

# TRI-FORM™ 60



## Soil Fumigant / Grondberokingsmiddel

Reg. No. / Nr. L9839 Act No. 36 of 1947 / Wet Nr. 36 van 1947

READ THE LABEL BEFORE USE / LEES DIE ETIKET VOOR GEBRUIK

KEEP OUT OF REACH OF CHILDREN AND ANIMALS / HOU BUITE BEREIK VAN KINDERS EN DIERE

GROUP	3	11	FUNGICIDES
<b>Tri-Form 60</b> is a ready-to-use broad spectrum liquid soil fumigant for the pre-plant treatment of soil to control soil-borne pests. <b>FOR USE BY REGISTERED PEST CONTROL OPERATORS ONLY.</b>	<b>Tri-Form 60</b> is 'n gereed-vir-gebruik, breëspektrum, vloeibare grondberokingsmiddel vir die voor-plant behandeling van grond om grondgedraagte peste te beheer. <b>SLEGS VIR GEBRUIK DEUR GEREGISTREERDE PLAAGBEHEEROPERATEURS.</b>		

<p style="text-align: center;"><b>SIGNAL WORD:</b></p> <h2 style="text-align: center; margin: 0;">DANGER</h2> <p style="text-align: center; margin-top: 20px;"><b>GHS CLASSIFICATION FOR PRODUCT:</b></p> <div style="text-align: center; margin: 10px 0;">  </div> <p style="text-align: center; margin-top: 20px;"><b>ADDITIONAL GHS CLASSIFICATION FOR PRODUCT WHEN IT IS UNDER PRESSURE IN CYLINDER:</b></p> <div style="text-align: center; margin: 10px 0;">  </div>	<p><b>GHS HAZARD STATEMENTS:</b></p> <ul style="list-style-type: none"> <li>○ Flammable liquid and vapour.</li> <li>○ Fatal if inhaled.</li> <li>○ Toxic if swallowed or in contact with skin.</li> <li>○ Causes severe skin burns and eye damage.</li> <li>○ Causes serious eye irritation. [vapour contact]</li> <li>○ May cause an allergic skin reaction.</li> <li>○ Suspected of causing cancer by the oral route.</li> <li>○ Causes damage to the respiratory system and hemal system by inhalation.</li> <li>○ Causes damage to organs through prolonged or repeated exposure.</li> <li>○ May be fatal if swallowed and enters airways.</li> <li>○ Very toxic to aquatic life with long lasting effects.</li> </ul> <p><b>ADDITIONAL GHS HAZARD STATEMENT WHEN PRODUCT IS UNDER PRESSURE IN CYLINDER:</b></p> <ul style="list-style-type: none"> <li>○ Flammable chemical under pressure: May explode if heated.</li> </ul> <p><b>GHS PRECAUTIONARY STATEMENTS:</b></p> <p><b>PREVENTION</b></p> <ul style="list-style-type: none"> <li>○ Obtain, read, and follow all safety instructions before use.</li> <li>○ Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.</li> <li>○ Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use non-sparking tools. Take action to prevent static discharges.</li> <li>○ Do not breathe gas or vapours.</li> <li>○ Do not get in eyes, on skin, or on clothing.</li> <li>○ Wash hands and face thoroughly after handling. Do not touch eyes.</li> <li>○ Do not eat, drink, or smoke when using this product.</li> <li>○ Use only outdoors or in a well-ventilated area.</li> <li>○ Contaminated work clothing should not be allowed out of the workplace.</li> <li>○ Wear protective gloves, protective clothing, and eye protection.</li> <li>○ In case of inadequate ventilation, wear respiratory protection.</li> <li>○ Avoid release to the environment, [except for intended use].</li> </ul> <p><b>RESPONSE</b></p> <ul style="list-style-type: none"> <li>○ <b>IF INHALED:</b> Remove person to fresh air and keep comfortable for breathing. Get emergency medical help immediately.</li> </ul>
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	<ul style="list-style-type: none"> <li>○ <b>IF IN EYES:</b> Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get emergency medical help immediately [for liquid contact]. [For vapour contact], if eye irritation persists, get medical help.</li> <li>○ <b>IF ON SKIN (or hair):</b> Take off immediately all contaminated clothing. Immediately rinse with water for several minutes. Get emergency medical help immediately.</li> <li>○ <b>IF SWALLOWED:</b> Get emergency medical help immediately. [Dab material from mouth with dry cloth first, if possible.] Rinse mouth. Do NOT induce vomiting.</li> <li>○ <b>IF exposed or concerned:</b> Get emergency medical help immediately.</li> <li>○ Get medical advice if you feel unwell.</li> <li>○ If skin irritation or rash occurs: Get medical help.</li> <li>○ Wash contaminated clothing before reuse.</li> <li>○ In case of fire: Use dry chemical or alcohol-resistant foam to extinguish.</li> </ul> <p><b><u>STORAGE</u></b></p> <ul style="list-style-type: none"> <li>○ Store in a well-ventilated place.</li> <li>○ Keep container tightly closed.</li> <li>○ Keep cool.</li> <li>○ Store locked up.</li> </ul> <p><b><u>DISPOSAL</u></b></p> <ul style="list-style-type: none"> <li>○ Collect spillage.</li> <li>○ Dispose of contents and container in accordance with government regulations.</li> </ul> <p><b>ADDITIONAL PRECAUTIONARY STATEMENTS FOR PRODUCT WHEN IT IS UNDER PRESSURE IN CYLINDER</b></p> <ul style="list-style-type: none"> <li>○ [Closed cylinders may rupture or burst if heated by fire.]</li> <li>○ Store away from combustible materials.</li> <li>○ Do not spray on an open flame or other ignition source.</li> <li>○ In case of leakage, eliminate all ignition sources. Stop leak if safe to do so.</li> <li>○ In case of fire: Evacuate area. Fight fire remotely [due to the risk of cylinder rupture].</li> </ul>
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**ACTIVE INGREDIENTS / AKTIEWE BESTANDDELE:**

**Chloropicrin / Chloropikrien (trichloronitromethane / trichloronitrometaan).....596 g/kg**  
**1,3-Dichloropropene / 1,3-Dichloropropen ..... 390 g/kg**

**Net mass / Netto massa: ..... (80, 90 140, 280, 600) kg**



**Trical Crop Protection Africa (Pty) Ltd**

Mpy. Reg. No. / Nr. 2011/130873/07

P.O. BOX 46036

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REPUBLIC OF SOUTH AFRICA

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Batch No.: .....

Lot Nr.: .....

Date of Manufacture: .....

Datum van Vervaardiging: .....

**UN No. / VN Nr. : 3489**

**IN CASE OF POISONING, CALL THE FOLLOWING NUMBER (24/7): 0861-555-777**  
**IN GEVAL VAN VERGIFTIGING, SKAKEL DIE VOLGENDE NOMMER (24/7): 0861-555-777**

**EMERGENCY NUMBER (For Chemical Emergency—Spill, Leak, Fire, Exposure, or Accident):**

**CHEMTREC: 0-800-983-611 (24 hours)**

**NOODNOMMER (Vir Chemiese Noodgevalle--Storting, Lekkasie, Brand, Blootstelling, of Ongeluk):**

**CHEMTREC: 0-800-983-611 (24 uur)**

**ADDITIONAL PRECAUTIONS:**

- This fumigant is a highly hazardous material and must be handled with care by persons wearing the proper protective clothing and equipment, including a face shield.
- If a handler/applicator experiences sensory irritation (tearing or burning of the eyes or nose), an approved respirator must be worn.
- Never use mouth to blow out clogged lines, nozzles, etc.
- DO NOT use containers or application equipment made of copper, magnesium, aluminium, or their alloys, as this fumigant may be corrosive to such metals.
- DO NOT use water to clean equipment; use diesel oil.

**SYMPTOMS OF HUMAN POISONING:**

Early symptoms of overexposure are lachrymation, respiratory distress, and vomiting. Pulmonary edema may develop later.

**FIRST AID TREATMENT:** See **RESPONSE** section.

**NOTES TO PHYSICIAN:** No specific antidote known. Treat symptomatically. Vomiting may cause aspiration pneumonia.

**DISCLAIMER: 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 PESTS AGAINST THE REMEDY CONCERNED, AS WELL AS BY THE METHOD, TIME AND ACCURACY OF APPLICATION. THE REGISTRATION HOLDER FURTHERMORE DOES NOT ACCEPT RESPONSIBILITY FOR DAMAGE TO CROPS, VEGETATION, THE ENVIRONMENT, OR HARM TO MAN OR ANIMAL OR 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.**

**USE RESTRICTIONS:**

- DO NOT use when soil temperature is below 5°C.
- DO NOT use when soil temperature is above 30°C.
- DO NOT apply during unfavourable weather conditions. [Unfavourable weather conditions block upward movement of air, which results in trapping fumigant vapours near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist within an hour prior to sunset and continue past sunrise and may persist as late as noontime. Unfavourable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.]
- DO NOT fumigate when soil is very wet or very dry.
- DO NOT fumigate soils with greater than 25% clay content.
- DO NOT fumigate within 50 cm of roots of desirable vegetation.

- DO NOT plant or sow for at least 10 days after removal of polyethylene sheeting (plastic fumigation film), if used.
- DO NOT plant or sow if odour is present.
- RE-ENTRY INTERVAL – Entry by unauthorized persons into the application block is prohibited from the start of the application until 5 days after the application is complete

**MODE OF ACTION:** Direct toxicity to soil organisms, fungi, bacteria, insects and plants/seeds.

**DIRECTIONS FOR USE – Use only as directed.**

**SOIL PREPARATION:**

For best results, the area to be fumigated should be tilled to at a minimum the depth of application (20 to 50 cm). The surface should be generally free of large clods.

**SOIL MOISTURE:**

The soil should have sufficient moisture to support seed germination (50 to 75% available water capacity\*). Soil moisture can be adjusted by disking or ploughing before the start of the application. To conserve existing soil moisture, pre-treatment irrigation or pre-treatment tillage should be done as close to the start of the application as possible.

\*The USDA Feel and Appearance Method for estimating soil moisture as appropriate for the soil texture:

- For **coarse** textured soils (fine sand and loamy fine sand), the soil is moist enough (50 to 75% available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened colour, moderate water staining on fingers, will not ribbon.
- For **moderately coarse** textured soils (sandy loam and fine sandy loam), the soil is moist enough (50 to 75% available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened colour will not stick.
- For **medium** textured soils (sandy clay loam, loam, and silt loam), the soil is moist enough (50 to 75% available water capacity) to form a ball, very light staining on fingers, darkened colour, pliable, and forms a weak ribbon between the thumb and forefinger.
- For **fine** textured soils (clay, clay loam, and silty clay loam), the soil is moist enough (50 to 75% available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.
- For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. Whenever possible, the field should be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service agent, soil conservationist, or pest control advisor (agriculture consultant) should be consulted for assistance.

**APPLICATION METHODS AND EQUIPMENT:**

- Apply TRI-FORM 60 SOIL FUMIGANT via shank (chisel) injection rig or switch plough.
- Before fumigation, be sure that the application equipment is properly calibrated.
- For shallow (injection depth 20 to 40 cm) broadcast work, use a shank spacing of 25 to 30 cm.
- For deep-rooted plants, deep application is advisable. For deep applications (injection depth 40-45 cm), a shank spacing of up to 60 cm may be used; however, it is recommended that the shank spacing not exceed 45 cm.

**APPLICATION DEPTH:**

- Tarped bed and broadcast: The injection point should be a minimum of 20 cm from the nearest final soil/air interface (i.e., top of bed, for bed applications).
- Non-tarped bed: The injection point should be a minimum of 30 cm from the nearest final soil/air interface.

- Non-tarped broadcast: The injection point should be a minimum of 30 cm from the nearest final soil/air interface.
- Non-tarped deep broadcast: The injection point should be 40-45 cm from the nearest final soil/air interface.

#### **SOIL SEALING:**

Sealing the soil after application is very important. The soil should be sealed immediately after injection. There are various methods to seal the surface of the soil, as follows.

- For shallow (injection depth 20 to 40 cm) broadcast and/or wide-bed applications, the soil should be sealed with polyethylene sheeting (plastic fumigation film/tarp).
- For deep applications (injection depth 40-45 cm), seal with polyethylene sheeting or by means of a disk followed by a roller, cultipacker, or similar equipment.
- For row and/or narrow-bed applications, sealing can be accomplished with polyethylene sheeting or by use of a bed press, ring roller, or similar equipment.
- For Non-tarped applications, the soil surface should be capped with irrigation, by saturating the top 20 mm of soil with water. Repeated irrigation may be required during the treatment period, to reduce cracking of the soil cap.

#### **EXPOSURE PERIOD:**

If used, the polyethylene sheeting may be removed after 5 days. For all other seals, leave the soil undisturbed for 7 days before cultivating to aerate the soil. Cold and/or wet soil conditions will require a longer exposure period. Do not cultivate the soil if it is too wet for proper tillage.

#### **DAYS TO PLANTING:**

For applications where the soil has been sealed with polyethylene sheeting, do not plant for at least 10 days after the film has been removed. For all other seals, do not plant for 7 days after the initial cultivation. Longer aeration periods may be required if soils are wet, cold, or heavy (high clay/silt content).

For all applications, DO NOT PLANT if odour is present. If odour is present after the aeration period, it may be necessary to cultivate the soil multiple times before planting or sowing. Break the crust of the soil, if necessary, by cultivating with a clean implement, thus allowing the soil to aerate.

#### **FERTILIZATION:**

Fumigation may temporarily raise the level of ammonia nitrogen and soluble salts in the soil. To avoid ammonia injury and/or nitrate starvation to crops, avoid using fertilizers containing ammonia salts and use only fertilizers containing nitrates until after the crop is well established and the soil temperature is about 20 °C. Liming highly acid soils before fumigation stimulates nitrification and may also reduce the possibility of ammonia toxicity.

#### **RECONTAMINATION:**

- Avoid reinfestation of treated soil. Do not use transplants, tools, or crop remains infested with soil-borne plant parasitic pests and weed seeds. Clean application equipment carefully before and after use.
- Do not contaminate fumigated areas by walking from unfumigated to fumigated soil.
- If the treated area is in a location where flooding or washing is possible after rains, plough a furrow or make a trench around it for proper drainage.

**DOSAGE / RATE TABLE - TRI-FORM 60 SOIL FUMIGANT**

<b>CROP</b>	<b>PROBLEM / PEST</b>	<b>DOSAGE</b>	<b>REMARKS</b>
<b>ANNUAL CROPS</b> <b>Including:</b> Potatoes, Vegetables, and Tobacco	Soil-borne fungal diseases, including species of: <i>Verticillium</i> and <i>Fusarium</i> wilts <i>Pythium</i> <i>Phytophthora</i> <i>Sclerotium</i>	240 to 650 kg/ha	Pre-plant soil fumigation.  Use lower rates on lighter soils. (< 10% clay, such as sand or sandy loam)  Use higher rates on heavier soils. (10-25% clay, such as silt or clay loam)
<b>PERENNIAL CROPS</b> <b>Including:</b> Fruit Trees Strawberries	Bacterial wilts, including: <i>Streptomyces scabies</i> (Potato Scab) Wireworms Nematodes Insects		

**ADDITIONAL INSTRUCTIONS FOR CONTAINER STORAGE, HANDLING AND SHIPPING:**

Store containers upright, secured to a rack or wall, to prevent tipping. DO NOT subject containers to rough handling or mechanical shock, such as dropping, bumping, dragging, or sliding. DO NOT use ropes, slings, hooks, tongs, or other similar handling devices for unloading containers. Transport containers using a hand truck, fork truck, or other device to which the containers can be firmly secured. For cylinders, remove the valve protection bonnet and safety cap only when fumigant is about to be removed from the cylinder; then re-secure the bonnet and cap when the cylinder is not in use or is empty. For drums, the bung(s) must be kept secured in place when the drum is not in use. DO NOT ship containers without safety caps and valve protection bonnets or bungs secured. Return all empty or partially used containers to registrant or distributor; DO NOT use for any other purpose.

**SPILL AND LEAK PROCEDURES:**

Evacuate everyone from the immediate area of the spill or leak. For entry into affected area to correct problems, wear the proper protective clothing and equipment. Move leaking or damaged containers outdoors or to an isolated location. Observe strict safety precautions. Work upwind, if possible. Allow spilled fumigant to evaporate or to absorb onto vermiculite, dry sand, earth, or similar absorbent material. Dispose of contaminated material on site or at an approved disposal facility. Only correctly trained and equipped handlers are permitted to perform such cleanup. DO NOT permit entry into the spill or leak area by any other person until the concentration of chloropicrin is measured to be 0.15 ppm or less.

[Afrikaans text below.]

**GHS-GEVAARSTELLINGS:**

- Vlambare vloeistof en damp.
- Dodelik indien ingesem word.
- Giftig indien ingesluk of in kontak met die vel.
- Veroorsaak ernstige velbrandwonde en oogskade.
- Veroorsaak ernstige oogirritasie. [damp kontak]
- Mag 'n allergiese velreaksie veroorsaak.
- Word vermoed dat dit kanker deur die orale roete veroorsaak.
- Veroorsaak skade aan die asemhalingstelsel en hemale stelsel deur inaseming.
- Veroorsaak skade aan organe deur langdurige of herhaalde blootstelling.
- Kan dodelik wees as dit ingesluk word en in lugweë ingaan.
- Baie giftig vir waterlewe met langdurige effekte.

## **BYKOMENDE GHS GEVAARVERKLARING WANNEER PRODUK ONDER DRUK IN SILINDER**

- Vlbare chemikalieë onder druk: Kan ontplof as dit verhit word.

### **GHS VOORSORGSTELLINGS:**

#### **VOORKOMING**

- Verkry, lees en volg alle veiligheidsinstruksies voor gebruik.
- Hou weg van hitte, warm oppervlaktes, vonke, oop vlamme en ander ontstekingsbronne. Geen rook nie.
- Grond/verbind hou en ontvangstoerusting. Gebruik ontploffingsvaste elektriese/ventilasie-/beligtingstoerusting. Gebruik gereedskap wat nie vonkel nie. Neem aksie om statiese ontladings te voorkom.
- Moenie gas of dampe inasem nie.
- Moenie in oë, vel of klere kom nie.
- Was hande en gesig deeglik na hantering. Moenie aan oë raak nie.
- Moenie eet, drink of rook wanneer hierdie produk gebruik word nie.
- Gebruik slegs buite of in 'n goed geventileerde area.
- Besoedelde werksklere moet nie uit die werkplek toegelaat word nie.
- Dra beskermende handskoene, beskermende klere en oogbeskerming.
- In geval van onvoldoende ventilasie, dra asemhalingsbeskerming.
- Vermy vrystelling na die omgewing, [behalwe vir beoogde gebruik].

#### **REAKSIE**

- **INDIEN INGESAEM:** Verwyder persoon na vars lug en hou gemaklik om asem te haal. Kry onmiddellik mediese noodhulp.
- **INDIEN IN OË:** Spoel versigtig uit met water vir 'n paar minute. Verwyder kontaklense, indien teenwoordig en maklik om te doen. Gaan voort met spoel. Kry onmiddellik mediese noodhulp [vir vloeistofkontak]. [Vir dampkontak], indien oogirritasie voortduur, kry mediese hulp.
- **INDIEN OP DIE VEL (of hare):** Trek onmiddellik alle gekontamineerde klere uit. Spoel dadelik uit met water vir 'n paar minute. Kry onmiddellik mediese noodhulp.
- **INDIEN INGESLUK:** Kry onmiddellik mediese noodhulp. [Dep materiaal eers uit die mond met 'n droë lap, indien moontlik.] Spoel mond uit. MOENIE braking veroorsaak nie.
- **INDIEN** blootgestel of bekommerd: Kry onmiddellik mediese noodhulp.
- Kry mediese advies as jy onwel voel.
- Indien velirritasie of uitslag voorkom: Kry mediese hulp.
- Was gekontamineerde klere voor hergebruik.
- In geval van brand: Gebruik droë chemiese of alkoholbestande skuim om te blus.

#### **BERGING**

- Berg in 'n goed geventileerde plek.
- Hou houer dig toe.
- Hou koel.
- Stoor toegesluit.

#### **BEWYSING**

- Versamel gemors.
- Gooi inhoud en houer weg in ooreenstemming met regeringsregulasies.

## **BYKOMENDE VOORSORGSTELLINGS VIR PRODUK WANNEER DIT ONDER DRUK IN SILINDER IS**

[Geslote silinders kan skeur of bars as dit deur vuur verhit word.]

- Berg weg van brandbare materiale.
- Moet nie op 'n oop vlam of ander ontstekingsbron spuit nie.
- In geval van lekkasie, skakel alle ontstekingsbronne uit. Stop lek as dit veilig is om dit te doen.
- In geval van brand: Ontruim area. Bestry vuur op afstand [weens die risiko van silinderbreuk].

**BYKOMENDE VOORSORGMATREËLS:**

- Hierdie berokingsmiddel is baie gevaarlik en moet met uiterste sorg hanteer word deur persone wat die geskikte beskermende klere en toerusting gebruik, insluitend beskerming vir die gesig.
- Wanneer 'n hanteerder/toediener sensoriese irritasie ervaar (tranerigheid of branderigheid van die oë of neus), moet 'n goedgekeurde asemhalingstoestel gedra word.
- Moet nooit die mond gebruik om verstopte pype, spuitpunte, ens. uit te blaas nie.
- MOENIE houers of toedieningsapparate gebruik wat van koper, magnesium, aluminium of enige verwante metale gemaak is nie, aangesien hierdie berokingsmiddel die metale mag wegvreet.
- MOENIE water gebruik om die spuittoerusting skoon te maak nie; gebruik diesel.

**SIMPTOME VAN MENSLIKE VERGIFTIGING**

Vroeë simptome van oormatige blootstelling is tranerige oë, respiratoriese nood en braking. Oortollige vloeistof in die longe mag later ontwikkel.

**NOODHULP BEHANDELING: Sien Reaksie Afdeling.**

**NOTA AAN GENEESHEER**

Geen spesifieke teenmiddel is bekend nie. Behandel volgens simptome. Braking mag aspirasie pneumonie veroorsaak.

**VRYSKRYF: 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 PESTE TEEN DIE BETROKKE MIDDEL, SOWEL AS DIE METODE, TYD EN AKKURAAKHEID VAN TOEDIENING. VERDER AANVAAR DIE REGISTRASIEHOUER NIE VERANTWOORDELIKHEID VIR SKADE AAN GEWASSE, PLANTEGROEI OF DIE OMGEWING, OF VIR NADELIGE EFFEK OP MENS OF DIER, OF VIR GEBREK AAN PRESTASIE AS GEVOLG VAN DIE 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.**

**GEBRUIKSBEPERKINGS:**

- MOENIE gebruik wanneer die grondtemperatuur laer as 5°C is nie.
- MOENIE gebruik wanneer die grondtemperatuur hoër as 30°C is nie.
- MOENIE toedien gedurende ongunstige weerstoestande nie. [Ongunstige weerstoestande blok die opwaartse beweging van lug, wat dan veroorsaak dat die berokingsmiddel se dampe naby aan die grond vasgevang word. Die gevolglike lugmassa kan vanaf die perseel in onvoorspelbare rigtings wegbeweeg. Hierdie toestande kom tipies voor binne 'n uur voor sonsondergang tot ná sonsopkoms, en mag voortduur tot so laat as namiddag. Ongunstige toestande is algemeen op aande met beperkte wolkbedekking en ligte tot geen wind. Die teenwoordigheid van hierdie toestande kan aangedui word deur grondvog of mis en kan ook geïdentifiseer word deur rook van 'n grondbron wat sywaarts afdraai onder 'n plafonlaag en dan in 'n gekonsentreerde wolk sywaarts beweeg.]
- MOENIE berook wanneer die grond baie nat of baie droog is nie.
- MOENIE grond berook wat meer as 25% klei-inhoud het nie.
- MOENIE berook binne 50 cm vanaf wortels van gewenste plantegroei nie.
- MOENIE plant of saai vir ten minste 10 dae ná poliëtileen bedekking (plastiek berokingsfilm) verwyder is nie, indien gebruik.
- MOENIE plant of saai indien daar steeds 'n reuk teenwoordig is nie.
- HERTOEGANGSINTERVAL – Betreding deur ongemagtigde persone aan die aansoekblok is verbied vanaf die begin van die aansoek tot 5 dae nadat die aansoek voltooi is.

**MODE VAN AKSIE:** Direkte toksisiteit vir grondorganismes, swamme, bakterieë, insekte en plante/sade.

**GEBRUIKSAANWYSINGS - Gebruik slegs soos aangedui.**



## **GRONDVOORBEREIDING:**

Vir die beste resultate moet die area wat berook gaan word, bewerk word tot ten minste so diep soos die toedieningsdiepte (20 to 50 cm). Die oppervlakte moet geen groot kluite hê nie.

## **GRONDVOG:**

Die grond moet genoeg vog hê vir die ontkieming van sade (50 tot 75% beskikbare waterkapasiteit\*). Grondvog kan aangepas word deur die grond om te ploeg of met 'n sny-eg te bewerk voor toediening begin word. Om die huidige grondvog te behou, moet voorbehandeling-besproeiing of voorbehandeling-bewerking so na as moontlik aan die begin van toediening gedoen word.

\*Die VSDL Gevoel- en Voorkomsmetode vir die beraming van grondvog volgens die grondtekstuur:

- Vir **growwe** tekstuur grond (fyn sand en leemagtige fyn sand), is die grond vottig genoeg (50 tot 75% beskikbare waterkapasiteit) om 'n sagte bal met los en klonterige sandkorrels op vingers te vorm, verdonkerde kleur, ligte watermerke op vingers, sal nie stringe vorm nie.
- Vir **matig-growwe** tekstuur grond (sandleem en fyn sandleem), is die grond klam genoeg (50 tot 75% beskikbare waterkapasiteit) om 'n bal te vorm met definitiewe vingermerke, baie ligte grond-/watermerke op vingers, donkerder kleur sal nie vassit nie.
- Vir **medium** grondteksture (sanderige kleileem, leem, en slikleem), is die grond klam genoeg (50 tot 75% beskikbare waterkapasiteit) om 'n bal te vorm, baie ligte merke op die vingers, donkerder kleur, soepel, en vorm 'n sagte string tussen die duim en die voorvinger.
- Vir **fyner** grondteksture (klei, kleileem, en slikkleileem), is die grond klam genoeg (50 tot 75% beskikbare waterkapasiteit) om 'n gladde bal te vorm met definitiewe vingermerke, ligte grond-/watermerke op die vingers, stringe tussen die duim en die voorvinger.
- Vir **persele met meer as een tipe grondtekstuur**, moet die grondvog in areas met die ligste tekstuur (mees sanderige) ooreenstem met die grondvogtigheidsvereistes. Die perseel moet opverdeel word, waar moontlik, in areas met soortgelyke grondteksture en die grondvog van elke area moet aangepas word indien nodig. Grond met 'n growwer tekstuur kan berook word onder kondisies van hoër grondvog as grond met 'n fyner tekstuur. As die grondvog egter te hoog is, sal dit die beweging van die berokingsmiddel vertraag en sodoende die doeltreffendheid van die behandeling verminder. Vorige en/of plaaslike ondervinding met die grond wat behandel moet word of die gewas wat geplant moet word kan gebruik word as 'n gids vir kondisies wat aanvaarbaar sal wees. As daar enige onsekerheid is oor hoe om die voginhoud te bepaal van die area wat behandel moet word, moet 'n plaaslike uitbreidingsdiensagent, grondbewaarder, of 'n plaagbeheeradviseur (landbou konsultant) geraadpleeg word.

## **TOEDIENINGSMETODES EN TOERUSTING:**

- Dien TRI-FORM 60 GRONDBEROKINGSMIDDEL via 'n beitelploeg-implement of omslagploeg toe.
- Maak seker dat die toedieningstoerusting behoorlik gekalibreer is voordat berokking gedoen word.
- Wanneer vlak (inspuitingdiepte 20 tot 40 cm) toedieningswerk gedoen word, gebruik 'n skagspasiëring van 25 tot 30 cm.
- Dieper toedienings word aanbeveel vir diep-gewortelde plante. Vir diep toedienings (inspuitingdiepte 40 – 45 cm), kan 'n skagspasiëring van tot en met 60 cm gebruik word; hoewel dit nie aanbeveel word dat die skagspasiëring 45 cm oorskry nie.

## **TOEDIENINGSDIEPTE**

- Seilbedekte beddings en breedwerpige toedienings: Die inspuitingspunt moet 'n minimum van 20 cm vanaf die naaste finale grond/lug raakvlak (d.w.s. die bopunt van die bedding, vir bedding-toediening) wees.
- Onbedekte bedding: Die inspuitingspunt moet 'n minimum van 30 cm vanaf die naaste finale grond/lug raakvlak wees.
- Onbedekte breedwerpige toedienings: Die inspuitingspunt moet 'n minimum van 30 cm vanaf die finale grond/lug raakvlak wees.
- Onbedekte diep toedienings: Die inspuitingspunt moet 40 – 45 cm vanaf die finale grond/lug raakvlak wees.

## **GRONDVERSEËLING:**

Verseëling van die grond ná toediening is baie belangrik. Die grond moet onmiddellik verseël word ná inspuiting. Daar is verskeie metodes om die oppervlak van die grond te seël:

- Vir vlak toediening (inspuitingdiepte van 20 tot 40 cm) en/of wye-bedding toedienings, moet die grond verseël word met 'n poliëtileen versperringsfilm (plastiek berokingsfilm/seil).

- Vir diep toedienings (inspuitingdiepte van 40 - 45 cm), verseël met poliëtileen versperringsfilm of deur middel van 'n sny-eg gevolg deur 'n roller, roller-kompakteerder, of soortgelyke toerusting.
- Met ry- en/of nou-bedding toedienings kan verseëling met poliëtileen versperringsfilm gedoen word of deur middel van 'n bedding-perser, roller, of soortgelyke toerusting.
- In die geval van onbedekte toedienings, moet die grondoppervlak geseël word deur middel van besproeiing, deur die boonste 20 mm grond te deurdrenk met water. Herhaaldelike besproeiing mag verlang word gedurende die toedieningsperiode om te voorkom dat die boonste grondlaag kraak.

#### **BLOOTSTELLINGSPERIODE:**

Indien die poliëtileen versperringsfilm gebruik is, kan dit na 5 dae afgehaal word. Wanneer enige ander verseëling gebruik is, los die grond onversteurd vir 7 dae voor bewerking om die grond te deurlug. Koue en/of nat grond sal 'n langer blootstellingsperiode benodig. Moenie die grond bewerk indien die grond te nat is om omgeploeg te word nie.

#### **DAE VOOR PLANT**

Moenie plant vir ten minste 10 dae nadat die poliëtileen versperringsfilm verwyder is nie. Moenie plant vir 7 dae ná die oorspronklike bewerking indien enige ander verseëling gebruik is nie. Langer deurlugting mag benodig word waar die grond nat, koud of 'n hoë klei- of slik-inhoud het.

Vir alle toedienings, MOENIE PLANT indien daar nog 'n reuk teenwoordig is nie. Indien die reuk steeds teenwoordig is nadat deurlugting toegepas is, mag dit nodig wees om die grond herhaaldelik te bewerk voor daar geplant of gesaai kan word. Breek die kors van die grond, indien nodig, deur dit met skoon toerusting te bewerk, om dit sodoende te belug.

#### **BEMESTING:**

Beroking mag die vlak van ammoniakstikstof en oplosbare sout in die grond tydelik verhoog. Om ammoniakskade en/of nitraatverhongering van gewasse te vermy, vermy die gebruik van bemestingstowwe wat ammoniaksoute bevat en gebruik slegs bemestingstowwe wat nitrate bevat, totdat die oes goed gevestig is en die grondtemperatuur omtrent 20°C is. Deur grond wat baie suur is eers te kalk voor beroking, word nitrifikasie gestimuleer en kan die moontlikheid van ammoniak-toksisiteit ook verminder word.

#### **HERBESMETTING:**

- Voorkom herbesmetting van behandelde grond. Moenie oorplantings, gereedskap, of oesoorblyfsels wat besmet is deur grondoordraagbare plantparasiete en onkruidsaad gebruik nie. Maak die toedieningsapparate noukeurig skoon voor en ná gebruik.
- Moenie berookte areas kontamineer deur vanaf onberookte grond na berookte grond te stap nie.
- Indien die behandelde area op 'n plek is waar vloede moontlik is ná reën, ploeg 'n sloot rondom die area vir doeltreffende dreinerings.

**TOEDIENIGSTABEL  
TRI-FORM 60 GRONDBEROKINGSMIDDEL**

GEWASSE	PROBLEEM / PESTE	DOSIS	OPMERKINGS
<b>EENJARIGE GEWASSE</b> Insluitende: Aartappels, Groente, en Tabak	Grondoordraagbare swamsiektes, insluitend spesies van: <i>Verticillium</i> - en <i>Fusarium</i> -verwelking <i>Pythium</i> <i>Phytophthora</i> <i>Sclerotium</i>	240 tot 650 kg/ha	Voor-plant grondberokingsmiddel  Gebruik laer dosis op ligter grondtipes. (< 10% klei, soos byvoorbeeld sand of sandleem)
<b>MEERJARIGE GEWASSE</b> Insluitende Vrugtebome Arbeie	Bakteriese verwelking: Streptomyces scabies (bruinskurf)  Ringwurms Nematodes Insekte		Gebruik hoër dosis op digter grondtipes. (10-25% klei, soos byvoorbeeld slik of kleileem)

**ADDISIONELE INSTRUKSIES VIR BERGING, HANTERING EN VERSKEPING VAN HOERS:**

Stoor houers regop, vasgemaak teen 'n muur of op 'n rak om te voorkom dat dit omval. MOENIE houers blootstel aan hardhandige hantering of meganiese skok deur dit te laat val, stamp, sleep, of skuif nie. MOENIE toue, hakke, tange of soortgelyke voorwerpe gebruik om die houers af te laai nie. Vervoer houers deur van tweewiel-trollies, virkhuysers of enige ander toestelle waaraan die houers stewig vasgemaak kan word, gebruik te maak. By silinders moet die beskermingsklep eers verwyder word wanneer berokingsmiddel daaruit verwyder gaan word; plaas die beskermingsklep en die veiligheidsklep terug op die silinder ná gebruik, of wanneer dit leeg is. By dromme moet die proppe stewig in plek gehou word wanneer die drom nie gebruik word nie. MOENIE die houers vervoer sonder die beskermingsklep en veiligheidsklep of prop vasgemaak nie. Stuur alle leë of half-gebruikte houers terug aan die verspreider of registrasiehouer; MOENIE die houer vir enige ander doel gebruik nie.

**PROSEDURES VIR STORTING EN LEKKASIE:**

Ontruim die onmiddellike area waar die lekkasie voorkom. Wanneer die besoedelde area herbetree moet word om die lekkasie reg te maak, maak seker dat die korrekte beskermende klere en toerusting, gedra word. Verskuif die silinders wat beskadig is of lek na buite of na 'n geïsoleerde area. Beoefen streng veiligheidsmaatreëls. Werk windop, indien moontlik. Laat die gemorsde berokingsmiddel verdamp of laat dit geabsorbeer word deur droë sand, grond, of soortgelyke absorberingsmiddel. Raak ontslae van die besmette materiaal op die perseel of op 'n geskikte opbergingsfasiliteit. Slegs korrek-opgeleide en toegeruste hanteerders mag toegelaat word om so 'n skoonmaakproses uit te voer. MOENIE toegang toelaat tot die gekontamineerde area deur enige ander persoon totdat konsentrasie van chloropikrien gemeet is as 0.15 ppm of minder nie.