



Radiate

Reg. No./Nr. L 9569, Act/Wet No./Nr. 36 Of/Van 1947
N-AR 1540

A residual, water soluble, systemic herbicide acting through the leaves, roots and cut surfaces, for the control of certain woody plants as listed, in grazing, conservation areas and on non-crop land.

'n Nawerkende, wateroplosbare, sistemiese onkruidodder wat deur blare, wortels en gesnyde oppervlaktes werk, vir die beheer van sekere houtagtige plante, soos aangetoon, in weidings, bewaringsgebiede en op lande waarop gewasse nie verbou word nie.

HERBICIDE GROUP CODE

O

ONKRUIDDODER GROEP KODE

Active ingredient/Aktiewe bestanddeel

Picloram (As the Potassium salt).....240 g/l
Pikloram (As die Kalium sout).....240 g/l

Contents Inhoud

REGISTRATION HOLDER / REGISTRASIEHOUER:

Agritech Bioscience (Pty) Ltd / (Edms) Bpk trading as CARABINER
Reg. No. 2008/004392/07
PO Box / Posbus 436
Modderfontein
1645
South Africa / Suid Afrika

Batch No.
Date of manufacture.
UN: Not regulated

Lotnommer
Datum van vervaardiging



CAUTION/VERSIGTIG



WARNINGS

- Handle with care.
- Poisonous when swallowed. May cause eye and skin irritation.
- Store under lock and key in a cool, dry place away from food, feed, fertilizer and other agricultural products.
- Keep out of reach of children, uninformed persons and animals.
- **Re-entry** – Do not enter treated area 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 warnings. Do not apply over water bodies and ensure that spray drift will not contaminate areas not under treatment.

Grazing Restrictions:

- Meat animals grazing up to two weeks after treatment must be removed from the treated area three days prior to slaughter.
- Do not graze any lactating dairy animals on treated area within two weeks after treatment.

Grazing poisonous plants: Herbicide application may increase the palatability of certain poisonous plants. Do not graze the treated areas until the poisonous plants are dry and no longer palatable to livestock.

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 eye contact.
- In case of accidental eye contact, flush with plenty of clean water for at least 15 minutes and get medical attention if irritation persists.
- Wash with soap and water immediately after use and accidental skin contact.
- Wash contaminated clothing daily.
- Do not eat, drink or smoke while mixing or applying the product, or before washing hands and face and changing clothes.
- Avoid drift of spray onto other crops, grazing, rivers, dams and areas not under treatment.
- Clean the applicator after use with a 1% household ammonia solution before using it with other material. Let the solution stand for several hours or, more preferably, overnight. Rinse at least twice with clean water. The applicator must not be used for applying chemicals other than herbicides. Dispose of the 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 by perforation and flattening and **DO NOT** use the empty container for any other purpose.

USE RESTRICTIONS

RADIATE is toxic to some plants at very low concentrations, therefore, the precautions which must be followed in order to avoid injury to non-target plants are:

- **Do not apply RADIATE in any way contrary to this label.**
- **Do not permit the spray mist to drift** or to come into contact with sensitive broadleaf crops including, but not limited to, lucerne, beans, melons, potatoes, soyabeans, sunflowers, tobacco, tomatoes, cotton, fruit trees, grape vines, ornamentals, soil containing roots of these plants, soil in which such plants are to be grown, grain varieties in a susceptible stage of growth or grazing, or any other area not under treatment.
- **Do not contaminate water which is intended for irrigation or domestic purposes.** In order to avoid injury to crops or other desirable plants, do not treat or allow the spray, spray drift or spray run-off, to fall onto the banks or the bottoms of irrigation ditches, canals, streams, dams, rivers, either dry or containing water, that may be used for irrigation or domestic purposes or may carry water to an irrigation facility.
- **Do not make any application when the circumstances favour movement from the treatment site.**
- **Do not apply to any areas that may be rotated to any broadleaf crop.**
- **Do not use any manure** from animals grazing treated areas on land used for growing already established, or yet to be established, broadleaf crops, ornamentals, orchards or other susceptible crops. The manure may contain enough picloram to cause injury to susceptible plants.
- **Do not use grass or sprayed plants** from a treated area for composting or mulching of susceptible broadleaf plants or crops.
- **Do not transfer livestock** from any treated grazing areas (or feeding of treated grass), onto sensitive broadleaf crop areas without first allowing 7 days of grazing of an untreated grass pasture. Otherwise, the urine or faeces may contain enough picloram to cause injury to sensitive broadleaf plants.
- **Do not use on flood-irrigated lands or fields.**
- **Do not apply if the loss of forage legumes, including clover, cannot be tolerated.** Any new legume seedlings may take years to re-establish.
- **Do not move any treated soil** to areas other than sites for which **RADIATE** is registered for use.
- **Do not apply through a mist-blower.**
- **Do not apply to land nearby to desirable broadleaved plants** or land onto which such plants are to be grown, or grain varieties in a susceptible stage of growth. May, however, be applied in the **VICINITY** of desirable broadleaved plants, or soil or land onto which such plants are to be grown, or grain varieties in a susceptible stage of growth, **PROVIDED THAT ADEQUATE PRECAUTIONS ARE TAKEN IN ORDER TO AVOID SPRAYDRIFT (See the wind speed table below) OR CONTAMINATION OF RUN-OFF AREAS.**
- Apply the product strictly according to the application directions.

Do not apply by air in KwaZulu Natal.

The wind speed and direction at the time of application will determine the distance which must separate the closest edge of the area to be sprayed from susceptible plants and crops.

WIND SPEED km/h	GROUND APPLICATION	AERIAL APPLICATION
2 - 15	2.0 km downwind 2.0 km crosswind 1.0 km upwind	5.0 km downwind 5.0 km crosswind 2.0 km upwind
Above 15	Prohibited	Prohibited

Do not apply this product in combination or tank mixture with any other product or agricultural remedy which is not specifically listed on this label. Agritech Bioscience (Pty) Ltd accepts no responsibility for any negative effects experienced if the instructions on this label are not adhered to, unless an Agritech Bioscience representative was consulted beforehand.

MODE OF ACTION

RADIATE is a selective, systemic herbicide, which is absorbed rapidly by the roots and leaves and translocated both acropetally and basipetally, accumulating in new growth.

RESISTANCE MANAGEMENT

For resistance management, **RADIATE** is a group code O herbicide. Any weed population may contain individuals naturally resistant to **RADIATE** and other group code O herbicides. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds may not be controlled by **RADIATE** or any other group code o herbicide.

To delay herbicide resistance:

- Avoid exclusive repeated use of herbicides from the same herbicide group code. Alternate or tank mix with registered 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.

DIRECTIONS FOR USE

Use only as directed.

TIMING OF APPLICATION

POISON LEAF:

For optimum control apply **RADIATE** only when the CURRENT SEASON'S GROWTH IS FULLY DEVELOPED, but before the leaves start to turn yellow in the early autumn.

In this respect, it is recommended that spraying should not be done before November, by which time most of the new stems will have emerged and would have produced mature leaves.

Spraying earlier in the spring (when most of the new growth present consists of recently emerged stems with immature leaves) will result in unsatisfactory control.

Do not apply **RADIATE** if more than 25% of the foliage has been destroyed by caterpillars or other insects.

Any re-growth which is found in the second season after application should be re-sprayed.

When spraying old stems that have not yet produced leaves, also spray the surrounding soil for at least 30 cm from the stem.

OTHER SPECIES:

Apply **RADIATE** only on actively growing plants and when the soil moisture is favourable for plant growth.

Apply only when the trees are in the correct growth stage as indicated below:

- ♣ Only spray trees where the leaves have fully developed.
- ♣ Spray only onto healthy and vigorously growing trees.
- ♣ Spray only onto trees with full foliage cover.
- ♣ Do not apply onto wet foliage.
- ♣ Do not spray after a late frost.
- ♣ Deciduous plants may drop their leaves when stressed. Do not spray target plants showing signs of stress or when signs of drought are evident. Caution must be exercised when applying foliar applications to deciduous plants during autumn, in order to prevent rapid leaf drop as a combination of stress and herbicide application. Should this happen, provision should be made for follow-up treatments.

METHODS OF APPLICATION

A. AERIAL

Aerial application may only be done by a registered aerial application operator using a registered and correctly calibrated aircraft according to the instructions of SANS Code 10118 (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 60-75% of the wingspan to prevent droplets from entering the wingtip vortices.

Application Parameters

- A minimum volume of 30 – 35 ℓ spray mixture 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 aerially at a lower volume rate than recommended.
- A droplet coverage of 30 – 40 droplets per square cm must be recovered at the target.
- A droplet spectrum with a VMD of 300 – 350 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.

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 nor 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) as this may lead to the following:
 1. Reduced efficacy due to suspension and evaporation of small droplets in the air (leading to inadequate coverage).
 2. Damage to other sensitive crops and/or non-target areas via the movement of the suspended spray cloud away from the target area.
- 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 and that the relevant data will be compiled in a logbook and kept.

B. GROUND

Ensure that the equipment is correctly calibrated and is checked regularly during application to ensure even and accurate application. Only clean water should be used

a) Knapsack & Tractor Application

Knapsack: Avoid fine droplet size - use a knapsack sprayer with a solid cone nozzle, e.g. Spraying Systems TG1 (or an equivalent type) that will ensure even coverage of the target area.

Maintain a constant pressure of between 200 - 250 kPa.

Maintain a distance of approximately 50 cm from the target for the best coverage.

Knapsack or Tractor: For linear application with a knapsack or tractor and boom, apply in sufficient water per hectare to ensure even coverage. This will be 250 – 350 litres spray mix per hectare depending on the plant height and weed species. Consult your local distributing agent for further advice.

b) High Volume Application (Only with a foaming agent)

Use a motorized pump that is capable of applying pressures of 1000 - 1200 kPa - use a Spraying Systems Foamjet FJ 0006 aspirating nozzle, (or an equivalent type.) Add a commercially available foaming agent as a temporary spray application marker.

c) General

Apply **RADIATE** as a complete cover spray to leaves and stems.

Use **RADIATE** only on actively growing plants, up to 2 metres in height, with full leaf cover.

Apply sufficient spray mixture to wet the foliage until just before the point of run-off.

Do not apply if it is likely to rain within 3 hours of application.

Do not apply to wet foliage.

Do not apply if the wind velocity exceeds 15 km/h (as measured by handheld wind recorder approved by the Registrar: Act No. 36 of 1947). The difference between the wet and dry bulb readings on a whirling hygrometer must not exceed 8 °C.

CUT STUMP TREATMENT

- ❖ Preferably apply immediately after felling but definitely within 3 hours.
- ❖ **RADIATE** should not be applied to the stump if the surface is wet from rain or dew.
- ❖ Apply **RADIATE** with a knapsack, as a coarse spray using solid cone nozzle tips (e.g. Spraying Systems TG-1, Delavan CE 1 or equivalent type) at 100 kPa, low pressure.
- ❖ Do not exceed a spray height of 20 cm above the target. Do not apply if the wind velocity exceeds 15 km/h (as measured by handheld wind recorder). The difference between the wet and dry bulb readings on a whirling hygrometer must not exceed 8 °C.
- ❖ Apply **RADIATE** according to directions in the table below.

FRILL METHOD

Using an axe, make horizontal, downward angled cuts through the bark in order to penetrate, but not go deeper, than into the sapwood. Immediately apply the spray mixture into every cut, taking care that it is not wasted on the bark. The cuts should be connected and made around the entire circumference of the trunk as close to the soil surface as possible. Re-treat as necessary.

Warning:

If top kill is obtained but re-growth occurs from the crown, apply **TRIMAX E** (Reg. No. L 7666, Act No. 36 of 1947) or **RADIATE** as a foliar spray.

- In the case of trees with multiple stems, treat each stem separately.
- Check for adequate sap flow and bleeding.

MIXING

Mix **RADIATE** with water and add an adjuvant such as Actipron Super according to the instructions for the different plants. Once the spray mixture has been mixed, no further agitation is needed.

RECOMMENDATIONS

A. AERIAL APPLICATION

Bush / shrub species	Rate / ha	Remarks
<i>Dichrostachys cinerea</i> (Sickle bush)	2.0 ℓ 2.0 ℓ	See DIRECTIONS FOR USE above. Apply RADIATE in 30 ℓ water per hectare. <u>CDA application:</u> Mix 2.0 ℓ RADIATE with 2.0 ℓ Actipron Super and 6.0 ℓ water. Apply 10 ℓ of the spray mixture per hectare.

B. FOLIAR TREATMENT – GROUND APPLICATION

Note:

For foliar application using a knapsack sprayer, Actipron Super should be added at a rate of 500 ml / 100 ℓ spray mix (0.5% mixture).

Alien bush / shrub species	Rate / 100 ℓ Water	Remarks
<i>Eucalyptus grandis</i> (Saligna gum)	375 ml	Coppice Application: When coppice is between 1 – 1.5 m in height apply RADIATE to leaves and stems ensuring thorough wetting. Limited re-growth may occur which requires a follow up treatment.
<i>Lantana camara</i> (Lantana)	0.75 – 1.0 ℓ	Use the higher rate for older, previously slashed, plants with big stumps.
<i>Rubus cuneifolius</i> (Bramble)	500 ml	High Volume Application Add a foaming agent at 500 ml / 100 ℓ of spray solution.

Indigenous bush / shrub species	Rate / 100 ℓ Water	Remarks
<i>Dichapetalum cymosum</i> (Poison leaf)	1.0 ℓ	See DIRECTIONS FOR USE above.
<i>Dichrostachys cinerea</i> (Sickle bush)	350 mℓ	Knapsack Application Add Actipron Super at a rate of 500 mℓ / 100 litre of spray solution.
<i>Acacia tortillis</i> (Umbrella thorn)	500 mℓ	High Volume Application Add a foaming agent at a rate of 500 mℓ /100 litre of spray solution.

C. CUT STUMP

Alien bush / shrub species	Rate / 100 ℓ Water	Remarks
<i>Acacia mearnsii</i> (Black wattle)	1.5 ℓ	See DIRECTIONS FOR USE above. Add 500 mℓ Actipron Super / 100 litre spray mix.
<i>Chromolaena odorata</i> (Paraffin bush)	1.0 ℓ	Apply the spray mix to low cut stumps (10 – 20 cm high), preferably with a single cut surface. Apply to the completely cut surface of stumps with a diameter of less than 10 cm.
<i>Eucalyptus grandis</i> (Saligna gum)	1.5 ℓ	Where multiple stumps are present, all cut surfaces must be treated. For larger stumps apply to the cambial region (sapwood) of the cut surface. In all cases, apply to the point of run-off.
<i>Lantana camara</i> (Lantana)	1.0 ℓ	A follow-up spray as a coppice application may be needed.
<i>Solanum mauritianum</i> (Bugweed)	1.0 ℓ	

Indigenous bush / shrub species	Rate / 100 ℓ Water	Remarks
<i>Colophospermum mopane</i> (Mopane)	2.5 ℓ	Add 2.0 ℓ Actipron Super / 100 litre spray mix.
<i>Dichrostachys cinerea</i> (Sickle bush)	2.0 ℓ	Apply the spray mix to low cut stumps (10 – 20 cm high). Apply to the completely cut surface of stumps until the point of run-off. Also apply to the root collar area and to the soil immediately in contact with the stump. A follow-up spray as a coppice application may be needed.

D. FRILL APPLICATION

Alien bush / shrub species	Rate / 10 ℓ Water	Remarks
<i>Acacia mearnsii</i> (Black wattle)	600 mℓ RADIATE + 200 mℓ Actipron Super	See DIRECTIONS FOR USE above. Apply enough spray mixture to fill the frill without any unnecessary wastage down the bark.
<i>Eucalyptus grandis</i> (Saligna gum)	200 mℓ RADIATE + 50 mℓ Actipron Super	

RADIATE controls trees and shrubs. Other trees and shrubs that were not present during the development trials of this product may also be controlled to a certain degree. The registration holder does not accept responsibility for unlisted trees and shrubs.

ACKNOWLEDGEMENT OF TRADEMARKS

Actipron Super (L 5506)
Trimax E (L 7666)

H & R GSP (Pty) Ltd.
Meridian Agrochemical Company (Pty) Ltd

WAARSKUWINGS

- Hanteer versigtig.
- Giftig indien ingesluk. Mag oog en vel irritasie veroorsaak.
- Berg agter slot en grendel in 'n koel, droë plek weg van voedsel, voer, kunsmis en ander landbou produkte.
- Hou buite bereik van kinders, oningeligte persone en diere.
- **Herbetreding** - Moet nie behandelde gebied betree alvorens die spuitneerslag droog is nie, tensy beskermende oorklere gedra word.
- **Lugtoediening**: Stel alle inwoners in die onmiddellike omgewing van die gebied wat bespuit gaan word in kennis, en reik die nodige waarskuwings uit. Moet nie oor wateroppervlakke spuit of die spuitnewel toelaat om water of aangrensende gebiede te besoedel nie.

Weiding Beperkings:

- Vleis diere wat die behandelde area beweï, tot twee weke na behandeling, moet uit die behandelde gebied verwyder word, vir ten minste drie dae voor hulle geslag word.
- Moenie enige lakterende suiwel diere op behandelde gebied binne twee weke na behandeling laat wei nie.

Weiding van giftige plante: Onkruidodertoediening kan die smaaklikheid van sekere giftige plante verhoog. Moenie die behandelde areas laat wei totdat die giftige plante droog geword het nie en dus nie meer eetbaar is nie.

Alhoewel hierdie middel omvattend onder 'n groot verskeidenheid toestande getoets is, waarborg die registrasiehouer nie dat dit onder alle toestande doeltreffend sal wees nie. Die werking en doeltreffendheid daarvan kan beïnvloed word deur faktore soos abnormale klimaats- en bergingstoestande, kwaliteit van die verdunningswater, verenigbaarheid met ander stowwe wat nie op die etiket aangedui word nie en die voorkoms van weerstand van die onkruid teen die betrokke middel sowel as die tyd, metode en akkuraatheid van toediening. Verder aanvaar die registrasiehouer nie verantwoordelikheid vir skade aan gewasse, plantegroei en die omgewing, of nadelige invloed op mens of dier, of vir 'n gebrek aan prestasie van die betrokke middel as gevolg van versuim van die gebruiker om etiketaanwysings na te kom, of as gevolg van die ontstaan van toestande wat nie kragtens die registrasie voorsien kon word nie. Raadpleeg die verskaffer in die geval van enige onsekerheid.

VOORSORGMAATREËLS

- Moenie dampe of spuitnewel inasem nie.
- Vermoë oogkontak.
- In die geval van oogkontak, spoel met skoon water uit vir ten minste 15 minute en kry mediese aandag indien irritasie voortduur.
- Was onmiddellik met seep en water na gebruik en na toevallige velkontak.
- Was besoedelde klere daaglik.
- Moet nie eet, drink of rook tydens vermenging of toediening van die produk of voordat hande en gesig gewas en skoon klere aangetrek is nie.
- Verhoed spuitnewel op ander gewasse, weiding, riviere, damme en areas wat nie onder behandeling is nie.
- Maak spuittoerusting met 'n 1% huishoudelike ammoniakoplossing skoon na gebruik, voordat dit met ander materiaal gebruik word. Laat die oplossing vir 'n paar uur staan, of verkieslik oornag. Spoel ten minste twee keer met skoon water uit. Hierdie spuittoerusting moet nie gebruik word vir die toepassing van chemikalië anders as onkruidoders nie. Raak ontslae van die spoelwater waar dit nie gewasse, weiding, riviere, damme en boorgate sal besoedel nie.
- Voorkom besoedeling van voedsel, voer, drinkwater en eetgerei.

- Keer die leë houer om oor die spuit-of mengtenk en dreineer vir minstens 30 sekondes nadat die vloei tot 'n drup verminder. Spoel die leë houer drie keer uit met 'n volume water gelykstaande aan 'n minimum van 10% van die houer. Gooi die spoelwater by die inhoud van die spuittenk.
- Vernietig die leë houer deur gate daarin te maak en plat te slaan en **MOENIE** die leë houer vir enige ander doeleindes gebruik nie.

GEBRUIKSBEPERKINGS

RADIATE is giftig vir sekere plante selfs teen baie lae konsentrasies, daarom is die voorsorgmaatreëls wat gevolg moet word, ten einde skade aan nie-teiken plante baie belangrik:

- **Moenie RADIATE in 'n manier wat nie op hierdie etiket verskyn toedien nie.**
- **Voorkom dat spuitnewel wegdryf** of in kontak kom met sensitiewe breëblaar gewasse, insluitend, maar nie beperk tot, lusern, bone, spanspekke, aartappels, sojabone, sonneblomme, tabak, tomaties, katoen, vrugtebome, wingerde, sierplante, gronde waarin wortels van hierdie plante voorkom, grond waarin die plante verbou gaan word, graansoorte in 'n vatbare groeistadium, weidings of enige ander gebied wat nie onder behandeling gaan word nie.
- **Moenie water vir besproeiing of huishoudelike gebruik besoedel nie.** Om beskadiging van gewasse of ander gewensde plante te vermy, moenie behandel, of toelaat dat die spuitstof of spuitnewel op walle of bodem van besproeiingsvore, kanale, strome, damme, riviere, wat vir besproeiing of huishoudelike gebruik bedoel is, hetsy droog of met water daarin, beland of deur water na besproeiings sisteme afgevoer word nie.
- **Moenie onder toestande wat die beweging van die onkruidodder uit behandelde areas bevorder, toedien nie.**
- **Moenie op enige gebiede wat met enige breëblaar gewas verbou of geplant gaan word toedien nie.**
- **Moenie die mis van diere** wat op behandelde gebiede gewei het vir lande waarop 'n op breëblaar gewas, sierplante, boorde of enige ander vatbare gewas gevestig is, of gevestig gaan word, gebruik nie. Die mis mag genoegsame pikloram bevat om skade aan vatbare plante te rig.
- **Moenie gras of bespuite plante** uit behandelde gebiede vir kompostering of deklaag by gevoelige breëblaar plante of gewasse gebruik nie.
- **Moenie lewende hawe van behandelde weidingsareas** (of wat op behandelde gras gevoed het) na areas van gevoelige breëblaar gewasse oorplaas, alvorens hulle vir minstens 7 dae op onbehandelde gras weidings gewei het nie. Anders, kan die urine of mis van sulke diere genoeg pikloram bevat om gevoelige breëblaar plante beskadig.
- **Moenie op lande of gebiede wat vloedbesproei word gebruik nie.**
- **Moenie toedien as die verlies van peulgewas weidings, insluitend klawers, nie geduld kan word nie.** Dit mag jare neem voordat nuwe peulplante sal vestig.
- **Moenie enige behandelde grond** na areas ander as gronde waarop die gebruik van **RADIATE** geregistreer is, verskuif nie.
- **Moenie met 'n misblaser toedien nie.**

- **Moenie op grond wat naby gewenste breëblaar plante** of grond waarop sulke plante groei, of graangewasse wat in gevoelige ontwikkelings stadium is toedien, **MITS DAAR VOLDOENDE VOORSORG GETREF WORD OM DIE WEGDRYING VAN SPUITNEWEL NA DIE AREAS** (Sien die wind spoed tabel hieronder) **OF BESOEDLING VAN AFLOOP AREAS TE VOORKOM.**
- Dien die produk streng volgens die gebruiksaanwysings toe.

Moet nie uit die lug in KwaZulu-Natal toedien nie.

Die windspoed en windrigting tydens toediening sal die afstand tussen die naaste rand van die gebied wat bespuit moet word en die gevoelige plante en gewasse bepaal.

WINDSPOED km/h	GRONDOEDIENING	LUGTOEDIENING
2 - 15	2.0 km windaf 2.0 km dwarswind 1.0 km windop	5.0 km windaf 5.0 km dwarswind 2.0 km windop
Meer as 15	Verbode	Verbode

Moenie die produk toedien op enige gewas of in enige situasie wat nie op die etiket aangedui word nie. Agritech Bioscience (Pty) Ltd aanvaar geen verantwoordelikheid vir enige negatiewe effek of resultate wat tot gevolg het indien die instruksies op die etiket nie nagekom word nie, behalwe as 'n Agritech Bioscience verteenwoordiger vooraf gekonsulteer is.

METODE VAN WERKING

RADIATE is 'n selektiewe, sistemiese onkruiddoder wat vinnig deur die wortels en blare geabsorbeer word. **RADIATE** word getranslokeer beide akropetaal en basipetaal, wat in nuwe groei akkumuleer.

WEERSTANDBESTUUR

Vir weerstandbestuur, is **RADIATE** 'n groep kode O onkruiddoder. Enige onkruidpopulasie mag individue bevat wat natuurlike weerstand teen **RADIATE** en ander groepkode O onkruiddoders het. Die weerstandbiedende individue kan uiteindelik die onkruidpopulasie oorheers indien hierdie onkruiddoders herhaaldelik gebruik word. Hierdie weerstandbiedende onkruid mag dalk nie deur **RADIATE** of enige ander Groepkode O onkruiddoder beheer word nie.

Om weerstand teen onkruiddoders te vertraag:

- Vermyn die eksklusiewe, herhaaldelike gebruik van onkruiddoders van dieselfde onkruid groepkode. Wissel af, of vermeng die produk met, geregistreerde produkte van verskillende onkruiddodergroepcodes.
- Integreer ander beheermaatreëls (chemies, meganies of biologies) binne in die onkruidbeheerprogramme.

Vir spesifieke inligting oor weerstandbestuur, kontak die registrasiehouer van hierdie produk.

GEBRUIKSAANWYSINGS

Gebruik slegs soos aangedui.

TYD VAN TOEDIENING:

GIFBLAAR:

Vir optimale beheer dien **RADIATE** toe slegs wanneer die HUIDIGE SEISOEN SE GROEI TEN VOLLE ONTWIKKELD IS, maar voordat die blare in die vroeë herfs begin geel word.

In hierdie verband word dit aanbeveel dat bespuiting eers vanaf November sal geskied, wanneer al die nuwe stamme reeds sou verskyn het en die blare ten volle ontwikkel het.

Bespuiting wat vroeër in die lente geskied (wanneer meeste van die nuwe groei nog uit jong stamme met onvolwasse blare bestaan), sal onbevredigende beheer tot gevolg lei.

Moenie **RADIATE** toedien as meer as 25% van die blare deur wurms of ander insekte beskadig is nie.

Enige hergroei wat in die tweede seisoen na toediening gevind word, moet weer behandel word.

Wanneer afsonderlike ou stamme wat nog nie blare ontwikkel het nie bespuit word, moet die omliggende grondoppervlak tot minstens 30 cm vanaf die stam ook bespuit word.

ANDER SPESIES:

Dien **RADIATE** toe slegs op aktief groeiende plante en wanneer die grondvog gunstig vir plantegroei is.

Dien slegs toe wanneer die bome in die korrekte groeistadium is, soos hieronder aangedui word:

- ♣ Sluit slegs bome waarvan die blare ten volle ontwikkel is.
- ♣ Sluit slegs op gesonde en lewenskragtige bome.
- ♣ Sluit slegs op bome met 'n volle ontwikkelde blaredek.
- ♣ Moenie op nat blare toedien nie.
- ♣ Moenie spuit nadat laat ryp in die seisoen voorgekom het nie.
- ♣ Bladwisselende bome mag hulle blare onder stremming verloor. Moenie spuit as teiken plante enige droogte tekens of tekens van stres wys nie. Wanneer blaartoedienings in die herfs op bladwisselende bome gedoen word, moet daar voorsorg getref word om vinnige blaarverlies a.g.v. 'n kombinasie van stressoestande en onkruidodderbehandeling, te voorkom. Indien dit wel gebeur moet daar vir opvolgbespuitings voorsiening gemaak word.

TOEDIENINGSMETODE

A. LUGTOEDIENING

Lugtoediening mag slegs deur 'n geregistreerde lugbespuitingsoperateur met 'n korrek gekalibreerde, geregistreerde vliegtuig volgens die instruksies van SANS Kode 10118 (Aerial Application of Agricultural Remedies) gedoen word. Dit is belangrik om te verseker dat die spuitmengsel eweredig oor die teiken area versprei word en dat die verlies aan spuitmengsel tydens toediening tot 'n minimum beperk word. Dit is dus noodsaaklik dat die volgende kriteria nagekom word:

Toerusting

- Gebruik geskikte atomiseringsapparaat (hidroliese of roterende spuitkoppe) wat die vereiste druppelgrootte en bedekking van die teiken sal produseer, maar wat die minste verlies van produk deur wegdrywing sal verseker.
- Die operateur moet 'n spuitstelsel gebruik wat 'n druppelspektrum met die kleinste moontlike relatiewe span sal produseer.
- Al die spuitkoppe en atomiseerders moet in die binneste 60-75% van die vlerkspan geplaas word om die beweging van druppels in die vlerkvorteks te beperk.

Toedieningsvereistes

- 'n Minimum volume van 30 – 35 l spuitmengsel per ha word aanbeveel. Aangesien hierdie produk nie teen 'n verlaagde volume getoets is nie, kan die registrasiehouer nie effektiwiteit waarborg of verantwoordelik wees vir enige nadelige effekte wat

gehou word indien hierdie produk teen 'n laer volume, as hierbo aanbeveel, uit die lug toegedien word nie.

- 'n Druppelbedekking van 30 – 40 druppels per vierkante cm moet op die teiken area herwin word.
- 'n Druppelspektrum met 'n VMD van 300 – 350 mikrons word aanbeveel. Verseker dat die produksie van fyn druppels, die wat kleiner as 150 mikron is, tot 'n minimum beperk word.
- Die hoogte van die spuitbalk moet tussen 3 en 4 m bo die teiken gehandhaaf word.
- Moet nie spuit wanneer die vliegtuig aan die bopunt van 'n draai is, of tydens 'n duik, or terwyl dit uitklim of draai nie.

Meteorologiese toestande

- Die verskil tussen die nat-en droëbollesings, soos bepaal met behulp van 'n swaai-higrometer bepaal, moet nie 8 ° C oorskry nie.
- Moet nie tydens turbulente en onstabiele weerstoestande of gedurende die hitte van die dag wanneer stygende en dalende konveksie windbeweging plaasvind spuit nie.
- Moenie toedien onder temperatuur inversie toestande (deur bo of binne die inversie laag te spuit) en / of hoë lugvog toestande spuit nie, want dit kan die volgende veroorsaak:
 1. Verlaagde effektiwiteit aangesien die suspensie en verdamping van klein druppels in die lug (wat lei tot onvoldoende bedekking op die teiken area).
 2. Skade aan ander sensitiewe gewasse en / of nie-teiken areas as gevolg van wegdrywing van die spuitwolk weg van die doelgebied af.
- Moet nie spuit wanneer die windspoed 15 km per uur oorskry nie.

Algemeen

- Verseker dat die lande akkuraat gemerk is en dat die lugbespuitingsoperateur presies weet watter lande gespuit moet word.
- Verkry versekering van die spuitoperateur dat aan die bogenoemde vereistes voldoen sal word en dat die betrokke data in 'n logboek saamgevat word vir toekomstige verwysing.

B. GROND

Maak seker dat die toerusting korrek gekalibreer is en gereeld nagegaan word tydens toediening, om egalige en akkuraat bespuiting te verseker. Slegs skoon water moet gebruik word.

a) Rugsak en Trekker Toediening

Rugsak: Vermoeg fyn druppelgroottes – gebruik 'n rugsakspuit wat toegerus is met soliede kegelspuitpunte, b.v. Spraying Systems TG1 (of 'n soortgelyk tipe) wat egalige bedekking van die teiken area sal verseker.

Handhaaf 'n konstante druk van 200 - 250 kPa.

Handhaaf 'n afstand van ongeveer 50 cm van die teiken area om gewenste bedekking te verseker.

Rugsak of Trekker: Vir lineêre toediening met 'n rugsak of trekker met spuitbalk, gebruik genoeg water per hektaar om 'n eweredige bedekking te verseker. Hierdie behoort om 250 - 350 liter spuitmengsel per hektaar te wees, afhangend van die plant hoogte en spesies. Raadpleeg jou plaaslike verspreidingsagent vir verdere advies.

b) Hoë Volume Toediening (Slegs met 'n skuimmiddel)

Gebruik 'n motoraangedrewe pomp wat 'n toedieningsdruk van 1000 - 1200 kPa kan handhaaf – gebruik 'n Spraying Systems Foamjet FJ 0006 met 'n lugsuigspuitpunt, (of 'n soortgelyk tipe.) Voeg 'n kommersieële beskikbare skuimmiddel as 'n tydelike spuittoedieningsmerker by.

c) Algemeen

Dien **RADIATE** as 'n volle dekbespuiting op blare en stamme toe.

Gebruik **RADIATE** slegs op aktief-groeiende plante, met volle blaredrag,

tot 2 meter in hoogte.

Dien voldoende spuitmengsel toe om die loot tot net voor die punt van afloop te benat.

Moet nie toedien indien reën binne 3 uur verwag word nie.

Moet nie op nat blare toedien nie.

Moet nie toedien indien die windspoed 15 km / uur (soos bepaal deur 'n handwindmeter goedgekeur deur die Registrateur: Wet 36 van 1947) oorskry nie. Die verskil tussen die nat-en droëbollesing op 'n swaai-higrometer bepaal, moet nie 8 ° C oorskry nie.

STOMPBEHANDELING

- ❖ Dien verkieslik onmiddellik na sny, maar beslis binne 3 uur na sny toe.
- ❖ **RADIATE** moenie toegedien word op stompe indien hulle weens reën of dou nat is nie.
- ❖ Dien **RADIATE** met 'n rugsakspuit as growwe druppels toe deur gebruik te maak van soliede kegelspuitpunte (bv. Spraying Systems TG-1, Delavan CE 1 of soortgelyke spuitpunte) en handhaaf 'n druk van 100 kPa, lae druk.
- ❖ Moenie 'n spuithoogte van 20 cm bokant die teiken area oorskry nie. Moet nie toedien indien die windspoed 15 km / uur (soos bepaal deur 'n handwindmeter) oorskry nie. Die verskil tussen die nat-en droëbollesing op 'n swaai-higrometer, moet nie 8 ° C oorskry nie.
- ❖ Dien **RADIATE** toe volgens aanwysings in die tabel hieronder.

RINGULERINGSMETODE

Maak horisontale, skuins kapwonde met 'n byl, net deur die bas, maar nie dieper as in die splinthout van die boom nie. Dien van die spuitoplossing onmiddellik in elke kapwond toe. Sorg dat die spuitoplossing nie op die bas gemors word nie. Die knapwonde moet aaneenlopend tot die volle omtrek van die stam en so na as moontlik aan die grondoppervlakte, gemaak word. Herbehandel indien nodig.

Waarskuwing:

As alle bogroei doodgemaak is, maar hergroei kom vanaf die kroon voor, dien **TRIMAX E** (Reg. No L 7666, Wet 36 van 1947) of **RADIATE** as 'n blaarbespuiting toe.

- In die geval van veelvuldige stamme moet elke stam afsonderlik behandel word.
- Maak seker dat die sapvloei voldoende, maar nie oormatig is nie.

VERMENGING

Meng **RADIATE** met water en voeg 'n byvoegmiddel soos Actipron Super volgens die aanwysings vir die verskillende plante by. Nadat die mengsel deeglik gemeng is, is geen verdere roering nodig nie.

AANBEVELINGS

A. LUGBESPUITING

Bos / struk spesies	Dosis / ha	Opmerkings
<i>Dichrostachys cinerea</i> (Sekelbos)	2.0 l 2.0 l	Sien GEBRUIKSAANWYSINGS hierbo. Dien RADIATE in 30 l water per hektaar toe. <u>GDA toediening:</u> Meng 2.0 l RADIATE met 2.0 l Actipron Super en 6.0 l water. Dien 10 l van die spuitmengsel per hektaar toe.

B. BLAARBESPUITING – GRONDTOEDIENING

Nota:

Vir looftoediening deur middel van 'n rugsakspuit, moet Actipron Super ten alle tye bygevoeg word teen 500 mℓ / 100 ℓ spuitmengsel (0.5% mengsel).

Uitheemse bos / struik spesies	Dosis / 100 ℓ Water	Opmerkings
<i>Eucalyptus grandis</i> (Saligna bloekom)	375 mℓ	Hergroei Toediening: Wanneer hergroei tussen 1 – 1.5 m in hoogte is, dien RADIATE toe op blare en stamme en verseker deeglike benatting. Beperkte hergroei mag ontstaan wat 'n opvolgbespuiting sal benodig.
<i>Lantana camara</i> (Lantana)	0.75 – 1.0 ℓ	Gebruik die hoër dosis vir ouer, voorheen gekapte plante, met groot stompe.
<i>Rubus cuneifolius</i> (Braam)	500 mℓ	<u>Hoë Volume Toediening</u> Voeg 'n skuimmiddel teen 'n dosis van 500 mℓ / 100 ℓ spuitmengsel by.

Inheemse bos / struik spesies	Dosis / 100 ℓ Water	Opmerkings
<i>Dichapetalum cymosum</i> (Gifblaar)	1.0 ℓ	Sien GEBRUIKSAANWYSINGS hierbo.
<i>Dichrostachys cinerea</i> (Sekelbos)	350 mℓ	Rugsaktoediening Voeg Actipron Super teen 'n dosis van 500 mℓ / 100 liter spuitmengsel by. Hoë volume toediening Voeg 'n skuimmiddel teen 'n dosis van 500 mℓ / 100 liter spuitmengsel by.
<i>Acacia tortillis</i> (Haak-en-steek)	500 mℓ	

C. GESNYDE STOMP

Uitheemse bos / struik spesies	Dosis / 100 ℓ Water	Opmerkings
<i>Acacia mearnsii</i> (Swart wattel)	1.5 ℓ	<p>Sien GEBRUIKSAANWYSINGS hierbo. Voeg 500 mℓ Actipron Super / 100 liter spuitmengsel by.</p> <p>Dien die spuitmengsel toe op laag gesnyde stompe (10 - 20 cm hoog), verkieslik met 'n enkele gesnyde oppervlak. Dien toe op die totale gesnyde oppervlak van stompe met 'n deursnee van minder as 10 cm. Waar veelvoudige stompe teenwoordig is, moet alle gekapte oppervlakte behandel word. Vir groter stompe, dien op die kambium gedeelte (splinthout) toe. Dien in alle gevalle, tot die punt van afloop toe.</p> <p>'n Opvolgbespuiting op hergroei mag benodig word.</p>
<i>Chromolaena odorata</i> (Paraffienbos)	1.0 ℓ	
<i>Eucalyptus grandis</i> (Saligna bloekom)	1.5 ℓ	
<i>Lantana camara</i> (Lantana)	1.0 ℓ	
<i>Solanum mauritianum</i> (Luisboom)	1.0 ℓ	

Inheemse bos / struik spesies	Dosis / 100 ℓ Water	Opmerkings
<i>Colophospermum mopane</i> (Mopane)	2.5 ℓ	<p>Voeg 2,0 ℓ Actipron Super / 100 liter spuitmengsel.</p> <p>Dien die spuitmengsel toe op laag gekapte stompe (10 - 20 cm hoog) toe. Dien op totale gekapte oppervlakte tot die punt van afloop toe. Dien ook om die wortelkroonarea en op die grond onmiddellik in kontak met die stomp toe.</p> <p>'n Opvolgbespuiting op hergroei toediening mag benodig word.</p>
<i>Dichrostachys cinerea</i> (Sekelbos)	2.0 ℓ	

D. RINGULERING BEHANDELING

Uitheemse bos / struik spesies	Dosis / 10 ℓ Water	Opmerkings
<i>Acacia mearnsii</i> (Swart wattel)	600 mℓ RADIATE + 200 mℓ Actipron Super	<p>Sien GEBRUIKSAANWYSINGS hierbo.</p> <p>Dien genoegsame mengsel toe om slegs die ringuleeringswond te vul sonder enige oormatige oorloop op die bas.</p>
<i>Eucalyptus grandis</i> (Saligna bloekom)	200 mℓ RADIATE + 50 mℓ Actipron Super	

RADIATE beheer bome en struike. Ander bome en struike wat nie tydens die ontwikkelingsproewe van hierdie produk teenwoordig was nie, kan ook tot 'n sekere mate beheer word. Die registrasiehouer aanvaar geen verantwoordelikheid vir ongelyste bome en struike nie.

ERKENNING VAN HANDELSMERKE

Actipron Super (L. 5506)
Trimax E (L. 7666)

H & R GSP (Pty) Ltd.
Meridian Agrochemical Company (Pty) Ltd