stremmingstoestande, soos veroorsaak deur hitte, droogte, versupsingstoestande, plas, insekskade, voedingstekste, ens, onderhewig is, toediening word nie.
- Ongebruik sputmengsels moet nooit oornag laat staan word nie.

#### 2. Ondergesaaide kliengraan:

STARKE™ 600 WG moet nie in kleingraan wat met weidingswasse ondersaai is, toediening word nie.

#### 3. Bewaringsgebiede en weivelde

- Geen ander gewas moet binne 10 maande na die laaste toediening van STARKE™ 600 WG aangeplant word nie.
- Ongebruik sputmengsels moet onder geen omstandighede oornag laat staan word nie.
- Gebruik slegs water van 'n hoë kwaliteit met 'n pH van nie meer as 7,0 nie. Daar word aanbeveel om van 'n geskikte buffer gebruik te maak om die pH reg te stel indien dit hoer as 7,0 is.

#### TYD VAN TOEDIENING

STARKE™ 600 WG moet nie op koring binne 14 dae voor of na 'n diclofop-metiel, of 'n fenoksaprop-P-etiel toediening, toediening word nie.

Moet nie diclofop-metiel, of fenoksaprop-P-etiel na STARKE™ 600 WG toediening is nie STARKE™ 600 WG moet nie binne 10 dae voor of na 'n tralkoksidin toediening, toediening word nie.

## TOEDIENINGSHOEVEELHEDE VAN STARKE™ 600 WG: KORING, GARS EN HAWER

GEWAS	STARKE™ 600 WG DOSIS g/ha	OPMERKINGS
Koring, gars & hawer Grond- en lugtoediening Slegs winterreënval-gebied	Grondtoediening: 3,2 - 4,2 g + 0,01% verspreidingsmiddel OF 3,2 - 4,2 g + 0,01% verspreidingsmiddel PLUS 500 ml MCPA (400 g natriumsout) Lugtoediening: 4,0 - 5,0 g + 0,05% verspreidingsmiddel	Dien STARKE™ 600 WG toe as 'n na-opkombespuiting teen die 3- tot 5-blaarstadium van die gewas wanneer die onkruid en die gewas aktief groei. Dien die hoë dosis toe waar Emex, Fumaria en Raphanus 'n probleem is of waar die onkruidstadia die 3-blaarstadium oorskry of waar grondvogtoestande versleg.

## BEWARINGSGEBIEDE EN WEIVELDE

Waar Pinus en Eucalyptus spesies in gebiede geplant word wat met STARKE™ 600 WG behandel is, moet die volgende ontrekkingsperiodes nagekom word:

Hergroeи- en gesaaide stompie toedienings: 8 weke.

In die geval van gebiede wat met STARKE™ 600 WG behandel is vir die aanplant van ander boomsoorte (saailinge) word 'n wagperiode van 12 maande na toediening aanbeveel.

TEIKENSPECIE	STARKE™ 600 WG DOSIS g/ha	OPMERKINGS
Eucalyptus hergroei (E. grandis) Rugsaktoediening	80g / 100l water + 500ml minerale olie hulpmiddel / 100l sputmengsel.	Dien toe op aktiegroeende hergroei tussen 0,5 - 2,0m hoog. Moet nie toedien as hergroei onderhewig is aan stremmingstoestande veroorsaak deur koue, droogte, ens. nie. Verseker dat alle plantdele deeglik benadruk word, sonder afloop op die grond. Indien hergroei voorkom, moet dit d.m.v 'n kolbespuiting beheer word.
Eucalyptus gesaaide stompie (E. grandis)	180g / 100l water + 500ml minerale olie hulpmiddel / 100l sputmengsel.	'n Gerigte bespuiting moet op die kambium van die stomp gemaak word direk naaar definitief binne twee uur na boom afgesaag is. Dien 15 tot 20m sputmengsel vir elke 10cm stamdeursnee soos op grondoppervlak gemeet, toediening word. 'n Rugsak- of dooserspuit kan vir hierdie doel gebruik word. Verhoed afloop tot op die grond.
Amerikaanse braam (Rubus cuneifolius)	25g / 100l water + 500ml minerale olie hulpmiddel / 100l sputmengsel.	Dien toe op die blare en lote van aktiegroeende plante in die laatsomer. 'n Ovpolg bespuiting kan tot drie dae na die aanvanklike bespuiting nodig wees indien hergroei voorkom. 'n Rugsakspuit of enige ander geskikte toediening kan gebruik word vir die toediening.
Cromolaena (Chrysanthemum odorata) Rugsaktoediening	25g / 100l water + hulpmiddel	Plant moet 0,5 tot 0,75m hoog by toediening wees en aktief groei. Plante groter as 0,75m moet gekap word en hergroei behandel word wanneer 0,5 - 0,75m hoog. Tyd van toediening: dien toe op aktiel groeiende plante tydens lente en somer. Moenie in die droë maande vanaf April tot en met die eerste goeie lente reën. Hergroeи: Kolbehandeling mag nodig wees vir beheer van hergroei.
Adelaarsvaring (Pteridium aquilinum) Rugsaktoediening	20g / 100l water + hulpmiddel	Dien toe op blare van aktiel groeiende plante in sommer maande vir die plante begin terugsterf. Hergroeи: Kolbehandeling mag nodig wees vir beheer van hergroei.

## ONKRUIDE WAT IN KLEINGRAAN BEHEER WORD

BOTANIESE NAAM	GEWONE NAAM	BOTANIESE NAAM	GEWONE NAAM	BOTANIESE NAAM	GEWONE NAAM
Anagallis arvensis Chenopodium album Emex australis * Fumaria muralis *	Pimpamel Witondhebosjie Kaapsie dubbeltjie Duiwekerwel	Oxalis latifolia * Pentstoe suffruticosa Plantago lanceolata * Polygonum aviculare	Rooiuinsuring Klein stikkruid Smal webblaar Voëlduisendknop	Raphanus raphanistrum Sisymbrium thellungi Spergula arvensis Stellaria media	Remenes Gewone wildmostert Sporie Sterremuur

\* Onkruid wat onderdruk word

