

See enclosed leaflet for full details / Sien ingeslote pamflet vir volle besonderhede

BARRIER 450 SC

Reg. No. L7604, Act No. 36 of 1947 / Wet Nr. 36 van 1947

Botswana Reg. No./Nr W130570, Act No./Wet Nr. 18 of/van 1999

Malawi Reg. No. / Malawiese Reg. Nr. MW/PCB 2016/0754

Namibian Reg. No. / Namibiese Reg. Nr. N-AR 1668

FUNGICIDE GROUP CODE 2 and / en M3
SWAMDODERGROEPKODES

'n Suspensiekonsentraat kontak en lokaal sistemiese swamdoder vir die beheer van swamsiektes soos aangedui op aartappels en tamaties.

A suspension concentrate contact and local systemic fungicide for the control of fungal diseases as indicated on potatoes and tomatoes.

Aktiewe bestanddele / Active ingredients

Maneb (ditiokarbamaat).....	325 g/l.....	Maneb (dithiocarbamate)
Prosimidoon (dikarboksimied).....	125 g/l	Procymidone (dicarboximide)
Sinkoksied.....	4.7 g/l	Zinc oxide

Net Volume



Netto Volume

REGISTERED BY / GEREGISTREER DEUR:
Gouws and Scheepers (PTY) Ltd / (EDMS) Bpk
Reg. No. 1954/003213/07
Trading as / Handeldrywend as PLAASKEM (PTY) Ltd
P.O. BOX 14418
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Batch No/ Lotnommer:

Date of Manufacture / Datum van vervaardiging:

Un No/VN Nr. 3082



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WARNINGS:

WITHHOLDING PERIODS - MINIMUM TIME BETWEEN LAST APPLICATION AND HARVEST.

Tomatoes.....3 days
Potatoes.....35 days

Handle with care. Irritant eyes, nose, throat and skin. Harmful if swallowed or inhaled. Toxic to fish. Store in a cool dry place. Store out of reach of children, uninformed persons and animals. Store away from food and feeds.

If the chemical is allowed to get damp and then warmed up, it may generate flammable vapours and should therefore be kept away from sparks and open flames.

Re entry interval: Do not enter treated area before spray deposit has dried unless wearing protective clothing.

Aerial Application:

Notify all inhabitants of the immediate area to be sprayed and issue the necessary warnings. Do not spray over or allow drift to contaminate adjacent areas or water.

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 disease to 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 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 the event of any uncertainty.

PRECAUTIONS:

1. Do not inhale fumes or spray mist. Wear rubber gloves and boots and a face shield when preparing spray mixture.
2. Wash contaminated clothing daily.
3. Wash with soap and water after use or accidental skin contact.
4. In the case of contact with eyes flush for at least 15 minutes. If irritation persists, get medical attention.
5. Use only in well ventilated areas.
6. Avoid drift of spray onto other crops, grazing, rivers, dams and areas not under treatment.
7. Clean applicator before using other remedies and dispose of wash water where it will not contaminate crops, grazing, rivers and dams.
8. Rinse empty container three times with a volume of water equal to a minimum of 10% of that of the container. Add the rinsing to the contents of the spray tank. Destroy empty container and dispose of in a safe way. Never use for any other purpose.
9. Prevent contamination of food, feeds, drinking water and eating utensils.

RESISTANCE WARNING:

For resistance management, Barrier is a group code 2 and M3 fungicide. Any fungus may contain individuals naturally resistant to Barrier and other group code 2 and M3 fungicides. The resistant individuals can eventually dominate the fungus if these fungicides are used repeatedly. The resistant fungi may not be controlled by Barrier or any other group code 2 and M3 fungicide.

To delay fungicide resistance:

- Avoid exclusive repeated use of fungicides from the same fungicide group code. Alternate or tank mix with registered products from different fungicide group codes.
- For tank mixing or alternation with products in different fungicide groups, refer to applicable individual product labels.
- Integrate other control methods (chemical, cultural, biological) into disease control programmes.

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

DIRECTIONS FOR USE: Use only as directed

1. **Compatibility**
 - Compatible with most fungicides and insecticides but should not be used with alkaline products such as Lime Sulphur or Bordeaux Mixture.
 - The addition of Bladbuff 5 is recommended to prevent alkaline hydrolysis. (First adjust the quality of the water followed by the addition of BARRIER 450 SC).
2. **Mixing Instructions.**

Fill the tank from ¼ to ½ full with water and start agitating (use mechanical or hydraulic agitation). Add the required quantity of BARRIER 450 SC to the tank while it is filled with water. Continue agitating the spray mixture constantly during mixing and spray operation.
3. **High volume application:**

If the dosage per 100 l water recommended is followed, ensure that total coverage of plants but without run-off is achieved.

Aerial Application:

Potatoes only: Do not commence aerial application before consulting your BARRIER 450 SC representative.

Aerial application of this product may only be done by a registered aerial application operator using a correctly calibrated, registered aircraft according to the instructions of SANS Code 10118 (Aerial Application of Agricultural 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. Ensure that fields are accurately marked and that the aerial spray operator knows exactly which fields to spray. Therefore it is essential that the following criteria are met:

Application parameters:

Volume: A minimum volume of 30 - 40 litres per hectare is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy, or be held responsible for any adverse effects if this product is applied aerially at a lower volume rate than recommended above.

Droplet coverage: A droplet coverage of 50 – 70 droplets per cm² must be recovered at the target. The CV for droplet distribution must not exceed 40 %.

Droplet size: A droplet spectrum with a VMD of 250 microns is recommended. Ensure that the production of fine droplets (less than 150 microns - high drift & evaporation potential) is restricted to a minimum.

Flying height: The height of the spray boom should be maintained at 3-4 meters above the target. Do not spray when aircraft is in a climb, at the top or during a dive, or when banking. The following flying heights must be maintained above the target area. At wind speeds of:

0 – 8 km/h – 3m

8 – 15 km/h – 2m

at more than 15 km/h – do not spray.

Equipment:

Use suitable atomising equipment (hydraulic nozzles or rotary atomisers) that will produce the desired droplet size and coverage, but which will ensure the minimum loss of product either through endodrift (within target field) or exodrift (outside target field). The operator must use a setup that will produce a droplet spectrum with the lowest possible relative span.

All nozzles / atomisers should be positioned within the inner 60% to 75% of the wingspan to prevent droplets from entering the wingtip vortices.

Use a conventional boom equipped with hollow cone spray nozzles, e.g. D10-45.

Meteorological conditions:

The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8°C. The addition of a suitable anti-evaporant is recommended if the VMD of the droplets is less than 200-250 microns.

Aerial application of this product must not be done under turbulent, unstable conditions during the heat of the day when rising thermals and downdraughts occur. Also note that the application of this product under temperature inversion conditions (spraying in or above the inversion layer) 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 the movement of the suspended spray cloud away from the target field.

Ensure that the Aerial Spray Operator knows exactly which fields to spray.

- Obtain 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.

CROP / DISEASE	DOSAGE / 100 ℓ WATER	REMARKS
POTATOES Early blight (<i>Alternaria solani</i>)	200 mℓ (0,4 – 2 ℓ / ha)	Apply as a high volume spray at 200-1000 ℓ spray mixture per ha and ensure good coverage of entire plant above ground. Repeat application at intervals of 7 to 14 days and use the higher dosage and volume at shorter intervals under favourable disease conditions and especially after bloom when plants are more susceptible to early blight and a larger plant surface must be protected.
Late blight (<i>Phytophthora infestans</i>)	200 – 400 mℓ (0,4 – 4 ℓ / ha)	Under conditions which are extremely favourable for Late blight development, Barrier 450 SC must be alternated with a registered systemic / eradivative fungicide. Do not apply more than 8ℓ Barrier 450 SC / ha / season. Can also be aerially applied in not less than 30ℓ water per ha.

CROP / DISEASE	DOSAGE / 100 ℓ WATER	REMARKS
TOMATOES Late blight (<i>Phytophthora infestans</i>) Early blight (<i>Alternaria solani</i>) Septoria leafspot (<i>Septoria lycopersici</i>)	200 ml	For the curative control of Early blight and Septoria leafspot and preventative control of late blight, commence with application after plants are established and apply preventively at intervals of 5 to 10 days depending on weather conditions which may favour the disease and decrease the fungicidal activity. Apply 200 to 2000 ℓ spray mixture per hectare depending on plant size. For the control of Early blight, thorough coverage of foliage is necessary. For low volume application, concentration of fungicide in the spray mixture should be increased proportionately. Do not use on tomato seedbeds.

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WAARSKUWINGS:

ONTHOUDINGSPERIODES - MINIMUM TYD WAT MOET VERSTRYK TUSSEN DIE LAASTE TOEDIENING EN OES :

Tamaties..... 3 dae

Aartappels.....35 dae

Hanteer versigtig. Irriterend vir oë, neus, keel en vel. Skadelik wanneer ingesluk of ingeasem word. Giftig vir vis. Bêre in 'n koel droë plek. Bêre weg van voedsel en voer. Hou buite bereik van kinders, oningeligte persone en diere.

Indien die middel toegelaat word om, om die beurt, klam en dan warm te word, mag dit ontvlambare dampe vrystel en moet dit dus weggehou word van vonke en oop vlamme.

Herbetreding: Moet nie behandelde gebied betree voor spuitneerslag droog is nie, tensy beskermende oorklere gedra word.

Lugtoediening:

Stel alle inwoners in die onmiddellike gebied wat bespuit gaan word in kennis en reik die nodige waarskuwings uit. Moet nie oor omliggende gebiede of water spuit nie of toelaat dat spuitmis daarheen waai 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 aangesien die werking en effek daarvan beïnvloed kan word deur faktore soos abnormale grond, klimaats- en bergingstoestande; kwaliteit van verdunningswater, verenigbaarheid met ander stowwe wat nie op die etiket aangedui is nie en die voorkoms van weerstand van die siekte teen die betrokke middel sowel as 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 prestasie van die betrokke middel as gevolg 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:

1. Moet nie dampe of sproeinewel inasem nie. Dra rubber handskoene en stewels en 'n gesigskerm wanneer spuitmengsel voorberei word.
2. Was besoedelde klere daagliks.
3. Was met seep en water na gebruik of toevallige kontak met die vel.
4. In die geval van kontak met oë, spoel uit vir ten minste 15 minute. As irritasie aanhou, verkry mediese behandeling.
5. Gebruik alleenlik in goed belugte gebiede.
6. Vermoedlik van sproeinewel na ander gewasse, weidings, riviere, damme en gebiede nie onder behandeling nie.
7. Maak spuitapparaat deeglik skoon voordat dit vir ander middels gebruik word en raak ontslae van die spoelwater waar dit nie gewasse, weidings, riviere en damme sal besoedel nie.
8. Spoel leë houer driekeer uit met 'n volume water gelykstaande aan 'n minimum van 10% van die houer. Gooi die spoelwater by die inhoud van die spuittenk. Vernietig leë houer en raak ontslae daarvan op 'n veilige manier. Moet nooit vir enige ander doel gebruik nie.
9. Vermoedlik van voedsel, voer, drinkwater en eetgerei.

WEERSTANDSWAARSKUWING:

Barrier is 'n groepkode 2 en M3 swamdoder. Enige populasie van 'n spesifieke swam mag individue insluit wat 'n natuurlike weerstand teen Barrier of enige ander groepkode 2 en M3 swamdoder het. Indien hierdie swamdoders herhaaldelik aangewend word, kan die weerstandbiedende individue uiteindelik die swam populasie oorheers. Hierdie weerstandbiedende swamme sal waarskynlik nie deur Barrier of enige ander groepkode 2 en M3 swamdoder beheer word nie.

Om weerstand teen swamdoders te vertraag:

- Vermyn die eksklusiewe herhaaldelike gebruik van swamdoders met dieselfde groepkode. Wissel of met, of gebruik tenkmengsels van produkte in verskillende swamdoder groepkodes.
- Raadpleeg toepaslike individuele produketikette wanneer daar afgewissel word, of tenkmengsels gemaak word, met produkte in verskillende swamdodergroepkodes.
- Integreer ander beheermaatreëls (chemies, verbouing, biologies) in swamdoder programme.

Vir spesifieke inligting oor weerstandsbestuur kontak die registrasiehouer van hierdie produk

GEBRUIKSAANWYSINGS: Gebruik slegs soos aangedui.

1. Verenigbaarheid:

Verenigbaar met meeste swamdoders en insekdoders maar moet nie met alkaliese produkte soos kalkswawel of Bordeaux mengsel gebruik word nie. Die byvoeging van Bladbuff 5 word aanbeveel (stel eers die waterkwaliteit reg gevolg deur BARRIER 450 SC)

2. Menginstruksies:

Maak die tenk $\frac{1}{4}$ tot $\frac{1}{2}$ vol met water en begin meng (gebruik meganiese of hidroliese vermenging). Voeg die aanbeveelde hoeveelheid BARRIER 450 SC by die tenk terwyl dit vol gemaak word met water. Meng die spuitmengsel gereeld gedurende toediening.

3. Hoë volume toediening:

Indien die dosis per 100 ℓ water aanbeveling gevolg word, moet plante heeltemal bedek word sonder afloop.

Lugtoediening:

Slegs aartappels: U BARRIER 450 SC verteenwoordiger moet geraadpleeg word voor lugbespuiting begin word.

Lugtoediening van hierdie produk mag slegs deur 'n geregistreerde toediener toegedien word, wat 'n korrek gekalibreerde, geregistreerde vliegtuig het volgens die instruksies van SANS Kode 10118 (Lugtoediening van Landboumiddels). Dit is belangrik dat die spuitstof egalig oor die teikengebied versprei word en die verlies aan spuitmiddel tydens toediening tot 'n minimum beperk word. Sorg dat die lande akkuraat gemerk is en die spuitoperator presies weet watter lande gespuit moet word. Ten einde hieraan te voldoen, moet die volgende vereistes nagekom word:

Toediening parameters:

Volume: 'n Minimum spuitvolume van 30 - 40 ℓ / ha word aanbeveel. Omdat hierdie produk nie teen 'n verlaagde dosis ge-evalueer was nie, kan die registrasie houer nie effektiwiteit waarborg, of verantwoordelik gehou word vir enige ongunstige toestande indien hierdie produk teen 'n laer dosis, as aanbeveel hierbo, per lug toegedien word.

Druppelverspreiding: 'n Druppelverspreiding van 50 - 70 druppels per cm^2 moet op die teikengebied herwin word. Die KV van die druppelverspreiding moet nie 40% oorskry nie.

Druppelgrootte: 'n Druppelspektrum met 'n VMD van 250 mikron word aanbeveel. Verseker dat die produksie van fyn druppels (minder as 150 mikron – hoë dryf en verdamping potensiaal) tot 'n minimum beperk word.

Vlieghoogte: Die hoogte van die spuitstukke moet teen 'n hoogte van 3 – 4 meters bo die teiken area gehandhaaf word. Moenie spuit wanneer die vliegtuig besig is om te klim, tydens toppunt, gedurende 'n duik of tydens landing. Die volgende vlieghoogtes bo die teikenarea moet gehandhaaf word. Teen windsnelhede van:

0 – 8 km/uur – 3m

8 – 15 km/uur - 2m

meer as 15 km/uur – staak bespuiting.

Toerusting:

Gebruik geskikte atomiseer toerusting (hidroliese spuitneuse of rotasie atomiseerders) wat geskikte druppel grootte en bedekking sal produseer en terselfdetyd die minimum verlies van die spuitmiddel deur of “endodrift” (binne teiken gebied) of “exodrift” (buite teiken gebied) sal waarborg. Die spuitoperator moet toerusting gebruik wat 'n druppelspektrum met die laagste moontlike relatiewe span sal produseer.

Alle spuitneuse / atomiseerders moet binne die binne 60 – 75 % van die vliegtuig se vlerkspan geplaas wees sodat druppels nie in die maalstroom van die vlerkpunt beland nie.

Gebruik slegs 'n konvensionele spuitbalk wat toeges is met holkeelspuitpunte, bv. D10-45.

Weerkundige toestande:

Die verskil tussen die nat-en droëbollesing, soos met 'n swaaihygrometer bepaal, moet nie 8°C oorskry nie. Die byvoeging van 'n geskikte anti-verdampingsmiddel word aanbeveel indien die VMD van die druppelspektrum minder as 200 – 250 mikron is.

Lugtoediening van hierdie produk moet nie tydens onstuimige, onstabiele toestande gedurende die hitte van die dag wanneer stygende temperature en valstome voorkom toegedien word nie. Neem kennis dat lugtoediening van hierdie produk onder temperatuur inversie toestande (bespuiting tydens of bo die inversie laag) aanleiding kan gee tot die volgende:

- Verlaagde effektiwiteit as gevolg van die suspensie en verdamping van klein druppels in die lug (onvoldoende bedekking).
- Skade aan ander sensitiewe gewasse en / of nie teiken gebiede deur die beweging van die suspensie spuitdampe weg vanaf die teikengebied.

Verseker dat die Lugbespuitingsoperator presies weet watter lande bespuit moet word.

- Dit is noodsaaklik om 'n versekering van die Lugbespuitingsoperator te verkry dat aan al die bogenoemde vereistes voldoen sal word en dat data van belang in 'n logboek saamgevat is vir toekomstige verwysing.

