FORTRESS

BEFORE USING THIS PRODUCT, READ THE LABEL CAREFULLY
FORTRESS
FUNGICIDE
Reg. No. L9269, Act/Wet No. 36 of/van 1947
Namibian Reg. No. N-AR 1631
1: 09/07/2013
A suspension concentrate, systemic, translaminar and contact fungicide for the preventative control of diseases in crops as listed.
'n Suspensiekonsentraat, sistemiese, translaminêre en kontak swamdoder vir die beheer van siektes op gewasse soos aangedui.
FRAC FUNGICIDE GROUP CODE
11
FRAC SWAMDODERGROEPKODE
ACTIVE INGREDIENT / AKTIEWE BESTANDDEEL
Azoxystrobin (strobilurin)
250 g/ℓ
Asoksistrobien (strobilurien)
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
5ℓ
UN Number: 3082
Meridian agritech
CAUTION / VERSIGTIG
DIRECTIONS FOR USE ENCLOSED
Batch Number
Date of manufacture
REFER TO DETAILS AS PRINTED ON CONTAINER / BAG
GEBRUIKSAANWYSINGS INGESLUIT
Lotnommer
Datum van vervaardiging
VERWYS NA BESONDERHEDE SOOS OP HOUER / SAK GEDRUK

WARNINGS:

Withholding periods:
Citrus (excluding lemons) .... 77 days
Potatoes, maize, sweetcorn and tomatoes .... 7 days
Dry beans .... 45 days

NOTE: Withholding periods above are based on local requirements for residue levels and may differ from other countries to which treated products may be exported.

- Harmful if swallowed.
- Toxic to fish, harmful to other aquatic life.
- Avoid contact with skin or eyes as product may cause eye and skin irritation.
- Store in a cool, dry place away from food, feed and fertiliser.
- Store away from food, feed, seed and other agricultural chemicals.
- Keep away from children, uninformed persons and animals.
- **Re-entry:** Do not enter treated area until spray deposit has dried unless wearing protective clothing.
- **Aerial application:** Notify all of the inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warnings. Do not spray over or allow the drift to contaminate water or adjacent areas.

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 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 the application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal or for lack of performance of the remedy concerned due to failure of the user to follow the label instructions or to the occurrence of conditions which could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.

PRECAUTIONS

- Avoid contact with eyes, skin and inhalation of fumes and spray mist as product may cause mild eye and slight skin irritation.
- Wear protective clothing and face shield when preparing the spray mixture and during spraying.
- In case of direct contact with skin, wash immediately with soap and water.
- In case of direct eye contact, rinse for several minutes with clean water.
- Wash contaminated clothing daily, wash yourself.
- Do not eat, drink or smoke while preparing or applying the spray mix or before washing face and hands.
- Avoid drift of spray mist onto other crops, grazing, rivers, dams and other areas not under treatment.
- Clean equipment before and after use. Dispose of wash water where it will not contaminate crops pastures, rivers, dams or other water sources.
- Invert the empty container over the spray tank and allow to drain for at least 30 seconds after the flow has slowed to a drip. Rinse the empty container three times with a volume of water equal to a minimum of 10 % of that of the container. Add rinsings to the contents of the spray tank before destroying the container in the prescribed manner.
- Destroy empty containers by perforating and flattening before burning or burying in a safe way
- Prevent contamination of food, feed, drinking water and eating utensils.
- Do not apply **FORTRESS** to any crop or situation not mentioned in this label.
- 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.
- If **FORTRESS** 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

MODE OF ACTION

FORTRESS is a suspension concentrate formulation with protectant, curative, translaminar and systemic properties for the control of economically important diseases. **FORTRESS** is a fungicide of the chemical class strobilurins and is a Quinone outside inhibitor fungicide. The biochemical mode of action of **FORTRESS** is mitochondrial respiration inhibition by obstruction of electron transfer in the mitochondria of the cell between cytochrome b and cytochrome C_1 at the ubiquinol oxidising site. On the plant surface, the primary biological mode of action is the inhibition of spore germination and mycelia growth and also shows antisporulant activity.

RESISTANCE MANAGEMENT

For resistance management, **FORTRESS** is a group code 11 fungicide. Any fungus population may contain individuals naturally resistant to **FORTRESS** and other group code 11 fungicides. The resistant individuals can eventually dominate the disease population if these fungicides are used repeatedly. These resistant fungi may not be controlled by **FORTRESS** or any other group code 11 fungicide.

To delay fungicide resistance:

- Avoid exclusive repeated use of fungicides from the same fungicide group code. Alternate or tank mix with registered products from different fungicide group codes.
- Refer to individual product labels when alternating products or when using tank mixtures with products in fungicide group codes 7, 27, 28, 29, 30 and M.
- 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 disease control programmes.

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

General:

- To prevent pathogen populations from becoming resistant to **FORTRESS**, it is essential that applications of **FORTRESS** be alternated with other registered fungicides from a different chemical class than azoxystrobin (strobilurin). This resistance management strategy should not include alternation with or tank mixes of fungicides to which resistance has already developed or where resistance is suspected. The total number of **FORTRESS** applications must not exceed the recommended maximum number of applications to the same target area per season.
- **FORTRESS should always be applied preventively** as described under recommendations.
- Do not reduce the dosage rates below that recommended on the label.
- Never use any of the other strobilurin or strobilurin related chemicals in the same programme with **FORTRESS**.

MIXING INSTRUCTIONS

Half fill the spray tank with clean water. Add the recommended amount of **FORTRESS** to the spray water in the tank while filling is continued. After the spray tank is filled and during the spraying, the mixture should be constantly agitated until the spray tank is empty. If spraying is interrupted, the spray mixture in the tank should be agitated properly before spraying is commenced.

MIXING ORDER:

Pre-mixed slurries of wettable powder (WP) and water dispersible granule (WG) formulations should first be added to the spray water in the tank while filling the tank or constantly agitating the content. Follow with **FORTRESS** and other suspension concentrate (SC) formulations. Emulsifiable concentrate (EC) and soluble concentrate (SL) formulations should be mixed into the spray mixture after wettable powder or suspension concentrate formulations have been suspended in the spray water. When used, add leaf fertilizers last.
If a buffer compound is required, it should be added to the spray water before any other product is added. (Never mix products in undiluted form). Refer "**Compatibility**" below.

COMPATIBILITY

The compatibility of **FORTRESS** 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. **FORTRESS** is compatible with **SOLSAN SC** (L 9590), **VALEO 500 SC** (L 9086), mancozeb and a variety of other products such as mineral oils and buffers. When applying the **FORTRESS**, Mancozeb or copper oxychloride and mineral oil tank mixture in citrus, do not mix with any other agricultural chemical.

AERIAL APPLICATION
Aerial application of **FORTRESS** may only be done by a registered Aerial Application Operator using a correctly calibrated, registered aircraft according to the instructions of SANS Code 10118 (Aerial Application of Agricultural Remedies). Ensure that the spray mixture is distributed evenly over the target area and that the loss of spray material during application is restricted to a minimum.
Ensure that the applicator to be used is in a good working condition and correctly calibrated. It is therefore essential that the following criteria be met:

- **Volume:** A spray mixture volume of 40 L per hectare in potatoes and maize is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy, or be held responsible for any adverse effects if this product is applied aerially at a lower volume rate than recommended above.
- **Droplet coverage:** 25 to 35 droplets per cm² must be recovered at the target area.
- **Droplet size:** A droplet spectrum with a VMD of 280 – 300 microns is recommended. Limit the production of fine droplets less than 150 microns (high drift and evaporation potential) to a minimum.
- **Flying height:** Maintain the height of the spray boom at 3 to 4 metres above the target. Do not spray when aircraft dives, is in a climb or when banking.
- Use suitable **atomising equipment** that will produce the desired droplet size and coverage, but which will ensure the minimum loss of product. The spraying system must produce a droplet spectrum with the lowest possible Relative Span.
- Position all the atomisers within the inner 60 – 75 % of the wingspan to prevent droplets from entering the **wingtip vortices.**
- The difference in **temperature** between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8°C.
- Stop spraying if the **wind speed** exceeds 15 km/h.
- Stop spraying under **turbulent**, unstable and dry conditions during the heat of the day.
- Spraying under temperature **inversion conditions** (spraying in or above the inversion layer) and/or **high humidity conditions** (relative humidity 80 % and above) may lead to the following:
  - reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage).
  - damage to other sensitive crops and/or non-target areas through drifting of the suspended spray cloud away from the target field.
- Ensure that the Aerial Spray Operator knows exactly which fields to spray.
- Obtain an assurance from the Aerial Spray Operator that the above requirements will be met and that relevant data will be compiled in a logbook and kept for future reference.

Influence of rain on application:
Should it rain within three hours after application, the application must be repeated.

RECOMMENDATIONS

CITRUS

- **Tree preparation:**
  Good coverage of the spray material is very important for optimum disease control. Adequate pruning of low hanging branches and windows in trees with dense foliage, are important practices that will allow for good coverage. Penetration windows must ideally be pruned at 45 ° angles to spray lanes on both sides of the tree rows for improved spray penetration and optimum spray coverage.
- Re-application will be necessary should it rain before the spray deposit has dried.
- Ensure that the water volumes will ensure complete coverage of the trees.
- Ensure complete coverage of the trees:
  Citrus: 30 – 50 L/tree for older trees.
  Citrus: 20 – 40 L/tree for younger trees.
- Remove all out of season citrus fruit before commencing with the spray program.
- Avoid the use of **FORTRESS** on trees with visible symptoms of *Phytophthora*-root rot, nematode infestation, virus infection or any other physiological stress as effective product performance may be reduced.

CROP & DISEASE	DOSAGE RATE / 100 ℓ water	TIMING OF APPLICATION

CITRUS (Excluding lemons) **Citrus black spot** (*Guignardia citricarpa*)	20 mℓ **FORTRESS** + 150 g mancozeb WP + 300 - 500 mℓ light narrow range mineral oil.	Start the treatment programme by applying mancozeb (200 g/100 ℓ water) as soon as possible after 100% petal drop. Apply **FORTRESS** 3 weeks later as a high volume spray (approximately mid to end October) and repeat with a 2nd application of **FORTRESS** 6 weeks later (approximately end of November to beginning of December). If conditions remain favourable for infection a further 1 - 2 applications of mancozeb (200 g/100 L ℓ water) should be made at 21 - 24 day intervals to provide protection during January and February. The recommended rate of copper oxychloride is based on a formulation containing 850 g copper oxychloride/kg. Remove all fruit before applying **FORTRESS**. Apply mancozeb (200 g/100 L) preventatively during September and October and follow with the **FORTRESS** tank mixture during October and December. Apply additional sprays of mancozeb during January and February.

MAIZE

- Start application before 3 % of the total leaf surface area shows disease symptoms **OR** when symptoms are present on the basal 3 - 5 leaves.
- Never use **FORTRESS** as a corrective or curative application or after an unsuccessful application of any product.
- With short season hybrids when the first spray was applied after pollination, it will probably be sufficient to control the disease (a second spray might not be necessary).
- **FORTRESS** can be used in a spray programme with **PRONTO 250EC** (L.7602).
- Do not apply more than two applications of **FORTRESS** to maize in the same season.
- When multiple applications are necessary to control the disease, the last application for the season should be done with fungicides from a different chemical group other than strobilurin i.e. triazoles namely **PRONTO 250 EC.**

CROP & DISEASE	DOSAGE RATE / ha	TIMING OF APPLICATION
MAIZE & SWEETCORN **Grey leaf spot** (*Cercospora zeae-maydis*)	**Ground and aerial application** 400 mℓ **FORTRESS**/ha or 300 mℓ **FORTRESS**/ha followed by 300 mℓ **PRONTO 250 EC**/ha	With medium to long-season hybrids or if the first application was applied within three weeks before pollination, a follow-up application with **PRONTO 250 EC** must be applied 4 - 5 weeks later.
	300 mℓ **FORTRESS**/ha followed by 300 mℓ **FORTRESS**/ha followed by 300 mℓ **PRONTO 250 EC**/ha	In certain cases where the initial application was applied at a very early stage, a third application might be necessary. In this case the first two applications are made with **FORTRESS** at intervals of 4 - 5 weeks. The last application must be done with **PRONTO 250 EC** 4 - 5 weeks after the second application.
Rust (*Puccinia sorgi*)		The above rates of **FORTRESS** will also control **rust** if present. Refer to the Resistant Management Strategy above.
Spray volumes: **Tractor application:** 300 - 450 ℓ water/ha **High clearance tractor application:** 150 - 300 ℓ water/ha **Aerial application:** 40 ℓ water/ha **Knapsack sprayer application:** 60 - 70 ℓ water/ha		

Suggested Spray Programme:

Number of applications/season	Number of **FORTRESS** applications/season	**FORTRESS** rate: product / ha	Number of triazole applications/season	PRONTO 250 EC rate: product / ha
1	1	400 m ℓ	0	N/A
2	1	300 m ℓ	1	Registered rate
3	2	300 m ℓ each	1	Registered rate

POTATOES

- Apply in a preventive spray programme and alternate with **SOLSAN** every 7 days. Start application before the disease appears or when weather conditions favour the development of the disease. Ensure good coverage.
- Do not apply **FORTRESS** when the disease is already present. In this case, an appropriate systemic product should be applied. Apply at least two applications with a systemic product (e.g. **PRONTO 250 EC** or **SOVRIN FLO** (L.7601) or **CYMAX M WP** (L7680)), then return to the preventive spray programme as suggested.
- The total number of **FORTRESS** applications per season, must not exceed 30 % (normally three) of the total number of applications in the **FORTRESS / SOLSAN** spray programme.

Suggested spray programme for the control of early and late blight:

- The first 2 - 3 applications must be made with **SOLSAN** followed by a **FORTRESS** application 7 days later in the early flowering stage. Maintain this 7-day alternating product spray programme with **SOLSAN** until a maximum of 3 **FORTRESS** applications (or equal to a third of the total fungicide applications) have been made (Refer to Resistance Management Strategy above). Thereafter, continue with the **SOLSAN** applications throughout the rest of the growing season.
  Do not apply **FORTRESS** as the first or last application in the spray programme.
- Apply **SOLSAN** at the rates indicated on the **SOLSAN** label.
- The first 2 - 3 **SOLSAN** applications can be replaced by a **SOVRIN FLO** or **CYMAX M WP** application according to the label as applicable.

The suggested spray programme on potatoes will also control **late blight** (*Phytophthora infestans*).

CROP & DISEASE	DOSAGE RATE / ha	TIMING OF APPLICATION
POTATOES **Early blight** (*Alternaria solani*)	300 mℓ **FORTRESS** /ha alternated with **SOLSAN** 330 mℓ **FORTRESS** /ha alternated with **SOLSAN**	**Ground application** 300 mℓ **FORTRESS** /ha alternated with **SOLSAN** at 1 - 2 ℓ /ha in at least 500 ℓ water/ha. **Aerial application** 330 mℓ **FORTRESS** /ha alternated with **SOLSAN** at 1 - 2 ℓ /ha in 30 - 40 ℓ water/ha.

TOMATOES

- Apply in a preventive spray programme and alternate with **SOLSAN** every 7 days. Start application before the disease appears or when weather conditions favour the development of the disease. Ensure good coverage.
- Do not apply **FORTRESS** when the disease is already present. In this case, an appropriate systemic product should be applied. Apply at least two applications with a systemic product then return to the preventive spray programme as suggested.
- The total number of **FORTRESS** applications per season, must not exceed 30 % (up to six) of the total number of applications in the **FORTRESS** / **SOLSAN** spray programme.
- **FORTRESS** and **SOLSAN** should be applied in water volumes of a minimum of 300 ℓ to a maximum of 1 000 ℓ /ha on tomatoes from 10 to 130 cm high respectively.

Suggested spray programme:

- The first 2 - 3 applications must be made with **SOLSAN** followed by an **FORTRESS** application 7 days later in the early flowering stage (The **FORTRESS** may be applied earlier if weather conditions favour infection). Maintain this 7-day alternating product spray programme with **SOLSAN** until a maximum of 6 **FORTRESS** applications (or equal to a third of the total fungicide

applications) have been made (Refer to Resistance Management Strategy above). Thereafter, continue with the **SOLSAN** applications throughout the rest of the growing season.

- Do not apply **FORTRESS** as the first or last application in the spray programme.
- Apply **SOLSAN** at the rates indicated on the label.

The suggested spray programme on tomatoes will also control **early blight** (*Alternaria solani*).

CROP & DISEASE	DOSAGE RATE / 100 ℓ water	TIMING OF APPLICATION
TOMATOES **Late blight** (*Phytophthera infestans*)	80 - 120 mℓ **FORTRESS**/100 ℓ water alternated with **SOLSAN**	**Ground application:** 80 - 120 mℓ **FORTRESS**/100 ℓ water alternated with **SOLSAN** at 100 - 380 mℓ /100 ℓ water according to the disease pressure as specified on the **SOLSAN** label.

DRY BEANS

- **FORTRESS** can be used in a spray programme with **PRONTO 250 EC (**Registration on dry beans pending).
- Do not apply more than two applications of **FORTRESS** to dry beans in the same season.
- Do not apply **FORTRESS** as the first or last application in the spray programme.
- Never use **FORTRESS** as a corrective treatment or after an unsuccessful application of any product.

CROP & DISEASE	DOSAGE RATE /ha	TIMING OF APPLICATION
DRY BEANS **Anthracnose** (*Colletotrichum lindemuthianum*)	400 mℓ	Apply as a full cover preventative spray. Apply two consecutive sprays 14 days apart starting at flower initiation. Apply in sufficient water volumes to ensure adequate coverage. For optimal fungal disease control, apply in a spray programme together with **PRONTO 250 EC**. The above mentioned rate of **FORTRESS** will also control rust (*Uromyces appendiculatus*) if present. Refer to Resistant Management Strategy above.

ACKNOWLEDGEMENT OF TRADEMARKS

Cymax M WP (L 7680)	**Meridian Agrochemical Company (Pty) Ltd**
Pronto 250 EC (L 7602)	**Meridian Agrochemical Company (Pty) Ltd**
Solsan SC (L 9590)	**Meridian Agrochemical Company (Pty) Ltd**
Sovrin Flo (L 7601)	**Meridian Agrochemical Company (Pty) Ltd**
Valeo 500 SC (L 9086)	**Meridian Agrochemical Company (Pty) Ltd**

WAARSKUWINGS:

Onthoudingsperiodes:
Sitrus (uitsluitend suurlemoene) .... 77 dae
Aartappels, mielies, suikermielies en tamaties .... 7 dae
Droëbone .... 45 dae

NOTA: Bogenoemde onthoudingsperiodes is gebasseer op plaaslike vereistes vir residuvlakke en mag verskil van ander lande waarheen behandelde produkte moontlik uitgevoer word.

- Skadelik indien ingesluk word.
- Giftig vir visse, en skadelik vir ander waterorganismes.
- Vermy kontak met die vel of oë aangesien die produk oog- en velirritasie mag veroorsaak.
- Berg in 'n koel, droë plek weg van voedsel, voer en kunsmis.
- Berg weg van voedsel, voer, saad en ander landbchemikalieë.
- Hou buite bereik van kinders, oningeligte persone en diere.
- **Herbetreding**: Moet nie behandelde gebiede betree alvorens die spuitneerslag droog is nie, tensy beskermende klere gedra word.
- **Lugtoediening**: Stel al die inwoners in die onmiddellike omgewing van die gebied wat bespuit gaan word in kennis en reik die nodige waarskuwings uit. Moet nie oor water of aangrensende gebiede spuit, of toelaat dat die spuitnewel dit besoedel nie.

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

VOORSORGMAATREËLS

- Vermy kontak met oë, vel en inaseming van dampe of spuitnewel aangesien hierdie produk matige oog-en ligte velirritasie kan veroorsaak.
- Dra beskermende klere en gesigskerm wanneer die spuitmengsel gemeng word en tydens toediening.
- In die geval van direkte kontak met die vel, was dadelik met seep en water.
- In die geval van direkte oogkontak, spoel vir 'n paar minute uit met skoon water.
- Was besoedelde klere daagliks, was jouself.
- Moet nie eet, drink of rook tydens toediening of vermenging nie, of voordat die gesig en hande gewas is nie.
- Vermy wegdrywing van spuitnewel na ander gewasse, weiding, riviere, damme en ander gebiede wat nie onder behandeling is nie.
- Maak die toerusting voor en na gebruik skoon. Raak van waswater ontslae waar dit nie gewasse, weidings, riviere, damme of enige ander waterbronne sal besoedel nie.
- Keer die leë houer om oor die spuittenk en dreineer vir minstens 30 sekondes nadat die vloei tot 'n drup verminder het. Spoel die leë houer drie keer uit met 'n volume water gelykstaande aan 'n minimum van 10% van die Inhoud van die houer. Gooi die spoelwater by die inhoud van die spuittenk voordat die houer op die voorgeskrewe wyse vernietig word.
- Vernietig leë houers deur gate in te maak en plat te slaan voor die brand of begrawe in 'n veilige manier.
- Vermy besoedeling van voedsel, voer, drinkwater en eetgerei.
- Moet nie **FORTRESS** toedien op enige gewas of situasie wat nie op hierdie etiket verskyn nie.
- Moet nie hierdie produk in kombinasie of tenkmengsels toedien met enige ander produk of landboumiddel wat nie spesifiek op die etiket gelys is vir toediening nie. Meridian Agrochemical Company (Pty) Ltd aanvaar geen verantwoordelikheid vir enige negatiewe gevolge wat tot gevolg het as die instruksies op die etiket nie nagekom word nie, tensy 'n Meridian verteenwoordiger geraadpleeg is.
- As **FORTRESS** met ander produkte in tenkmengsels gebruik word, moet die gebruiksaanwysings van die betrokke produk ook gevolg word.

GEBRUIKSAANWYSINGS
Gebruik slegs soos aangedui

METODE VAN WERKING

FORTRESS is 'n suspensiekonsentraat formulering met beskermende, genesende, translaminêre en sistemiese eienskappe vir die beheer van die ekonomies belangrike siektes. **FORTRESS** is 'n swamdoder van die chemiese klas strobiluriene en is 'n Kinoon buite-inhibeerder swamdoder. Die biochemiese werking van **FORTRESS** is mitochondriale respirasie inhibisie deur obstruksie van elektronoordrag in die mitochondria van die sel tussen sitochroom b en sitochroom C1 by die ubiquinol oksiderende area. Op die plantoppervlak is die primêre biologiese modus van aksie die inhibisie van spoorontkieming en miselium groei en toon ook antisporulant aktiwiteit.

WEERSTANDSBESTUUR

Vir weerstandsbestuur, is **FORTRESS** 'n Groepkode 11 swamdoder. Enige swampopulasie mag individue insluit wat 'n natuurlike weerstand teen **FORTRESS** of enige ander Groepkode 11 swamdoder het. Indien hierdie swamdoders herhaaldelik aangewend word, kan die weerstandbiedende individue uiteindelik die swam populasie oorheers. Hierdie weerstandswamme sal waarskynlik nie deur **FORTRESS** of enige ander Groepkode 11 swamdoder, beheer word nie.

Om weerstand teen swamdoders te vertraag:

- Vermy die eksklusiewe herhaaldelike gebruik van swamdoders met dieselfde groepkode. Wissel af met, of gebruik tenkmengsels van geregistreerde produkte in verskillende swamdodergroepkodes.
- Sien toepaslike individuele produketikette wanneer middels afgewissel word, of tenkmengsels gebruik word, met produkte in swamdodergroepkodes 7, 27, 28, 29, 30 en M.
- 'n Spuitprogram of tenkmengsels met middels met 'n ander modus van aksie kan weerstandige stam opbou vertraag.
- Integreer ander beheermaatreëls (chemies, verbouing, biologies) in swamdoderprogramme.

Vir spesifieke inligting oor weerstandsbestuur kontak die registrasiehouer van hierdie produk.

Algemeen:

- Om te voorkom dat patogeenpopulasies weerstandbiedend raak teen **FORTRESS**, is dit noodsaaklik om toedienings van **FORTRESS** af te wissel met ander geregistreerde swamdoders uit 'n ander chemiese klas as asoksiestrobien (strobilurien). Hierdie weerstandbestuurstrategie moet nie afwisseling met of tenkmengsels van swamdoders waarteen weerstand alreeds ontwikkel het, insluit nie.
- Die totale getal van die **FORTRESS** toedienings moet nie meer as die aanbevole maksimum aantal toedienings omp dieselfde teikenarea per seisoen oorskry nie.
- **FORTRESS moet altyd voorkomend toegedien word** soos voorgeskryf onder aanbevelings.
- Moet nie **FORTRESS** teen laer dosisse soos aanbeveel op hierdie etiket, toedien nie.
- Moet nooit enige van die ander strobilurien of strobilurien verwante middels in dieselfde program as **FORTRESS** toedien nie.

MENGSINSTRUKSIES

Maak die spuittenk halfvol met skoon water. Voeg die benodigde hoeveelheid **FORTRESS in** die spuitwater in die tenk en maak die tenk vol met water tot by die verlangde volume terwyl aanhoudend geroer word. Na afloop van die tenk gevul is en tydens toediening, moet die mengsel voortdurend geroer word totdat die tenk leeg is. As bespuiting onderbreek word, moet die spuitmengsel in die tenk deeglik geroer word voordat bespuiting hervat word.

VERMENGING VOLGORDE:

Voor-verroomde benatbare poeier (WP) en Waterdispergeerbare korrel (WG) formulasies moet eerste bygevoeg word in die spuitwater in die tenk terwyl die tenk vol gemaak word of voortdurend geroer word. Volg op met **FORTRESS** en ander suspensiekonsentraat (SC) formulasies. Emulgeerbare konsentraat (EC) en oplosbare konsentraat (SL) formulasies moet in die spuitmengsel na benatbare poeier of suspensiekonsentraat formulerings opgeskort het in die spuitwater en gemeng word. Wanneer dit gebruik word, voeg blaarkunsmis laaste by.
As 'n buffer verbinding vereis word, moet dit bygevoeg word in die spuitwater voordat enige ander produk bygevoeg word. (Moet nooit produkte in onverdunde vorm meng nie). Sien "**Verenigbaarheid**" hieronder.

VERENIGBAARHEID
Die verenigbaarheid van **FORTRESS** met ander produkte hang af van die formulasie van die betrokke produkte asook die kwaliteit van die spuitwater. Omrede formulasies van tyd tot tyd kan verander, is dit te aanbevole dat 'n fisiese verenigbaarheidstoets uitgevoer word, voor die tenkmengsel gemaak word. **FORTRESS** is verenigbaar met **SOLSAN SC** (L 9590), **VALEO 500 SC** (L 9086), mankoseb en 'n verskeidenheid van ander produkte soos minerale olies en buffers. By die toediening van **FORTRESS**, mankoseb of koperoksichloried en minerale olie tenkmengsels in sitrus, moet nie met enige ander landboumiddel meng nie.

LUGTOEDIENING

Lugtoediening van **FORTRESS** mag slegs deur 'n geregistreerde lugbespuitingsoperateur met 'n korrek gekalibreerde en geregistreer vliegtuig volgens die instruksies van SANS Kode 10118 (Aerial Application of Agricultural Remedies) gedoen word. Verseker dat die spuitmengsel eweredig oor die teikenarea versprei word en dat die verlies aan spuitmengsel tydens toediening tot 'n minimum beperk word. Dit is dus noodsaaklik dat die volgende kriteria nagekom moet word:

- **Volume:** 'n Spuitmengsel volume van 40 L per hektaar in aartappels en mielies word aanbeveel. Aangesien hierdie produk nie teen 'n laer volume getoets is nie, kan die registrasiehouer nie effektiwiteit waarborg, of verantwoordelik gehou word vir enige nadelige effekte indien die produk teen 'n laer volume, as hierbo aanbeveel, uit die lug toegedien word nie.
- **Druppelbedekking**: 'n Druppelbedekking van 25 tot 35 druppels per cm ² moet op die teikenarea herwin word.
- **Druppelgrootte:** 'n Druppelspektrum met 'n VMD van 280 – 300 mikrons word aanbeveel. Verseker dat die produksie van druppels kleiner as 150 mikrons (hoë drywing en verdampingspotensiaal) tot 'n minimum beperk word.
- **Vlieghoogte:** Die hoogte van die spuitbalk moet op 3 tot 4 meter bo die teiken gehandhaaf word. Moet nie spuit wanneer die vliegtuig duik, uitklim of bank nie.
- Gebruik geskikte **atomiseringsapparaat** wat die vereiste druppelgrootte en bedekking sal produseer, maar wat die minste verlies van produk sal verseker. Die spuitstelsel moet 'n druppelspektrum met die kleinste moontlike relatiewe span produseer.
- Al die atomiseerders moet in die binneste 60 - 75% van die vlerkspan geplaas word om die beweging van druppels in die **vlerkvorteks** in te beperk.
- Die verskil in **temperatuur** tussen die nat-en droëboltermometer van 'n swaaihigrometer moet nie 8 ° C oorskry nie.
- Stop bespuiting indien die **windspoed** 15 km / uur oorskry.
- Stop bespuiting tydens **turbulente**, onstabiele en droë toestande gedurende die hitte van die dag.
- Bespuiting onder temperatuur **inversie toestande** (deur bo of binne die inversie laag te spuit) en / of **hoë lugvog toestande** (relatiewe humiditeit 80% en meer) mag lei tot die volgende:
  - verlaagde effektiwiteit as gevolg van die suspensie en verdamping van klein druppels in die lug (onvoldoende dekking op teiken).
  - Skade aan sensitiewe gewasse en / of nie-teiken areas as gevolg van wegdrywing van die spuitnewel weg van die teikenarea af.
- Verseker dat die lugbespuitingsoperateur presies weet watter lande bespuit moet word.
- Kry versekering van die lugbespuitingsoperateur dat aan al die bogenoemde vereistes voldoen sal word en dat data van belang in 'n logboek saamgevat is vir toekomstige verwysing.

Invloed van reën op toediening:
Indien dit reën binne drie ure na toediening, moet bespuiting herhaal word.

AANBEVELINGS

SITRUS

- **Boomvoorbereiding**:
  Vir optimale siektebeheer is goeie bedekking met die spuitstof baie belangrik. Voldoende snoei van laaghangende takke en vensters in digbeblaarde bome, is belangrike praktyke wat goeie dekking sal verseker. Penetrasie-vensters moet ideaal met 45 ° hoeke tot spuitbane aan albei kante van die boomrye gesnoei word vir verbeterde spuitpenetrasie en optimale bedekking.
- 'n Herbespuiting sal nodig wees indien dit reën voordat die spuitneerslag droog geword het.
- Verseker dat die watervolumes 'n volledige boombedekking sal verseker.
- Verseker deeglike bedekking van die bome:

Sitrus: 30 – 50 ℓ / boom op ouer bome.
Sitrus: 20 - 40 ℓ / boom vir jonger bome.

- Verwyder alle buite-seisoen vrugte voordat met die spuitprogram begin word.
- Vermy die gebruik van **FORTRESS** op bome wat sigbare simptome toon van *Phytophthora*-wortelvrot, aalwurmbesmetting, virusbesmetting of enige ander fisiologiese stremming aangesien effektiewe produkwerking verlaag mag word.

GEWAS & SIEKTE	DOSIS /100 ℓ water	TOEDIENINGSTYD
SITRUS (Uitsluitend suurlemoene) **Swartvlek** (*Guignardia citricarpa*)	20 mℓ **FORTRESS** + 150 g mancozeb WP + 300 - 500 mℓ ligte smalbestek minerale olie	Begin die beheerprogram so gou as moontlik na 100% blomblaarval met 'n toediening van mankoseb (200 g/100 ℓ water). Volg 3 weke later as 'n hoë volume bespuiting met die 1ste **FORTRESS** toediening (ongeveer middel tot einde Oktober) en herhaal met 'n 2de toediening van **FORTRESS** 6 weke later (ongeveer einde November tot begin Desember). Indien toestande gunstig bly vir infeksie moet 'n verdere 1-2 toedienings van mankoseb (200 g/100 ℓ water) met tussenposes van 21 - 24 dae toegedien word om beskerming tydens Januarie en Februarie te verskaf. Die aanbevole koperoksichloried dosis is gebaseer op 'n formulering wat 850 g koperoksichloried / kg bevat. Verwyder alle vrugte voor toediening van **FORTRESS**. Dien mankoseb (200 g/100 ℓ water) voorkomend toe tydens September en Oktober en volg op met die **FORTRESS** tenkmengsel tydens Oktober en Desember. Volg op met verdere toedienings van mankoseb tydens Januarie en Februarie.

MIELIES

- Begin toediening voordat 3% van die totale blaaroppervlak siektesimptome toon **OF** wanneer simptome op die 3 - 5 onderste blare teenwoordig is.
- Moet nooit **FORTRESS** as 'n korrektiewe of kuratiewe toediening gebruik nie of na 'n onsuksesvolle toediening van enige produk.
- Met kort-seisoen basters waar die eerste bespuiting na bestuiwing gemaak word, sal dit waarskynlik voldoende wees om die siektes te beheer (geen tweede bespuitings sal benodig word nie).
- **FORTRESS** kan toegedien word in 'n spuitprogram met **PRONTO 250EC** (L 7602).
- Moet nie meer as twee toedienings van **FORTRESS** in dieselfde seisoen in mielies toedien nie.
- Wanneer verskeie programme nodig is om die siekte te beheer, moet die laaste toediening vir die seisoen gedoen word met swamdoders uit 'n ander chemiese groep as strobiluriene soos bv. triasole naamlik **Pronto 250 EC.**

GEWAS & SIEKTE	DOSIS /ha	TOEDIENINGSTYD
MIELIES & SUIKERMIELIES **Grysblaarvlek** (*Cercospora zeae-maydis*)	**Grond- en lugtoediening** 400 mℓ **FORTRESS**/ha of 300 mℓ **FORTRESS**/ha gevolg deur 300 mℓ **PRONTO 250 EC**/ha	Met medium- tot lang-seisoen basters of waar die eerste bespuiting binne drie weke voor bestuiwing toegedien is, moet 'n opvolgtoediening van **Pronto 250 EC** 4 - 5 weke later gedoen word.
	300 mℓ **FORTRESS**/ha gevolg deur 300 mℓ **FORTRESS**/ha gevolg deur 300 mℓ **PRONTO 250 EC**/ha	In sekere gevalle waar die aanvanklike toediening op 'n baie vroeë stadium gedoen is, mag 'n derde bespuiting nodig wees. In hierdie geval word die eerste twee bespuitings met **FORTRESS** gedoen met tussenposes van 4 - 5 weke. Die laaste

		toediening moet met **Pronto 250 EC** 4 - 5 weke na die tweede toediening, gedoen word.
Roes (*Puccinia sorgi*)		Die bogenoemde dosisse van **FORTRESS** sal ook roes beheer indien teenwoordig. Verwys na die Weerstandbestuurstrategie bo.
Spuitvolumes: **Trekkertoediening:** 300 - 450 ℓ water/ha **Hoë-balk trekkertoediening:** 150 - 300 ℓ water/ha **Lugtoediening:** 40 ℓ water/ha **Rugsakspuittoediening:** 60 - 70 ℓ water/ha		

Voorgestelde spuitprogramme:				
Aantal toedienings/seisoen	Aantal **FORTRESS** toedienings/seisoen	**FORTRESS** dosis: produk / ha	Aantal triasool toedienings/seisoen	**PRONTO 250 EC** dosis: produk / ha
1	1	400 mℓ	0	N/A
2	1	300 mℓ	1	Geregistreerde dosis
3	2	300 mℓ elk	1	Geregistreerde dosis

AARTAPPELS

- Dien toe in 'n voorkomende spuitprogram en wissel af met **SOLSAN SC** elke 7 dae. Begin toediening voor die siekte verskyn, of wanneer weerstoestande gunstig is vir die ontwikkeling van die siekte. Verseker goeie bedekking.
- Moet nie **FORTRESS** toedien as die siekte reeds teenwoordig is nie. In die geval, kan 'n toepaslike sistemiese produk toegedien word. Dien ten minste twee toedienings met 'n sistemiese produk (bv. **Pronto 250 EC** of **SOVRIN FLO** (L.7601) of **CYMAX M WP** (L7680)) toe en keer dan terug na die voorkomende spuitprogram soos voorgestel.
- Die totale aantal **FORTRESS**-bespuitings per seisoen, mag nie 30% (gewoontlik drie) van die totale aantal bespuitings in die **FORTRESS** / **SOLSAN SC** spuitprogram oorskry nie.

Voorgestelde spuitprogram vir die beheer van vroeë en laatroes:

- Die eerste 2 - 3 bespuitings moet met **SOLSAN SC** gedoen word gevolg deur 'n **FORTRESS** -bespuiting 7 dae later in die vroeë blomstadium. Hou vol met hierdie 7-dag afwisselende produk spuitprogram met **SOLSAN SC** totdat 'n maksimum van 3 **FORTRESS**-toedienings (of gelyk aan 'n derde van die totale swamdoder bespuitings) gemaak is (Verwys na Weerstand-bestuurstrategie bo). Gaan daarna, voort met die **SOLSAN SC** bespuitings vir die res van die groeiseisoen.
- Moet nie **FORTRESS** as die eerste of laaste bespuiting in die spuitprogram toedien nie.
- Dien **SOLSAN SC** toe teen die dosisse soos op die **SOLSAN SC** etiket aangedui.
- Die eerste 2 - 3 **SOLSAN SC** toedienings kan vervang word met **SOVRIN FLO** of **CYMAX M WP** soos aanbeveel op die etiket.

Die voorgestelde spuitprogram op aartappels sal ook **laatroes** (*Phytophthora infestans*) beheer.

GEWAS & SIEKTE	**DOSIS /ha**	**TOEDIENINGSTYD**
AARTAPPELS **Vroeë roes** (*Alternaria solani*)	300 mℓ **FORTRESS**/ha afgewissel met **SOLSAN SC**. 330 mℓ **FORTRESS**/ha afgewissel met **SOLSAN SC**.	**Grondtoediening:** 300 mℓ **FORTRESS**/ha afgewissel met **SOLSAN SC** at 1 - 2 ℓ/ha in minstens 500 ℓ water/ha. **Lugtoediening:** 330 mℓ **FORTRESS**/ha afgewissel met **SOLSAN SC** teen 1 - 2 ℓ/ha in 30 - 40 ℓ water/ha.

TAMATIES

- Dien toe in 'n voorkomende spuitprogram en wissel af met **SOLSAN SC** elke 7 dae. Begin toediening voor die siekte verskyn, of wanneer weerstoestande gunstig is vir die ontwikkeling van die siekte. Verseker goeie bedekking.
- Moet nie **FORTRESS** toedien as die siekte reeds teenwoordig is nie. In die geval kan 'n toepaslike sistemiese produk toegedien word. Dien ten minste twee bespuitings met 'n sistemiese produk toe.
- Die totale aantal **FORTRESS**-bespuitings per seisoen, moet nie meer as 30% (tot ses) van die totale aantal bespuitings in die **FORTRESS** / **SOLSAN SC** spuitprogram oorskry nie.
- Dien **FORTRESS** en **SOLSAN SC** toe in watervolumes van 'n minimum van 300 ℓ tot 'n maksimum van 1 000 ℓ / ha op tamaties vanaf 10 tot 130 cm hoog respektiewelik.

Voorgestelde spuitprogram:

- Die eerste 2 - 3 bespuitings moet met **SOLSAN SC** gedoen word gevolg deur 'n **FORTRESS**-bespuiting 7 dae later in die vroeë blomstadium (**FORTRESS** kan vroeër toegedien word indien die weerstoestande gunstig is vir die ontwikkeling van infeksie). Hou vol met hierdie 7-dag afwisselende produk spuitprogram met **SOLSAN SC** tot 'n maksimum van 6 **FORTRESS**-toedienings (of gelyk aan 'n derde van die totale aantal swamdoder bespuitings) gemaak is (Verwys na Weerstandbestuurstrategie bo). Gaan daarna, voort met die **SOLSAN SC** bespuitings vir die res van die groeiseisoen.
- Moet nie **FORTRESS** as die eerste of laaste bespuiting in die spuitprogram gebruik nie.
- Dien **SOLSAN SC** toe teen dosisse soos op die **SOLSAN SC** etiket aangedui.

Die voorgestelde spuitprogram op tamaties sal ook **vroeë roes** (*Altenaria solani*) beheer.

GEWAS & SIEKTE	DOSAGE RATE / 100 ℓ water	TOEDIENINGSTYD
TAMATIES **Laatroes** (*Phytophthera infestans*)	80 - 120 mℓ **FORTRESS**/100 ℓ water afgewissel met **SOLSAN**	**Grondtoediening:** 80 - 120 mℓ **FORTRESS/**100 ℓ water afgewissel met **SOLSAN SC** by 100 - 380 mℓ / 100 ℓ water afhangende van die siektedruk soos beskryf op die **SOLSAN SC** etiket.

DROËBONE

- **FORTRESS** kan in 'n spuitprogram saam met **Pronto 250 EC** (Registrasie op droëbone hangende) gebruik word.
- Moet nie meer as twee toedienings **FORTRESS** op droëbone in dieselfde seisoen toedien nie.
- Moet nie **FORTRESS** as die eerste of laaste toediening in die spuitprogram gebruik nie.
- Moet nooit **FORTRESS** as 'n korrektiewe bespuiting gebruik nie of na 'n onsuksesvolle toediening van enige ander produk.

GEWAS & SIEKTE	DOSIS /ha	TOEDIENINGSTYD
DROËBONE **Antraknose** (*Colletotrichum lindemuthianum*)	400 mℓ	Dien toe as 'n volle voorkomende dekbespuiting. Dien toe in twee opeenvolgende bespuitings 14 dae uitmekaar met blom. Dien toe in genoeg watervolumes om volledige benatting te verseker. Vir optimale swamsiektebeheer, dien toe in 'n spuitprogram saam met **Pronto 250 EC**. Teen bogenoemde dosis sal **FORTRESS** ook roes (*Uromyces appendiculatus*) beheer indien teenwoordig. Verwys na Weerstandbestuurstrategie bo.

ERKENNING VAN HANDELSMERKE

Cymax M WP (L 7680)	**Meridian Agrochemical Company (Pty) Ltd**
Pronto 250 EC (L 7602)	**Meridian Agrochemical Company (Pty) Ltd**
Solsan SC (L 9590)	**Meridian Agrochemical Company (Pty) Ltd**
Sovrin Flo (L 7601)	**Meridian Agrochemical Company (Pty) Ltd**