

# Contans<sup>®</sup> WG

SEE ENCLOSED PAMPHLET FOR FULL PARTICULARS

Reg. No. L10157 (Act No. 36 of 1947)

A water dispersible granular biological fungicide for the suppression/control of sclerotia of *Sclerotinia sclerotiorum* and *Sclerotinia minor* when used as a soil treatment in agricultural crops and ornamentals.

SIEN INGESLOTE PAMFLET VIR VOLLEDIGE BESONDERHEDE

Reg. Nr. L10157 (Wet Nr. 36 van 1947)

'n Waterdispergeerbare korrel, biologiese swamdoder vir die onderdrukking/beheer van die sklerotia van *Sclerotinia sclerotiorum* en *Sclerotinia minor* wanneer dit gebruik word as 'n grondbehandeling in landbougewasse en sierplante.

## BIOLOGICAL FUNGICIDE BIOLOGIESE SWAMDODER

### Active ingredient:

*Coniothyrium minitans*  
(strain CON/M/91-08).....1 x 10<sup>12</sup> active spores/kg  
Dried on glucose

### Aktiewe bestanddeel:

*Coniothyrium minitans*  
(ras CON/M/91-08)..... 1 x 10<sup>12</sup> aktiewe spore/kg  
Gedroog op glukose

### REGISTERED BY / GEREKISTREER DEUR:

Bayer (Pty) Ltd / (Edms) Bpk  
Reg. 1968/011192/07  
P.O. Box/Posbus 143  
Isando

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TEL: (OFFICE HOURS) / (KANTOORURE) (011) 921 5911

IN CASE OF POISONING PLEASE PHONE / IN GEVAL VAN VERGIFTIGING SKAKEL ASSEBLIEF:  
(0861) 555 777

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BATCH NUMBER: See on pack  
LOTNOMMER:

DATE OF MANUFACTURE: Sien op houer  
DATUM VERVAARDIG:

Bayer

RSA/0518/Contans WG 4 kg/Sales Panel  
Code: ZA85329731B



# Contans<sup>®</sup> WG

## Fungicide

A water dispersible granular biological fungicide for the suppression/control of sclerotia of *Sclerotinia sclerotiorum* and *Sclerotinia minor* when used as a soil treatment in agricultural crops and ornamentals.



Packaging / Verpakking:  
4 kg



# Swamdoder

Daar is geen onthoudingsperiode of beperkings t.o.v. enige opvolggewasse na toediening van Contans WG nie.

## WAARSKUWINGS:

### **BELANGRIK: LEES VOOR GEBRUIK**

Lees al die Aanwysings vir Gebruik, Voorwaardes, Vrywaring van Waarborge en Beperkings van Aanspreeklikheid voordat hierdie produk gebruik word. **Indien terme nie aanvaarbaar is nie, stuur onmiddellik die produk onoopgemaak terug vir terugbetaling van die koopprys.**

Deur hierdie produk te gebruik aanvaar die gebruiker of koper die volgende Voorwaardes, Vrywaring van Waarborge, Beperkings van Aanspreeklikheid en Lisensie en Verbod op Herverkope. Hierdie terme kan slegs verander word deur 'n geskrewe dokument wat onderteken is deur 'n behoorlik gemagtigde verteenwoordiger van Bayer (Edms.) Bpk.

### **VOORWAARDES:**

Dit word aanvaar dat die gebruiksaanwysings van hierdie produk voldoende is en moet noukeurig nagevolg word. Dit is egter onmoontlik om al die risiko's wat verband hou met die gebruik van hierdie produk uit te skakel. Skade aan gewasse, ondoeltreffendheid of ander onvoorsiene gevolge kan voorkom as gevolg van faktore buite die beheer van Bayer (Edms.) Bpk. (byvoorbeeld weerstoestande, die teenwoordigheid van ander stowwe, of die wyse van gebruik of toediening). Alle sodanige risiko's word deur die gebruiker of koper aanvaar.

### **VRYWARING VAN WAARBORGE:**

TOT DIE MATE IN OOREENSTEMMING MET TOEPASLIKE WETGEWING, MAAK BAYER (EDMS.) BPK. GEEN ANDER WAARBORGE, UITDRUKLIK OF GEÏMPLISEERD, VAN VERHANDELBAARHEID OF DIE GESKIKTHEID VIR 'N SPESIEFIEKE DOEL OF ANDERSINS, WAT VERDER STREK AS DIE STELLINGS WAT OP HIERDIE ETIKET GEMAAK WORD NIE. GEEN AGENT VAN BAYER (EDMS.) BPK. IS GEMAGTIG OM ENIGE VERDERE WAARBORGE AS DIÉ HIERIN VERVAT TE MAAK NIE, OF OM DIE WAARBORGE HIERIN VERVAT TE VERANDER NIE. TOT DIE MATE IN OOREENSTEMMING MET TOEPASLIKE WETGEWING, ONTKEN BAYER (EDMS.) BPK. ENIGE AANSPEEKLIKHEID VIR SPESIALE, TOEVALLIGE-, OF GEVOLGSKADE WAT VOORTSPRUIT UIT DIE GEBRUIK OF HANTERING VAN HIERDIE PRODUK.

### **BEPERKINGS VAN AANSPEEKLIKHEID:**

TOT DIE MATE IN OOREENSTEMMING MET TOEPASLIKE WETGEWING, SAL DIE UITSLUITLIKE REMEDIE VAN DIE GEBRUIKER OF KOPER VIR ENIGE OF ALLE VERLIESE, BESERINGS OF SKADE AS GEVOLG VAN DIE GEBRUIK OF HANTERING VAN HIERDIE PRODUK, HETSY IN KONTRAK, WAARBORG, DELIK, NALATIGHEID, STRENG AANSPEEKLIKHEID OF ANDERSINS, NIE MEER AS DIE KOOPPRYS WEES NIE, OF INDIEN BAYER (EDMS.) BPK. SO SOU VERKIES, DIE VERVANGING VAN PRODUK.

### **Lisensie en verbod op Herverkope:**

Bayer (Edms.) Bpk. verleen hiermee aan die koper of gebruiker die reg om, onder die patente gelys op die etiket, hierdie produk alleenlik te gebruik in ooreenstemming met die etiket aanwysings vir toediening op: plante (insluitend dele van die plant soos saad), of op grond, waar die behandelde plante - of plante wat groei in behandelde grond wat bestem is om verkoop te word - in die geheel of gedeeltelik, of bedoel is vir die publieke of persoonlike gebruik. Die koper of gebruiker het nie die reg om hierdie produk te de-formuleer of te isoleer en/of die aktiewe bestanddeel vir enige doel te kweek nie. Tensy spesifieke skriftelike toestemming verleen is, het die koper of gebruiker nie die reg om hierdie produk in enige vorm te herverkoop nie, byvoorbeeld, hierdie produk mag nie herverkoop word in kombinasie met ander produkte of ander aktiewe bestanddele, of in 'n verwaterde vorm nie, tensy kombinasies voorberei en afgelewer is aan die eindverbruiker vir onmiddellike toediening op plante, plant-dele, of op grond in streng ooreenstemming met die gebruiksaanwysings op die etiket.

**Contans WG** bevat *Coniothyrium minitans* (ras CON/M/91-08). Mikro-organismes kann die potensiaal hê om sensitiewe reaksies uit te lok.

Berg in 'n droë en koel plek, teen **ongeveer 4°C** weg van direkte sonlig en weg van hitte bronne (Temperatuur reeks -18°C tot 4°C). Hou weg van ekstreme hittede. By 4°C word **Contans WG** stadig afgebreek oor 'n tydperk, en het 'n raklewe van minstens 6 maande.



Sien tabel hieronder vir bergingstemperatuur teenoor raklewe:

Bergingstemperatuur	Maksimum tydperk van produk se lewensvatbaarheid vanaf die datum van versending
20°C	2 weke
<15°C	3 weke
<4°C	6 maande
<-18°C (Bevriesing)	1 jaar

**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 BEÏNVOED 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, DIE VOORKOMS VAN BESTANDHEID VAN DIE SIEKTE TEEN DIE MIDDEL, SOWEL AS DIE METODE, TYD EN AKKURAAKTHEID VAN TOEDIENING. VERDER AANVAAR DIE REGISTRASIEHOUER NIE VERANTWOORDELIKHEID VIR SKADE AAN GEWASSE, PLANTEGROEI, DIE OMGEWING OF DIE NADELIGE EFFEK OP MENS, DIER, OF VIR 'N GEBREK AAN PRESTASIE VAN DIE BETROKKE MIDDEL AS GEVOLG VAN DIE VERSUIM VAN DIE GEBRUIKER OM DIE ETIKET AANWYSINGS NA TE KOM OF AS GEVOLG VAN DIE ONTSTAAN VAN TOESTANDE WAT NIE KRAGTENS DIE REGISTRASIE VOORSIEN KON WORD NIE. RAADPLEEG DIE VERSKAFER IN DIE GEVAL VAN ENIGE ONSEKERHEID.**

### **VOORSORGMATREËLS:**

Was besoedelde klere daaglik.

Was met seep en water na gebruik.

Moet nie eet, drink of rook tydens vermenging, toediening of voordat hande en gesig gewas is nie.

Voorkom die oorwaai van spuitnewel na ander gewasse, weiding, riviere, damme of enige gebied nie onder behandeling nie.

Maak toedieningsapparaat deeglik skoon na gebruik en raak van waswater ontslae waar dit nie gewasse, weiding, riviere en damme sal besoedel nie.

Spoel leë houër drie keer uit met 'n volume water gelyk aan ten minste een tiende van die van die houër en voeg die uitspoelwater by die inhoud van die spuitnewel voordat van die houër op die voorgeskrewe metode ontslae geraak word.

Vernietig die leë houër en moet dit vir geen ander doel gebruik nie.

Voorkom besoedeling van voedsel, voer, drinkwater en eetgerei.

# Swamdoder

## Algemene inligting oor beheerde siektes

*Sclerotinia sclerotiorum* en *Sclerotinia minor* is plantpatogeniese swamme wat die vermoë het om swart, rustende strukture bekend as sklerotia en wit donsige groeisele van miselium te produseer op die besmette plant. In ideale weersomstandighede vorm hierdie sklerotia vrugtiggame wat spore in 'n sogenaamde sak vorm. Oesverliese kan dus groot wees en beheermaatreëls moet oorweeg word. *Sclerotinia* siektes is baie moeilik om te beheer deur middel van in-seisoen blaarbespuitings. Die sklerotia (rustende dele) van *Sclerotinia* kan vir 'n paar jaar in die grond oorleef en hou dus 'n infeksie-risiko in vir vatbare opvolg gewasse.

Daar is twee spesies van *Sclerotinia* wat in die landbou belangrik is:

*Sclerotinia sclerotiorum* kan baie gewasse infekteer, veral gewasse soos canola, blaarslaai, wortels, boontjies (insluitend sojabone), sonneblom, ertjies, koolgroente en seldery.

*Sclerotinia minor* infekteer veral blaarslaai. Dit produseer meer (maar kleiner) sklerotia wat meer intensiewe behandeling vereis in vergelyking met *Sclerotinia sclerotiorum*.

## Algemene inligting oor Contans WG

**Contans WG** is 'n waterdispereerbare korrel vir die onderdrukking/beheer van die sklerotia van *Sclerotinia sclerotiorum* en *Sclerotinia minor* wanneer dit gebruik word as 'n grondbehandeling.

**Contans WG** bevat  $1 \times 10^{12}$  aktiewe spore / kg produk van die grondswam *Coniothyrium minitans*, gedroog op glukose.

**Contans WG** is 'n biologiese swamdoder met 'n spesifieke werking teen die rustende, oorlewings-strukture (sklerotia) van die plantpatogene: *Sclerotinia sclerotiorum* en *Sclerotinia minor*.

**Contans WG** moet gebruik word as deel van 'n Geïntegreerde Plaagbeheer (GPB) program. **Contans WG** het die vermoë om grondinfeksies van *Sclerotinia sclerotiorum* en *Sclerotinia minor* te onderdruk of te beheer wanneer dit saam met goeie landboukundige praktyke en 'n volledige siektebeheer-program gebruik word.

Net soos ander beheerstrategieë, moet **Contans WG** nie beskou word as 'n goue, enkel oplossing vir die *Sclerotinia* probleem nie, maar eerder as deel van 'n groter beheer strategie wat verskillende beheermaatreëls kombineer.

Dit sal egter onrealisties wees om 100 % beheer te verwag, maar opvolg toedienings oor 'n tydperk sal help om die sklerotia-druk in die grond te verlaag en dit daar te hou.

**Contans WG** is 'n grondbehandeling produk teen die bogenoemde *Sclerotinia* spesies ongeag die tipe gewas wat in tunnels of oop land verbou word.

Die beste beheerstrategie van monosikliese plantsiektes soos dié wat deur *Sclerotinia* veroorsaak word, is om die bron van die inokulum aan te val – d.w.s. om die sklerotia druk te verminder.

## Metode van werking

Die spore van *C. minitans* ontkiem in klam gronde. Die miselium (hife draadjies) van *C. minitans* val die rustende strukture (sklerotia) van die *Sclerotinia sclerotiorum* en *Sclerotinia minor* patogene in die grond aan en vernietig dit binne drie maande. Die parasitisme gebeur onafhanklik van enige gewas.

## Omgewingtoestande

Vir optimale doeltreffendheid moet die grond klam wees en die temperatuur tussen 12 - 20°C wees. Indien die grond temperatuur onder 0°C is of styg bo 27 ° C, sal *C. minitans* sy aktiwiteit opskort en in die grond in 'n rusfase gaan. Die swam sal egter nie doodgaan nie. Sodra die temperature terugkeer tot tussen 1 en 27°C, sal *C. minitans* voortgaan om die sklerotia aan te val. **Contans WG** is minder effektief wanneer grond temperature oorwegend hoër as 28°C is. Probeer toedienings beperk tot die koeler maande in warm klimaat omgewings. Somergewasse sal nog steeds voordeel trek uit die langtermyn beheer strategie wat gevolg word met die winter/koeler-tydperk toedienings. Die optimale grond pH-waarde vir **Contans WG** is tussen 4.5 en 8.

## Gewasse

Die gebruik van **Contans WG** verminder die siektedruk en is dus voordelig vir ALLE GEWASSE wat vatbaar is vir *Sclerotinia sclerotiorum* en *Sclerotinia minor*. **Contans WG** het effektiewe beheer getoon van genoemde siektes in die volgende gewasse en sierplante: canola, sojabone, sonneblomme, blaarslaai, boontjies, komkommers, gerbera's, en chrysanthemums. Die volgende gewasse is ook bekend om vatbaar te wees vir *Sclerotinia sclerotiorum* en *Sclerotinia minor* maar is nie beperk tot slegs hierdie lys nie: aspersies, kool, wortels, seldery, keker-ertjies, lensies, ertjies, rissies, aartappels, tamaties en waatlemoen. Daar is geen beperking op wisselbougewasse na die gebruik van **Contans WG**.



**GEBRUIKSAANWYSINGS:** GEBRUIK SLEGS SOOS AANGEDUI.

## Verenigbaarheid

**Contans WG** moet nie in tenkmengsel met enige ander produk gebruik word nie.

## Menginstruksies

Verseker dat toerusting skoon is en nie besmet is met ander chemikalieë nie.

Meng die benodigde hoeveelheid **Contans WG** apart in 'n kleiner hoeveelheid water bv. 10 liter. Maak die spuitenk half-vol met skoon water en begin met roering. Voeg die **Contans WG** mengsel by terwyl die water geroer word en vul die tenk tot by die verlangde volume. Roer aanhoudend.

Verseker dat roering plaasvind vir 'n paar minute voor die aanvang van die bespuiting na normale operasionele rustyde bv. middagete.

Moet nie die spuitmengsel oornag of vir 'n lang tydperk laat staan nie.

Dit is belangrik om daarop te let dat alhoewel **Contans WG** onoplosbaar is, dit geskik is vir 'n suspensie in water. Spesiale sorg moet daarom geneem word om konstante roering van die spuitmengsel te verseker. Verder moet spuitpunt-siwwe op gereelde intervale ondersoek word tydens die bespuitingsproses om die verstopping van die siwwe te vermy.

## Toedieningsapparaat

Konvensionele spuittoerusting kan gebruik word.

Toerusting moet vry wees van die residuë van plaagdoders en swamdoders, sure, alkaliese produkte en enige produk wat organiese materiaal aanvaal.

Die toepaslike toerusting, spuitdruk, spuitvolume per hektaar, spuitpunte, spasiëring van spuitpunte en grond-spoed moet gebruik word om goeie bedekking te behaal.

Toediening deur oorhoofse besproeiing bv. spilpunt is moontlik.

## Toedieningsriglyne

Dien **Contans WG** direk op die grond of op gewasstoppele toe na afdop van oes van die vorige gewas teen 'n watervolume van 100 - 300 l/ha.

Deeglike grond bedekking is noodsaaklik vir optimale siektebeheer aangesien sklerotia wat ontkiem uit onbehandelde areas spore sal voortbring wat die gewas her-infekteer.

Twee toedienings-scenario's word aanbeveel, nl. 'n voor-plant toediening en/of 'n na-oes toediening.

# Swamdoder

## **Voor-plant toediening:**

Dien **Contans WG** toe teen 'n dosis van 2 tot 6 kg/ha drie maande voor die aanvang van siekte ontwikkeling om toe te sien dat die inokulum vlakke van die sklerotia in die grond genoegsaam verminder is. Sodra die produk op die grond toegedien is, moet die behandelde grond so eenvormig as moontlik ingewerk word tot 'n diepte van 5-15 cm. **Contans WG** kan ook met besproeiing ingewerk word of toegedien word in 'n reënseisoen voor of tydens reënval wat sal verseker dat die produk ingewerk word tot op 'n diepte van ongeveer 3 cm (afhange van die grondtoestand). Enige bewerkings of plant-bedrywighede na toediening moet nie die grond versteur onder die diepte waar **Contans WG** ge-inkorporeer is nie, om die opbring van sklerotia uit die laer onbehandelde grond profiel te verhoed.

**Contans WG** moet ten minste drie maande voor 'n verwagte *Sclerotinia* uitbraak toegedien word. Dit beteken dat in die geval van gewasse wat direk besmet word met miselium, die toediening plaas moet vind 3 maande voor plant (bv. blaarslaai).

Op gewasse waar die infeksie vanaf askopore plaasvind bv. sojaboon, canola, sonneblom, ens., moet die toediening beplan word op so 'n manier dat voorsiening gemaak word vir drie maande vanaf toediening tot die verwagte infeksie periode. Dit sal die aktiewe bestanddeel toelaat om die sklerotia in die grond te vernietig voordat hulle in staat is om vrugliggame ("apothecia") te produseer en askospore vry te laat.

## **Toedienings-hoeveelheid (voor-plant toediening):**

Dien **Contans WG** toe teen 'n dosis van 2-6 kg/ha: die dosis sal afhang van die diepte van inkorporeering (gebruik 'n hoër dosis vir dieper inkorporeering) en die siekte infeksie vlak (gebruik hoër dosis waar hoër siektdruk verwag word).

## **Na-oes toediening (onderhoud strategie):**

Dien **Contans WG** toe teen 'n dosis van 2-6 kg/ha op die oes reste. Gebruik die hoër dosis waar hoër siekte-druk toestande ondervind is tydens die vorige gewas. Sodra die produk toegedien is moet die behandelde reste/grond onmiddellik in die boonste grondlaag tot 'n diepte van 5-15 cm ge-inkorporeer word. Dit sal die behandelde sklerotia bedek en beskerming bied vir die ontkiemende **Contans WG** spore. 'n Na-oes behandeling van die grond en oes reste met **Contans WG** verhoed nuwe besoedeling van die grond met sklerotia deur die vorige gewas se infeksie en verminder ook die opeenvolgende besoedeling van die grond.

## **Inkorporeering:**

**Meganies:** enige geskikte toerusting wat die boonste 5-15 cm van die grond kan werk bv. rolkapploeg, ens.

**Deurdrenking:** besproeiing (of reën) met 15 - 25 mm besproeiing net na toediening.

## **Ge-integreerde beheer strategie**

In situasies van swaar *Sclerotinia* infeksies (hoë-vlak van sklerotia in die grond), sal 'n eenmalige toediening van **Contans WG** of tradisionele blaarbespuitings met chemiese swamdoders onwaarskynlik voldoende beheer gee. In sulke gevalle kan die beste resultate slegs bereik word met 'n multi-jaar rotasie behandeling. 'n Gemiddeld van 80-95 % van die sklerotia in die grond laag word vernietig deur elke toediening van **Contans WG**. Dit het tot gevolg dat die siekte druk afneem met elke bespuiting. Maar in situasies van swaar besmetting kan 'n groot aantal van onbeheerde sklerotia nog lewensvatbaar bly. Daarom is 'n ge-integreerde beheer strategie wat blaarbespuitings van chemiese swamdoders insluit belangrik om 'n volhoubare en langdurige beheer te verseker.



# Fungicide

There is no withholding period and restrictions for any follow-up crop after the application of Contans WG.

## WARNINGS:

### IMPORTANT: READ BEFORE USE

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of Liability before using this product. **If terms are not acceptable, return the unopened product at once for a refund of the purchase price.**

By using this product, user or buyer accepts the following Conditions, Disclaimer of Warranties, Limitations of Liability and License and Prohibition of Re-Sale. These terms may only be modified by a written document signed by a duly authorized representative of Bayer (Pty) Ltd.

## CONDITIONS:

The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Bayer (Pty) Ltd. All such risks shall be assumed by the user or buyer.

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## License and Prohibition of Re-Sale:

Bayer (Pty) Ltd hereby grants buyer or user the right under the patents listed on the label to use this product solely in accordance with the label's Directions for Use for applications to plants, including plant parts such as seed, or to soil, where the treated plants or the plants grown in treated soil are intended for sale, in whole or in part, or are intended for public or personal use. The buyer or user does not have the right to de-formulate this product or to isolate and/or culture its active ingredient for any purpose. Unless specifically granted in writing, the buyer or user does not have the right to re-sell this product in any form; e.g., this product may not be re-sold in combination with other products or other active ingredients or in a diluted form, unless combinations are prepared and delivered to the end-user for immediate application to plants, plant parts or soil solely in accordance with the label Directions for Use.

**Contans WG** contains *Coniothyrium minitans* (strain CON/M/91-08). Micro-organisms may have the potential to provoke sensitising reactions.

Store in a dry, cool place out of direct sunlight and away from heat sources at **approximately 4°C** (Temperature range: minus 18°C to plus 4°C). Keep from overheating. At 4°C **Contans WG** degrades slowly over time and has a shelf-life of at least 6 months.



See below table for storage temperature versus shelf-life:

Storage Temperature	Maximum period of product viability from the date of dispatch
20°C	2 weeks
<15°C	3 weeks
<4°C	6 months
<-18°C (Freezing)	1 year

**ALTHOUGH THIS REMEDY HAS BEEN 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 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 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:

Wash contaminated clothing daily.

Wash with soap and water after use.

Do not eat, drink or smoke whilst mixing, applying or before washing hands and face.

Avoid drift of spray on to other crops, grazing, rivers, dams and areas not under treatment.

Clean applicator after use, dispose of wash water where it will not contaminate crops, grazing, rivers and dams.

Rinse empty container three times with a volume of water equal to at least one tenth of that of the container and add the rinsing to the contents of the spray tank before disposing of the container in the prescribed manner.

Destroy empty container by perforation and flattening and never use for any other purpose.

Prevent contamination of food, feeds, drinking water and eating utensils.

# Fungicide

## General information about diseases controlled

*Sclerotinia sclerotiorum* and *Sclerotinia minor* are plant pathogenic fungi that have the ability to produce black resting structures known as sclerotia and white fuzzy growths of mycelium on the plants they infect. In ideal weather conditions these sclerotia give rise to a fruiting body that produces spores in a sac. Crop losses can be great and control measures should be considered. *Sclerotinia* diseases are very difficult to control using in-season foliar treatments. The sclerotia (resting bodies) of *Sclerotinia* can persist for several years in the soil and continue to cause infection of sensitive crops.

There are two main *Sclerotinia* species important in agriculture:

*Sclerotinia sclerotiorum* can infect many crops, particularly canola, lettuce, carrot, beans (including soy beans), sunflower, peas, vegetable brassicas and celery.

*Sclerotinia minor* particularly infects lettuce. It produces more, but smaller sclerotia and requires more intensive treatment than *Sclerotinia sclerotiorum*.

## General information about Contans WG

**Contans WG** is a water dispersible granule for the suppression/control of sclerotia of *Sclerotinia sclerotiorum* and *Sclerotinia minor* in the soil.

**Contans WG** contains  $1 \times 10^{12}$  active spores / kg product of the soil fungus *Coniothyrium minitans*, dried on glucose.

**Contans WG** is a biological fungicide with a specific action against the resting survival structures (sclerotia) of the plant pathogens *Sclerotinia sclerotiorum* and *Sclerotinia minor*.

**Contans WG** should be used as part of an Integrated Disease Management system. When used in conjunction with good cultural management practices and as part of a complete disease control program, **Contans WG** reduces/controls soil infections of *Sclerotinia sclerotiorum* and *Sclerotinia minor*.

Like many other management strategies **Contans WG** should not be considered as a single-bullet solution to the *Sclerotinia* problem, but rather as part of a larger plan that combines efforts in different areas.

Expectations of 100 % control are however unrealistic and multiple applications over time will help reduce the sclerotial population in the ground and to keep it low.

**Contans WG** is a soil treatment product against mentioned *Sclerotinia* species regardless of the crop grown in the greenhouse or open field.

The best strategy to manage monocyclic diseases like those caused by *Sclerotinia* is to attack the source of the inoculum i.e.to reduce the sclerotia load.

## Mode of action

The spores of *C. minitans* germinate in moist soil. The mycelium of *C. minitans* attacks the resting survival structures (sclerotia) of the pathogens *Sclerotinia sclerotiorum* and *Sclerotinia minor* in the soil and destroys them within three months. The parasitism occurs independent of any crop.

## Environmental Conditions

For optimum efficacy the soil should be moist and the temperature should be between 12 - 20°C. If the soil temperature falls below 0°C or rises above 27°C, *C. minitans* suspends its activity and rests in the soil. The fungus will however not die. Once the temperatures return to between 1 and 27°C, *C. minitans* will continue to attack the sclerotia. **Contans WG** is less effective in soil temperatures that are predominantly over 28°C. In warm weather situations/locations target your application during the cooler months. Summer crops will then still benefit from the sustainable reduction of the pathogen from winter/cooler period applications.

The optimum pH-value of the soil for **Contans WG** is between 4.5 and 8.

## Crops

The use of **Contans WG** reduces the disease pressure and is therefore beneficial for ALL CROPS susceptible to *Sclerotinia sclerotiorum* and *Sclerotinia minor*. **Contans WG** has shown effective control of these diseases in the following susceptible crops and ornamentals: Canola, Soy bean, Sunflower, Lettuce, Beans, Cucumber, gerbera, chrysanthemums. Other crops also known to be susceptible to *Sclerotinia sclerotiorum* and *Sclerotinia minor* infection include, but are not limited to: asparagus, cabbage, carrots, celery, chickpeas, lentils, peas, peppers, potatoes, tomatoes, and watermelon. There are no rotational crop restrictions following the use of **Contans WG**.



**DIRECTIONS FOR USE:** USE ONLY AS INDICATED.

## Compatibility

**Contans WG** should not be tank-mixed with any other product.

## Mixing instructions

Ensure application equipment is clean and not contaminated with other chemicals.

Mix the required amount of **Contans WG** separately in a small amount of water e.g. 10 liter. Then half-fill the spray tank with clean water and begin agitation. Add the pre-mix of **Contans WG** to the tank while agitating and finish filling the tank to the desired volume. Maintain agitation.

Ensure that agitation takes place for a few minutes prior to commencement of spraying after normal operational stops, e.g. lunch break.

Do not allow spray mixture to stand overnight or for prolonged periods.

It is important to note that although **Contans WG** is insoluble, it is suitable for suspension in water. Therefore, special care should be taken to ensure constant agitation of the spray mix and that nozzle sieves be inspected at regular intervals during the spraying process to avoid clodding of the sieves.

## Application Equipment

Conventional spraying equipment can be used for spraying. A spray boom equipped with Flat fan nozzles is recommended.

Application equipment must be free of residues of pesticides and fungicides, acids, alkalines or any product that attacks organic material.

To achieve good coverage use the appropriate equipment, spray pressure, spray volume per hectare, nozzles, nozzle spacing and ground speed.

Application through overhead irrigation e.g. center pivot is possible.

## Application Directions

Apply **Contans WG** directly to the soil surface or crop debris following harvest of the previous crop, at a spray volume of 100 - 300 ℓ/ha.

Thorough soil coverage is essential for optimum disease control since sclerotia that germinate from untreated soil will produce spores and re-infect the crop.

Two application scenarios are recommended, namely, Pre-plant and/or a Post-harvest application.

# Fungicide

## **Pre-plant application:**

Apply **Contans WG** at a rate of 2 - 6 kg/ha three months prior to the onset of disease development in order to allow for the reduction of the inoculum load of sclerotia in the soil. The rate will depend on the depth of incorporation (use higher rate for deeper incorporation) and the disease infection level (use higher rate where high disease pressure is expected). Once the product has been applied to the soil, the treated soil surface must immediately be incorporated thoroughly and as uniformly as possible to a depth of 5 - 15 cm. **Contans WG** can also be drenched in or applied in a rainy season prior to or during rainfall which will all drench the spores down to about 3 cm (depending on the soil conditions). Any cultivations or planting operations after application must not disturb the soil below the depth to which **Contans WG** was incorporated in order to avoid bringing up sclerotia from untreated soil lower in the profile.

**Contans WG** should be applied at least three months prior to an anticipated *Sclerotinia* outbreak. This means that on crops that are directly infested with mycelium, the application should take place 3 months prior to planting (e.g. lettuce). In crops where the infection occurs from ascospores, e.g. soy bean, canola, sunflower, etc., the application should be timed in such a way as to allow three months from application to possible infection. This will allow the active ingredient to destroy the sclerotia in the soil before they are able to produce fruiting bodies (apothecia) and could ultimately release ascospores.

## **Post-harvest application (maintenance strategy):**

Apply **Contans WG** at a rate of 2 - 6 kg/ha to harvested crop debris. Use the higher rate where high disease infection levels were experienced on the previous crop. Once the product has been applied, the treated debris must immediately be incorporated into the upper soil layer to a depth of 5 - 15 cm. This will cover the treated sclerotia and protect the spores of **Contans WG** and help them to germinate. A post-harvest treatment of the soil and harvest debris with **Contans WG** prevents new contamination of the soil with sclerotia produced by the previous crop infection and also reduces the successive contamination of the soil.

## **Incorporation:**

**Mechanical:** Any suitable equipment that could turn the top 5 - 15 cm of soil e.g. rotavator, rotary hoe, etc.

**Drench:** Irrigate (or rain) with 15 - 25 mm irrigation just after application.

## **Integrated control strategy**

In situations of heavy *Sclerotinia* infestations (high level of sclerotia in the soil), a one-time application of **Contans WG** or traditional foliar treatments with chemical fungicides will unlikely give adequate control. In such cases the best results can only be achieved with a multi-year rotational treatment. With every application of **Contans WG** an average of 80 - 95 % of sclerotia are destroyed in the soil layer of the application area. As a result the *Sclerotinia* pressure is strongly reduced from one application to the next. However, in situations with heavy infections, a considerable number of uncontrolled sclerotia may remain viable. Therefore an integrated program with foliar chemical fungicides combined with a multi-year control strategy can ensure a sustainable and a long-lasting control.



