

# PENDULUM

**BEFORE USING THIS PRODUCT, READ THE LABEL CAREFULLY**

**VERWYS NA BESONDERHEDE SOOS OP HOUER / SAK GEDRUK**

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PENDULUM
HERBICIDE

Reg. No. L9462, Act/Wet No. 36 of/van 1947

1:20/02/2014

**A selective pre-emergence herbicide for the control of weeds mentioned on the crops as listed.**

**'n Selektiewe vooropkoms onkruidodder vir die beheer van onkruiide op gewasse soos aangedui.**

HRAC HERBICIDE GROUP CODE	K1	HRAC ONKRUIDDODERGROEPKODE
<b>ACTIVE INGREDIENT / AKTIEWE BESTANDEDEEL</b>		
Pendimethalin (dinitroanaline) 500 g/l Pendimetalin (dinitroanalien)		

Registration Holder / Registrasiehouer  
**Meridian Agrochemical Company (Pty.) Ltd. / (Edms.) Bpk.**  
 Reg. No. 2000/010819/07  
 P.O. Box / Posbus 436, Modderfontein, 1645, South Africa / Suid-Afrika

**REFER TO DETAILS AS PRINTED ON CONTAINER / BAG**

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**20L**

UN Number: 1993



**HARMFUL / SKADELIK**












## WARNINGS

- **Flammable** – Keep away from heat, open flames and sources of ignition..
- Handle with care.
- Harmful if swallowed. If swallowed, do not induce vomiting. **Call a physician immediately.**
- Store under lock and key away from food and feeds.
- Store in the original container in a cool, dry, well-ventilated separate area away from oxidizers.
- Do not store below 4°C.
- Causes eye as well as skin irritation.
- Mildly toxic to birds and wildlife.
- Toxic to fish and other aquatic organisms.
- **Re-entry** – Do not enter treated area within 1 day of application unless wearing protective clothing.
- **Aerial application:** Notify all inhabitants in the immediate vicinity of the area to be treated and issue the necessary warnings. Do not spray over, or allow drift to contaminate, water or adjacent areas.
- Keep out of reach of children, uninformed persons and animals.
- **PENDULUM** has been tested on the most important commercial cultivars without any significant phytotoxic effects. More susceptible cultivars may be released in future which will need to be tested; for this, apply **PENDULUM** to a limited test area before commercial applications are made.

**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 weeds 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 the fumes or spray mist.
- Wash with soap and water after use and accidental skin contact as well as contaminated clothing.
- Avoid skin and eye contact by wearing protective clothing when mixing the product. Should eye contact occur, flush for at least 15 minutes with plenty of clean water and obtain medical attention if necessary.
- Avoid drift of the spray onto other crops, grazing, rivers, dams and areas not under treatment.
- Wash contaminated clothing after use.
- Do not eat, drink or smoke while mixing or applying the product or before washing your hands and face.
- Prevent contamination of food, feeds, drinking water and eating utensils.
- Rinse empty container three times with a volume of water equal to a minimum of 10% of that of the container. Add the rinsings to the contents of the spray tank before destroying the empty container by perforation and flattening.
- Do not use the empty container for any other purpose. Dispose of the container in a safe way.

## SYMPTOMS OF HUMAN POISONING

Main symptoms of acute intoxication are:

Ingestion: May cause nausea, vomiting, diarrhoea, gastro-intestinal tract irritation.  
Inhalation: May cause irritation.  
Skin contact : May cause irritation.  
Eye contact : May cause irritation.

## FIRST AID TREATMENT

Never give fluids or induce vomiting if patient is unconscious or having convulsions.

INGESTION: Treat symptomatically and supportively. If vomiting occurs keep head lower than hips to prevent aspiration. **Get medical attention immediately.**

EYE: Wash immediately with large amounts of water. If irritation develops consult a physician.

SKIN: Remove contaminated clothing. Wash immediately affected area with soap and large amounts of water. If irritation develops consult a physician.

INHALATION: Remove patient to fresh air immediately. Treat respiratory difficulty with artificial respiration preferably mouth-to-mouth. **Get medical attention immediately.**

#### **NOTE TO PHYSICIAN**

There is no specific antidote.

Treat symptomatically and supportively in response to the reactions of the patient.

#### **RESISTANCE WARNING**

For resistance management, **PENDULUM** is a group code k1 herbicide. Any weed population may contain individuals naturally resistant to **PENDULUM** and other group code k1 herbicides. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds may not be controlled by **PENDULUM** or any other group code k1 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.
- A spray programme of mixtures or alternations with remedies with a different mode of action may delay resistant strain build-up.
- Integrate other control methods (chemical, cultural, biological) into weed control programmes.

Since the occurrence of resistance cannot be forecast, users are advised to keep treated crops under close observation. If treatment is not effective following the use of **PENDULUM** as recommended, a resistant strain may be present. If a resistant strain is positively identified, consideration should be given to prompt use of a herbicide with a different mode of action for which there is no record of resistance to the relevant disease. For specific information on resistance management, contact the registration holder of this product.

#### **USE RESTRICTIONS**

- The uptake and activity of systemic compounds can be reduced when crops are under severe drought and/or nutrient stress conditions. Therefore do not apply **PENDULUM** under such conditions.
- Spray programmes with **PENDULUM** should commence before weeds become established.
- Do not apply **PENDULUM** to any crop or situation not mentioned in this instruction leaflet.
- 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. Meridian Agrochemical Company (Pty) Ltd accepts no responsibility for any negative effects experienced if the instructions on this label are not adhered to, unless a Meridian representative was consulted beforehand.
- Only apply **PENDULUM** using an accurate and safe application technique.
- If **PENDULUM** is used in a tank mix with other recommended products, consideration should be given to the restrictions of those respective products.

#### **DIRECTIONS FOR USE**

**Use only as directed.**

#### **MIXING INSTRUCTIONS**

- **PENDULUM alone:**  
Half-fill the spray tank with suitable water, then add the required amount of

**PENDULUM** to the water in the tank while agitating. Fill the spray tank to the desired volume. Do not use brackish water. **Tank mixtures must be sprayed out immediately and not allowed to stand in the spray tank.** Spraying equipment must be thoroughly flushed out at the end of the spraying operation.

- **PENDULUM** in tank mixture with **Diuron 80WG**: Half-fill the spray tank with suitable water. Premix the required amount of **Diuron 80WG** in at least 10 l of water to make a slurry, and then add the required amount of the premixed **Diuron 80WG** to the water in the tank while agitating. Once the **Diuron 80WG** is completely mixed, add the required quantity of **PENDULUM** while agitating continuously. Fill the spray tank to the desired volume. Do not use brackish water. **Tank mixtures must be sprayed out immediately and not allowed to stand in the spray tank.** Spraying equipment must be thoroughly flushed out at the end of the spraying operation.

## COMPATIBILITY

The compatibility of **PENDULUM** with products other than **Diuron 80WG** is not known. The compatibility of **PENDULUM** with other products depends on the formulations of the respective products as well as the quality of the spray water to be used. As formulations change from time to time it is recommended that a physical compatibility test be done prior to the tank mixture being made. Should tank mixtures with other products be made, follow the respective manufacturers' label recommendations. Only registered mixtures may be used.

## APPLICATION METHODS

Ensure that the equipment is correctly calibrated and is checked regularly during application to ensure even and accurate application. **PENDULUM** must be applied to a well-prepared soil which is relatively free of clods. Good tilth, and free of weeds and stalks of the previous crop. Apply **PENDULUM** in sufficient water to ensure good spray coverage prior to incorporation and planting the crop. In the case of tobacco, application must be carried out before transplanting.

## GROUND APPLICATION

**PENDULUM** can be applied with conventional tractor boom sprayers in 150 – 250 l water/ha. Use flat fan nozzles. **Constant agitation throughout the spray operation is essential.** Only clean water should be used.

## 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 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 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 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 aurally at a lower volume rate than recommended.
- A droplet coverage of 20 – 30 droplets per square cm must be recovered at the target.
- A droplet spectrum with a VMD of 350 – 400 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 using 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) and/or high humidity conditions as this may cause:
  - i. Reduced efficacy due to suspension and evaporation of small droplets in the air (Which leads to inadequate coverage).
  - ii. Damage to other sensitive crops and/or non-target areas through drifting of the spray cloud away from the targeted 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.**

### Method of Incorporation:

For sunflowers, groundnuts, kidney- and field bean, dry beans and soybeans, **PENDULUM** must always be mechanically incorporated before seeding and within 5 days of application.

The best results will be obtained if the incorporation is carried out within 24 hours of **PENDULUM** application. The control will be negatively affected if soil practices had to be carried out after **PENDULUM** has been applied and it is deeper than the earlier incorporation.

- a) **Mechanical incorporation: PENDULUM** should be thoroughly mixed into the upper 5 cm of the soil. This may be done by using a tandem disc or rotary hoe which should be correctly adjusted and operated. Tandem discs should be set to a tillage depth of 7 to 10 cm at 6 to 10 km / hour and the field should be cross disked. Rotary hoes should be set to a tillage depth of 5 cm, operated at 5 to 6 km / hour in one direction only.
- b) **Water incorporation: FOR USE ONLY IN COTTON, SUGARCANE AND TRANSPLANTED TOBACCO.** (See under **RECOMMENDATIONS**).

The period of grass weed control obtained with **PENDULUM** herbicide will be shorter than that obtained by mechanical incorporation.

### RECOMMENDATIONS

#### Sugarcane:

% CLAY	APPLICATION RATE (ℓ / ha)
0-20	Not recommended
> 20	4.0 ℓ
	4.0 ℓ + 2.5kg <b>Diuron 80WG</b> (For the control of <i>Rottboellia cochinchinensis</i> )

#### Crops other than Sugarcane:

% CLAY	APPLICATION RATE (ℓ / ha)
5-20	2.0 (1.3 LR*)
21 - 35	3.0 (2.0 LR*)
36 – 50	4.0 (2.6 LR*)

\*LR: The lower rates are only to be used where **PENDULUM** is mechanically incorporated and for the control of annual grasses only is required. **Do not apply the lower rates by air.**

See remarks below

REMARKS

CROP	
Sugarcane	See <b>NOTES</b> (Sugarcane below)
Sugarcane For <i>Rottboellia cochinchinensis</i>	
Sunflowers Groundnuts (Spanish type) Dry beans ( <i>Phaseolus spp.</i> )	After incorporation of <b>PENDULUM</b> , seeding can be done immediately and should be done as soon as possible in order to obtain optimal efficacy and a maximum period of weed
Kidney beans Soyabeans	control. If it is necessary to cultivate following application and incorporation, either before or after planting, do not work the soil deeper than the depth to which the <b>PENDULUM</b> was incorporated, or weed control will be negatively affected.
Potatoes	Apply <b>PENDULUM</b> after planting to the levelled soil or premade ridges and incorporate mechanically. Use <b>only</b> Van der Plank, Up-to-Date and BP 1 cultivars. Avoid contact of the tubers with the treated soil.
Cotton	<b>Mechanical incorporation:</b> Transplanting can commence after <b>PENDULUM</b> has been incorporated into the un-ridged soil as for the above crops. When planting in ridges, the ridges must first be prepared, then the herbicide must be applied and incorporated before planting.  <b>Water incorporation:</b> Incorporation by means of 20-50 mm sprinkler irrigation must be carried out after the cotton has been planted and <b>PENDULUM</b> has been applied.
Transplanted tobacco	<b>Mechanical incorporation:</b> Planting can commence after <b>PENDULUM</b> has been incorporated in the un-ridged soil or pre-made ridges. When transplanting, the tobacco roots should be placed under the <b>PENDULUM</b> treated soil layer. Do not use tobacco seedlings grown in seed trays or plants with pruned roots.  <b>Water incorporation:</b> Incorporation of <b>PENDULUM</b> by means of a sprinkler irrigation must be carried out <b>before transplanting</b> by applying 20-50 mm irrigation. Do not prepare planting holes before applying <b>PENDULUM</b> , but rather afterwards.

**NOTE: Sugarcane**

- a. Apply **PENDULUM** pre-emergence to weeds.
- b. Apply to plant cane within 2 days of planting or to ratoon cane within 7 days of cutting.
- c. Water incorporation: For good control of *Rottboellia cochinchinensis* it is **CRITICAL** that incorporation of the herbicide by means of 20 to 50 mm sprinkler irrigation must be carried out as soon as possible after the herbicide application, and definitely within 3 days of application.
- d. Apply **Diuron 80WG** in a tank mixture with **PENDULUM** where improved control of a broader weed spectrum is desired, see the **Diuron 80WG** label for the weeds controlled.

- e. When tank mixing **Diuron 80WG** with **PENDULUM**, the directions, restrictions and warnings on the **Diuron 80WG** label must be complied with.
- f. Refer back to Notes (a), (b) and (c) above. It is important to note that if weeds are already emerged, or if the specified application timing is not adhered to, or if dry conditions are allowed to prevail then only partial weed control may be achieved.

**WEEDS SPECIES NORMALLY CONTROLLED BY PENDULUM WHEN APPLIED AT THE RECOMMENDED APPLICATION RATE:**

**Annual Grass Weeds.**

<i>Brachiaria brizantha</i>	Signal grass
<i>Digitaria sanguinalis</i>	Crab finger grass
<i>Echinochloa crus-galli</i>	Barnyard grass
<i>Eleusine indica</i>	Goosegrass
<i>Panicum schinzii</i>	Sweet buffalo grass
<i>Panicum maximum</i>	Common buffalo grass
<i>Rottboellia cochinchinensis</i>	Guinea fowl grass
<i>Setaria verticillata</i>	Sticky bristlegrass
<i>Urochloa panicoides</i>	Herringbone grass
<i>Amaranthus hybridus</i>	Common pigweed
<i>Portulaca oleracea</i>	Purslane

**NOTE**

- At the lower rates, the above mentioned annual grasses will be controlled, but variable control of the annual broadleaf weeds will be obtained.
- **Follow-up crops:**  
Do not plant or replant any crop other than Cotton, Soyabeans, Groundnuts, Beans (*Phaseolus* spp.) or Sunflowers for a period of one year after application of **PENDULUM**. Tobacco may be replanted at any time after a **PENDULUM** herbicide application, provided that the soil is not reworked.

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

## WAARSKUWINGS

- **Vlambaar** – Hou weg van hitte, oop vlamme en enige bronne van ontsteking.
- Hanteer versigtig.
- Skadelik indien ingesluk. Indien ingesluk moet nie braking veroorsaak nie. **Skakel 'n geneesheer onmiddellik.**
- Stoor agter slot en grendel weg van voedsel en voere.
- Stoor in die oorspronklike houer in 'n koel, droë, goed geventileerde aparte area weg van enige oksideerders
- Moet nie stoor onder 4 grade Celsius nie.
- Veroorsaak oog sowel as vel irritasie.
- Matig giftig vir voëls en wild.
- Giftig vir vis en akwatiese organismes.
- **Her-betreding** – Moet nie behandelde area binne 1 dag na toediening betree nie behalwe as daar beskermde klere gedra word.
- **Lugtoediening:** Stel alle inwoners in die omliggende omgewing in kennis dat die area behandel gaan word en reik die nodige waarskuwings uit. Moet nie bo- oor spuit, of enige drywing toelaat wat water en aangrensende areas besoedel of besmet nie.
- Hou buite bereik van kinders, oningeligte persone en diere.
- **PENDULUM** is getoets op die mees belangrikste kommersiële kultuivars met geen voldoende fito-toksiseits effekte nie. Meer vatbare kultuivars kan in die toekoms beskikbaar gestel word wat getoets moet word. Om hierdie rede moet **PENDULUM** op 'n beperkte area getoets word alvorens kommersiële toedienings gemaak word.

**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.**

## VOOSORGMATREËLS

- Moet nie die dampe of spuitmis inasem nie.
- Was met seep en water na gebruik en toevallige velkontak sowel as gekontamineerde klere.
- Voorkom vel- en oogkontak deur beskermde klere te dra wanneer die produk vermeng word.
- Indien oogkontak sou plaasvind, spoel vir ten minste 15 minute met groot volumes skoon water en verkry mediese hulp indien moontlik.
- Verhoed die wegdrywing van die sproei na ander gewasse, weidings, riviere, damme en areas wat nie onder behandeling is nie.
- Was gekontamineerde klere na gebruik.
- Moet nie eet, drink of rook terwyl die produk vermeng of toegedien word of voordat hande en die gesig gewas word nie.
- Voorkom die kontaminasie van voedsel, voere, drinkwater en eetgerei.
- Spoel die leë houer drie keer met 'n volume water gelyk of minimum van 10% van daardie houer uit. Voeg die spoelwater by die inhoud van die spuittenk voordat die leë houer vernietig word. Vernietig die leë houer deur dit te perforeer en plat te druk.
- Moet nie die leë houer vir enige ander doel gebruik nie. Beskik oor die houer op 'n veilige manier.

## SIMPTOME VAN MENSLIKE VERGIFTIGING

Hoof simptome van akute intoksifikasie is:

Inname:	Mag naarheid, braking, diarreëa en geïrriteerde gastritis in die maag veroorsaak
Inaseming:	Mag irritasie veroorsaak
Velkontak:	Mag irritasie veroorsaak
Oogkontak:	Mag irritasie veroorsaak



### NOODHULP BEHANDELING

Moet geen vloeistowwe gee of braking veroorsaak indien die pasiënt bewusteloos is of stuiptrekkings het nie.

- INNAME: Behandel die simptome en ondersteunend. Indien braking voorkom hou die kop laer as die heupe om aspirasie te voorkom. **Kry onmiddellik mediese aandag.**
- OOG: Was onmiddellik uit met groot volumes water. Indien irritasie voorkom moet 'n geneesheer geraadpleeg word.
- VEL: Verwyder besmette klere. Was onmiddellik die geaffekteerde area met seep en groot volumes water. Indien irritasie voortduur raadpleeg 'n geneesheer.
- INASEMING: Skuif die pasiënt onmiddellik na vars lug. Behandel respiratoriese probleem deur kunsmatige mond-tot-mond asemhaling. **Verkry onmiddellik mediese hulp.**

### NOTA AAN DIE GENEESHEER

Daar is nie 'n spesifieke teenmiddel nie.  
Behandel simptome en ondersteunend in reaksie van die pasiënt.

### WEERSTANDSWAARSKUWING

Vir weerstandsbestuur, is **PENDULUM** 'n groepkode k1 onkruidodder. Enige onkruidpopulasie mag sekere individue bevat wat natuurlik weerstandbiedend is teen **PENDULUM** en ander groepkode k1 onkruidodders. Die weerstandbiedende individue kan aanvanklik die onkruidpopulasie domineer indien hierdie tipe onkruidodders herhaaldelik gebruik word. Hierdie weerstandbiedende onkruid mag nie deur **PENDULUM** of enige ander groepkode k1 beheer word nie.

#### Om onkruidodder weerstand te vertraag:

- Verhoed die herhaaldelike gebruik van onkruidodders van dieselfde onkruidoddergroep. Wissel af of meng die tenk met geregistreerde produkte van verskillende onkruidodder groepcodes.
- 'n Spuitprogram van mengsels of afwisseling met middels met 'n ander metode van werking mag opbouende weerstandbiedendheid strem.
- Integreer ander beheermetodes (chemies, meganies en biologies) in die onkruidbeheerprogramme in.

Vanweë die feit dat weerstand nie voorspel kan word nie, word gebruikers versoek om die gewasse noukeurig dop te hou onder observasie. Indien die behandeling nie effektief is na die gebruik van **PENDULUM** soos aanbeveel nie, mag weerstandbiedendheid teenwoordig wees. Indien weerstandbiedendheid positief geïdentifiseer word, moet oorweging geskenk word daaraan om onmiddellik gebruik te maak van 'n onkruidodder met 'n verskillende metode van werking waarvan daar geen rekord is van weerstand tot die relevante siekte nie. Vir spesifieke inligting rakende weerstandsbestuur, kontak die registrasiehouer van die produk.

### GBRUIKSBEPERKINGS

- Die opname en aktiwiteit van sistemiese samestellings kan verminder word wanneer gewasse onder droogte stres of voedingstekorte is. Daarom moet **PENDULUM** nie onder die omstandighede toegedien word nie.
- Spuitprogramme met **PENDULUM** moet voortgaan voordat onkruid gevestig word.
- Moet nie **PENDULUM** op enige gewas of situasie toedien wat nie in die instruksie brosjure vervat is nie.
- Moet nie hierdie produk in kombinasie toedien of in situasie met enige ander produk of landbou remedie wat nie spesifiek op die etiket gelys is nie. Meridian

Agrochemical Company (Pty) Ltd. aanvaar geen verantwoordelikheid vir negatiewe resultate wat ervaar mag word omdat die instruksies nie op die etiket nagekom is nie, behalwe as 'n Meridian verteenwoordiger vooraf gekonsulteer was.

- Dien **PENDULUM** toe deur gebruik te maak van 'n akkurate en veilige toedieningstechniek.
- Indien **PENDULUM** in tenkmengsel saam met ander aanbevole produkte in tenkmengsel gebruik word, moet oorweging geskenk word aan die beperkings van sodanige produkte.

## **GEBRUIKSAANWYSINGS**

**Gebruik slegs soos aangedui.**

## **MENGINSTRUKSIES**

- **PENDULUM alleen:**  
Vul die spuittenk half met voldoende water, voeg die vereiste volume van **PENDULUM** tot die tenkmengsel terwyl die mengsel geroer word. Vul die spuittenk tot die verlangde volume. Moet nie brakwater gebruik nie. Tenkmengsels moet onmiddellik uitgespuit word en nie toegelaat word om in die spuittenk oor te staan nie. Spuittoerusting moet deeglik uitgespoel en afgespoel word aan die einde van elke spuitoperasie.
- **PENDULUM in tenkmengsel met Diuron 80WG:**  
Vul die tenk half met voldoende water. Verroom die verlangde volume **Diuron 80WG** in ten minste 10 liter water en meng tot dit 'n dik emulsie vorm, voeg dan die voldoende vooraf mengsel **Diuron 80WG** in die tenk terwyl die tenk geroer word. Wanneer die **Diuron 80WG** deeglik gemeng is, voeg die vereiste volume **PENDULUM** by terwyl die mengsel deurlopend geroer word. Vul die tenk tot die verlangde volume. Moet nie brakwater gebruik nie. Tenkmengsels moet onmiddellik uitgespuit word en nie toegelaat word om oor te staan in die spuittenk nie. Spuittoerusting moet deeglik afgespoel en uitgespoel word aan die einde van elke spuitsessie.

## **MENGBAARHEID**

Die mengbaarheid van **PENDULUM** met ander produkte behalwe **Diuron 80WG** is nie bekend nie. Die mengbaarheid van **PENDULUM** met ander produkte hang af van die formulasies van die betrokke produkte en die gehalte van die spuitwater wat gebruik word. Soos wat formulasies van tyd tot tyd verander word dit aanbeveel dat 'n fisiese mengbaarheidstoets gedoen word voordat die tenkmengsel aangemaak word. Indien tenkmengsels met ander produkte gemaak word, moet die betrokke vervaardiger se etiket aanbevelings noukeuring gevolg word. Slegs geregistreerde produkte mag gebruik word.

## **TOEDIENINGSMETODES**

Verseker dat die toerusting korrek gekalibreer is en moet gekontroleer word tydens gebruik om akkurate toediening te verseker. **PENDULUM** moet toegedien word op 'n goed voorbereide grond wat relatief vry is van enige klonte. Goeie tekstuur en vry van enige onkruid en stoppels van die vorige gewas is noodsaaklik. Dien **PENDULUM** toe in voldoende water om sodoende goeie spuitdekking vooraf te verkry voordat die gewas geplant en gevestig word. In die geval van tabak, moet toediening plaasvind voordat oorplanting plaasvind.

## **GRONDTOEDIENING**

**PENDULUM** kan toegedien word met 'n konvensionele spuittoerusting in 150 – 250 l water per hektaar. Gebruik platwaaier spuitkoppe. Konstante roering deur die hele spuitproses is van kardinale belang. Slegs skoon water moet gebruik word.

## **LUGTOEDIENING**

Lugtoediening mag slegs gedoen word deur 'n geregistreerde lugtoedieningsoperateur wat gebruik maak van 'n korrekte gekalibreerde vliegtuig in ooreenspreking met die instruksies soos vervat in die SANS kode 10118 (Aerial Application of Agricultural Remedies). Dit is belangrik om te verseker dat die spuitmengsel eweredig oor die teikenarea versprei en dat spuitmateriaal verliese tydens die toedieningsproses tot 'n minimum beperk word. Dit is dus van kardinale belang dat die volgende kriteria gevolg word:

### **Toerusting**

- Gebruik gepaste atomiserings toerusting wat die verlangde druppelgrootte en dekking oor die teiken gebied wat die minimum verlies d.m.v wegdrywing van die spuitmengsel sal verseker.
- Die operateur moet 'n spuitstelsel gebruik wat 'n druppelspektrum met die kleinste relatiewe span sal produseer.
- Alle spuitkoppe en atomiseerders moet 60 – 75% geposisioneer word binne die vlerkspan om sodoende die druppels te verhoed om die vlerkvorteks binne te dring.

### **Toedieningsvereistes**

- 'n Minimum volume van 30 l mengsel per hektaar word aanbeveel. Aangesien die produk nog nie ge-evalueer is teen 'n verlaagde volume nie, kan die registrasiehouer nie die effektiwiteit waarborg of verantwoordelik gehou word vir enige nuwe effek indien die produk teen laer volume tydens lugtoediening gespuit word nie.
- 'n Druppelgrootte dekking van 20 – 30 druppels per vierkante sentimeter moet herwin word by die teiken.
- 'n Druppelgrootte spektrum met 'n VMD van 350 – 400 mikrons word aanbeveel. Verseker dat die produksie van druppelgroottes, met 'n VMD van minder as 150 mikrons word tot minimum beperk.
- Die hoogte van die spuitbalk moet gehandhaaf word tussen 3 en 4 meter bokant die teiken gebied.
- Moet nie spuit wanneer die vliegtuig aan bopunt van 'n draai is of tydens 'n duik of terwyl dit uitklim of draai nie.

### **Meteorologiese Toestande**

- Die verskil tussen die nat- en droëbollesing, soos 'n swaai-higrometer bepaal, moet nie 8 grade oorskry nie.
- Moenie toedien tydens turbulente en onstabiele weerstoestande of gedurende die hitte van die dag nie wanneer stygende en dalende konveksie windbeweging plaasvind nie.
- Moenie toedien onder temperatuur inversie toestande (deur bo of binne die inversie laag te spuit) nie want dit kan veroorsaak:
  - (i) Verminder die effektiwiteit vanweë suspensie en verdamping van klein druppels in die lug (wat kan lei tot onvoldoende dekking).
  - (ii) (Beskadiging van sensitiewe gewasse en/ of nie-teiken areas deur wegdrywing van die spuitwolk weg van die teiken area. □ Moenie spuit indien die windspoed 15km per uur oorskry nie.

### **Algemeen**

- Verseker dat die velde akkuraat gemerk is en dat die lug bespuitingsoperateur presies weet watter velde om te spuit.
- **Verkry die versekering van die lugspuitoperateur dat hy/sy aan die bogenoemde vereistes sal voldoen.**

### **Metode van inwerkingstelling**

Vir sonneblomme, grondbone, nier- en veldbone, droëbone en sojabone, moet **PENDULUM** meganies ge-inkorporeer word voor saai en binne 5 dae na toediening. Die beste resultate sal verkry word indien die inkorporering uitgevoer word binne 24uur van die **PENDULUM** toediening. Die toediening sal negatief beïnvloed word indien grond praktyke (voorbereiding) sou plaasvind nadat **PENDULUM** toegedien is en dit is dieper as die vorige bewerking.

**a) Meganiese inwerking: PENDULUM** moet deeglik vermeng word binne die boonste grondbolaag van 5cm. Dit kan gedoen word deur gebruik te maak van 'n tandem skottelploeg of rolkapploeg wat korrek gestel en gebruik word. Tandem skottelploeg moet gestel word tot 'n bewerkings diepte van 7 tot 10cm teen 6 tot 10km/ uur en die veld moet kruis gedisc word. Rolkap ploë moet gestel word op 'n bewerkingsdiepte van 5cm teen 'n spoed van 5 tot 6km/uur in een rigting alleenlik.

**b) Water inwerking: VIR GEBRUIK IN KATOEN, SUIKERRIET EN OORGEPLANTE TABAK (Sien onder AANBEVELINGS)**

Die periode van grasonkruidbeheer verkry deur **PENDULUM** onkruiddoder sal korter wees as wat verkry sal word deur meganiese bewerking.

## AANBEVELINGS

### Suikerriet:

% KLEI	DOSIS (ℓ / ha)
0-20	Nie aanbeveel nie
>20	4.0 ℓ
	4.0 ℓ + 2.5kg Diuron 80WG (Vir beheer van <i>Rottboellia conchinchinensis</i> )

### Gewasse behalwe

% KLEI	DOSIS (ℓ / ha)
5-20	2.0 (1.3 LR*)
21-35	3.0 (2.0 LR*)
36-50	4.0 (2.6 LR*)

\*LR: Laer dosisse moet slegs gebruik word waar **Pendulum** meganies ingewerk word en vir die beheer van jaarlikse grasse alleenlik, word vereis. **Moet nie die laer volumes toedien deur lugtoediening nie.**

Sien opmerkings hieronder

### OPMERKINGS

GEWAS	
Suikerriet	
Suikerriet <i>Vir Rottboellia conchinchinensis</i>	Sien <b>NOTAS</b> (Suikerriet hieronder)
Sonneblomme Grondneute (Spaanse tipe) Droëbone ( <i>Phaseolus spp.</i> ) Nierbone Sojabone	Na die inkorporering van <b>PENDULUM</b> , kan saai onmiddellik plaasvind en moet gedoen word so gou moontlik om optimale effektiwiteit en maksimum periode van onkruidbeheer te verkry. Indien dit nodig is om te bewerk na die inkorporing ieder geval voor of na plant, moet nie die grond dieper bewerk as die diepte wat die <b>PENDULUM</b> toegedien is nie, anders sal onkruidbeheer negatief geaffekteer word.
Aartappels	Dien <b>PENDULUM</b> toe na plant op die eweredige grondoppervlakte of op die vooraf gemaakte rante en inkorporeer meganies. Gebruik slegs Van der Plank, Up-to-Date en BP 1 kultivars. Verhoed kontak van die moere met die behandelde grond.

<p><b>Katoen</b></p>	<p><b>Meganiese inwerking:</b> Oorplanting kan voortgaan nadat <b>PENDULUM</b> ingewerk is in nie-gerante grond soos vir bogenoemde gewasse. Wanneer daar in rante geplant word, dan moet die onkruidodder toegedoen en ingewerk word voor plant.</p> <p><b>Water inwerking:</b> Inwerking van by wyse van 20-50 mm sprinkel besproeiing moet uitgevoer word nadat die katoen geplant is en die <b>PENDULUM</b> toegedien is.</p>
<p><b>Tabak oorgeplant</b></p>	<p><b>Meganiese inwerking:</b> Die plantproses kan begin sodra <b>PENDULUM</b> in die ongerante of vooraf gemaakte grond ingewerk is. Wanneer daar oorgeplant word, moet die tabak wortels onder die <b>PENDULUM</b> behandelde grondlaag geplaas word. Moet nie tabak saailinge gebruik wat in die saadlaaie gegroei of plante met gesnoei wortels nie.</p> <p><b>Water inwerking:</b> Die inwerk van <b>PENDULUM</b> by wyse van 'n besproeiingstelsel moet uitgevoer word voor</p>
	<p>oorplanting deur die toediening van 20 – 50 mm besproeiing. Moet nie die plantjies se gaatjies voorberei alvorens <b>PENDULUM</b> nie toegedien is nie, maar liever na die tyd.</p>

**NOTA: Suikerriet**

- a. Dien **PENDULUM** toe as voor-opkoms op onkruid.
- b. Dien toe op Plantriet binne 2 dae na plant of op ratoen riet binne 7 dae van sny.
- c. Water inwerking: Vir goeie beheer van *Rottboellia cochinchinensis* is dit **KRITIES** dat die inwerking van die onkruidodder by wyse van 20 tot 50 mm besproeiing moet uitgevoer word so vinnig as moontlik na die onkruidodder toediening, en definitief binne 3 dae na toediening.
- d. Dien **Diuron 80WG** in tenkmengsel met **PENDULUM** wanneer verbeterde beheer van 'n wyer onkruidspektrum verlang word, sien **Diuron 80WG** etiket vir onkruidbeheer.
- e. Wanneer 'n tenk gemeng word met **Diuron 80WG** en **PENDULUM**, moet die rigting, beperkings en waarskuwings op die **Diuron 80WG** moet eerbiedig word.
- f. Verwys terug na notas (a), (b) en (c) hierbo. Dit is belangrik om daarop te let dat onkruid wat reeds opgekom het, of as die gespesifiseerde toedieningstyd nie nagekom word nie, of as droog toestande toegelaat word om voort te duur, sal slegs gedeeltelike onkruidbeheer bereik word.

**ONKRUIDSPESIES NORMAALWEG BEHEER DEUR PENDULUM WANNEER TOEGEDIEN TEEN DIE KORREKTE DOSIS:**

<i>Brachiaria brizantha</i>	Sinjaalgras
<i>Digitaria sanguinalis</i>	Kruisvingergras
<i>Echinochloa crusgalli</i>	Hanepootmanna
<i>Eleusine indica</i>	Jongosgras
<i>Panicum schinzii</i>	Soet Buffelsgras
<i>Panicum maximum</i>	Gewone Buffelsgras
<i>Rottboellia conchinchinensis</i>	Tarentaalgras

<i>Setaria verticillata</i>	Klitsborselgras
<i>Urochloa panicoides</i>	Beesgras
<i>Amaranthus hybridus</i>	Gewone misbredie
<i>Portulaca oleracea</i>	Porslein

**NOTA**

- By die laer dosis, sal die bogenoemde eenjarige grasse beheer word, maar wisselvallige beheer van die eenjarige breëblaaronkruid sal verkry word.
- **Opvolggewasse:**  
 Moet nie plant of enige ander gewas as Katoen, Sojabone, Grondbone, Bone (*Phaseolus* spp.) of Sonneblomme vir 'n tydperk van een jaar na toediening van **PENDULUM**. Tabak kan herplant word te eniger tyd na 'n **PENDULUM** onkruidodder toediening, op voorwaarde dat die grond nie verwerk word nie.

Die registrasiehouer neem geen verantwoordelikheid aan, vir onkruid wat nie gelys is nie.