

CORAGEN®

SOUTH AFRICA Registration Number/Registrasie Nommer L8529, Act No. 36 of 1947/Wet 36 van 1947

BOTSWANA Registration Number/Registrasie Nommer W130932

MALAWI Registration Number/Registrasie Nommer MW/PCB/2018/0907

NAMIBIA Registration Number/Registrasie Nommer N-AR1649

**READ THE LABEL BEFORE USE
KEEP OUT OF REACH OF CHILDREN AND ANIMALS**

GROUP/GROEP	28	INSECTICIDES	INSEKDODERS
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A suspension concentrate stomach and contact insecticide for the control of various insect pests on a variety of crops as listed.	'n Suspensie konsentraat maag en kontak insekdoder vir die beheer van verskeie plaë op verskillende gewasse soos aangetoon.
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HAZARD STATEMENTS:

Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS:

Avoid release to the environment

Collect spillage

Dispose of contents/container to an approved waste disposal plant

WARNING

Active ingredient

Chlorantraniliprole (anthranilic diamide) – 200 g/L

Aktiewe bestanddeel

chlorantranilipool (antraniliese diamied) – 200 g/L

Net Volume

200ml, 1L

Netto Volume

REGISTRATION HOLDER/REGISTRASIEHOUER

FMC Chemicals (Pty) Ltd

Company Registration Number: 1988/001451/07

West End Office Park

Building C

Cnr West Ave & Hall Street

Centurion, 0014

www.ag.fmc.com/za/en

Batch Number

Date of Manufacture

Expiry Date

Printed on Container

Printed on Container

**3 Years from date of
manufacture**

Lot Nommer

Datum van Vervaardiging

Vervaldatum

UN Number/VN Nommer

3082

**For any emergency or poisoning contact: Griffon Poison Information
Centre (24 hrs)
Vir enige noodgeval of vergiftiging kontak Griffon vergiftiging
Inligtingsentrum (24 hr)**

+27-(0)-82-446-8946

WARNINGS:

HAZARD STATEMENTS:

- Very toxic to aquatic life with long lasting effects.

WITHHOLDING PERIODS:

- The following minimum number of days (withholding periods) between last application and harvest must be adhered to:

Citrus	7 days
Eggplant	1 day
Hops	1 day
Maize & Sweetcorn	7 days
Pomegranates	7 days
Sorghum	21 days
Soybeans	21 days
Sugarcane	28 days
Tomatoes	1 day

- Handle with care.
- This product is not likely to be hazardous by inhalation or skin contact.
- This product is toxic to aquatic invertebrates.
- Keep out of the reach of children, uninformed persons and animals.
- Store in the closed labelled original container at temperatures not exceeding 25°C away from food and feed.
- Use of this material in a manner or at a time other than in accordance with the directions may cause excessive residues or other undesirable results.
- **RE-ENTRY:** Do not enter treated area until spray deposit has dried.
- Optimal systemic activity of **CORAGEN**[®] depends on translocation of the active ingredients inside the treated plant. Therefore reduced efficacy may occur when stress factors such as drought impairs translocation.
- The withholding period or pre-harvest interval (PHI), i.e. number of days between last application and harvest, meets local maximum residue limits (MRL's), but may not necessarily meet all those for export crops. Before applying **CORAGEN**[®] consult your local FMC representative, as well as the latest "Recommended usage restrictions for plant protection Products on Southern African Export Citrus" compiled by Citrus Research International and the Citrus Growers Association of South African, which contains updated MRL and recommended PHI information on citrus intended for export.

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 pest 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. Consult the supplier immediately in the event of any uncertainty.

PRECAUTIONS:

PRECAUTIONARY STATEMENTS:

- Avoid release to the environment
- Collect spillage
- Dispose of contents/container to an approved waste disposal plant

HAZARDOUS INGREDIENTS:

Contains reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1). May produce an allergic reaction.

- Do not inhale spray mist.
- Do not enter treated areas until the sprayed solution has dried.
- Persons in contact with the insecticide should wear protective clothing (long-sleeved shirts and long pants, shoes with socks and gloves).
- Wash yourself after application of the product.
- Wash contaminated clothing after working with the product.
- In case of eye contact wash immediately with plenty of water.
- In case of ingestion call a physician or poison centre.
- Do not eat, drink or smoke whilst applying or mixing, or before washing hands and face.
- Prevent contamination of feed, food, eating utensils and drinking water.
- **DO NOT APPLY DIRECTLY TO AND PREVENT DRIFT ONTO OTHER EDIBLE CROPS THAN INDICATED ON THE LABEL, GRAZING, RIVERS, DAMS AND AREAS NOT UNDER TREATMENT.**
- Clean applicator after use and dispose of wash water where it will not contaminate crops, grazing, food or water.
- **TRIPLE RINSE** the empty container as follows: Invert the empty container over the spray or mixing tank and drain for at least 30 seconds after the flow has slowed down to dripping. Thereafter rinse the empty container three times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler (www.croplife.co.za). Do not bury, burn or donate the container to any other parties that may use it as a container for food or beverages.

FIRST AID MEASURES:

General advice:

Never give anything by mouth to an unconscious person.

Inhalation:

No hazards which require special first aid measures. Consult a physician after significant exposure.

Skin contact:

No hazards which require special first aid measures. If on skin, rinse well with water. Wash contaminated clothing before re-use.

Eye contact:

Hold eye open and rinse slowly and gently with water for 15-20 minutes. If eye irritation persists, consult a specialist.

Ingestion:

No hazards which require special first aid measures. Consult a physician if necessary.

RESISTANCE STATEMENT:

Coragen® contains chlorantraniliprole, a Group 28 insecticide, based on the international IRAC* Mode of Action classification. Repeated and exclusive use of Coragen® or other Group 28 Insecticides may create resistant insect populations. Follow these recommendations to prevent or delay the development of insecticide resistance to Coragen®:

- Do not apply more than the recommended applications of Coragen® per season for any crop. Refer to "Directions for use" for the particular crop guidelines.
- Apply Coragen® or other Group 28 insecticides using a "window" approach to avoid exposure of multiple successive pest generations to the same mode of action. A window is defined as the period of residual activity with insecticides of the same mode of action within an approximate 30 day period.
- Two successive applications of Coragen® may be made within a treatment window to protect new growth or control high pest populations.
- Following a window of use with Coragen® or other Group 28 insecticides, rotate to a window using effective insecticides with a different mode of action.
- The period between group 28 "treatment windows" should be at least 60 days starting from the last application of group 28 insecticides.

- Incorporate IPM practices (cultural and biological control) into the pest management program.
- Monitor insect populations for loss of field efficacy.
- Target the most sensitive life stage of the pest, typically small larvae.
- If you experience difficulty with control, and resistance is a reasonable cause, immediately consult your local company representative or agricultural advisor for the best alternate method of control for your area.

*IRAC - Insecticide Resistance Action Committee. For additional information on insect resistance visit the web at <http://www.irac-online.org>.

IPM AND BENEFICIAL AND OTHER NON-TARGET INSECTS:

FMC supports the use of Integrated Pest Management (IPM) programs to control insect pests. This product may be used as part of an IPM program, which can include biological, cultural, and genetic practices, aimed at preventing economic pest damage. IPM principles and practices include field scouting or other detection methods, correct target pest identification, population monitoring, rotation of insecticides with different modes-of-action, and treating when target pest populations reach locally determined action thresholds.

Chlorantraniliprole is a product that is highly effective in the control of insects and may cause adverse effects to non-target organisms and aquatic invertebrates. To avoid harm, caution must be used in areas where desirable non-target species may be present.

To comply with Good Agricultural Practices:

- Do not spray when pollinators are active.
- Do not apply near or directly to water.
- Do not allow product to drift.

Read and follow the label in its entirety for directions for use and additional precautionary information. Understand and implement Good Agricultural Practices when using this product. Consult your local Extension Agent, Crop Consultant or FMC representative for additional information on Good Agricultural Practices.

This product is toxic to silkworms. Do not allow product to drift to silkworm production areas or mulberry orchards. To avoid harm, caution must be used in areas where desirable non-target species may be present.

GENERAL INFORMATION:

CORAGEN® has a novel mode of action and acts by binding to and activating insect ryanodine receptors. This activation stimulates release and depletion of calcium from the internal stores of muscles, resulting in impaired muscle regulation, paralysis and ultimately insect death. Death of the pest occurs within 2-3 days, but inhibition of insect movement and feeding occurs rapidly.

CORAGEN® is active as a larvicide through ingestion (stomach action) and through cuticular absorption (contact action).

CORAGEN® controls mainly Lepidopteran insect pests, but also some insect pests in other Orders e.g. Coleoptera, Diptera etc.

RAINFASTNESS:

CORAGEN® has good rainfastness when exposed to rainfall or sprinkler irrigation and the expected residual activity of the product should not be adversely affected.

SPRAY DRIFT MANAGEMENT:

Special care must be taken to avoid spray drifts outside the target area, or onto ponds, waterways or ditches. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly or under unfavourable environmental conditions. It is the responsibility of the applicator to determine that a sprayer is suitable for the intended application, is configured properly, and that a drift is not occurring.

DIRECTIONS FOR USE:

USE ONLY AS DIRECTED

COMPATIBILITY:

The compatibility of **CORAGEN®** has not been fully investigated.

TOMATOES & EGGPLANT:

CORAGEN® is compatible with:

Tanos® (**SOUTH AFRICA** Reg. No. L6564 Act No. 36 of 1947),

Dithane™ M-45 800 WP NT (**SOUTH AFRICA** Reg. No. L7484 Act No. 36 of 1947, **NAMIBIA** Reg. No. N-AR 1043, Act No. 36 of 1947),

Villa 51 (**SOUTH AFRICA** Reg. No. L8050 Act No. 36 of 1947),

Entrée (**SOUTH AFRICA** Reg. No. L8055 Act No. 36 of 1947),

Consult the labels of the above-mentioned products for full particulars.

POTATOES:

CORAGEN® is compatible with:

Tanos® (**SOUTH AFRICA** Reg. No. L6564 Act No. 36 of 1947),

Dithane™ M-45 800 WP NT (**SOUTH AFRICA** Reg. No. L7484 Act No. 36 of 1947, **NAMIBIA** Reg. No. N-AR 1043, Act No. 36 of 1947),

Villa 51 (**SOUTH AFRICA** Reg. No. L8050 Act No. 36 of 1947),

H & R Crop Oil (**SOUTH AFRICA** Reg. No. L6802 Act No. 36 of 1947),

Break-Thru (**SOUTH AFRICA** Reg. No. L6764 Act No. 36 of 1947),

Consult the labels of the above-mentioned products for full particulars.

SUGARCANE:

CORAGEN® is compatible with:

Villa 51 (**SOUTH AFRICA** Reg. No. L8050 Act No. 36 of 1947),

Entrée (**SOUTH AFRICA** Reg. No. L8055 Act No. 36 of 1947),

Consult the labels of the above-mentioned products for full particulars.

For more compatibility information, or in the event of uncertainty, contact your nearest **FMC** representative.

It is recommended that users premix a small quantity of a desired tank mixture containing **CORAGEN®** and observe for possible adverse changes (settling out, flocculation, etc.). Avoid tank mixtures of several products.

TANK MIXING:

Spray equipment must be clean and free of previous pesticide deposits before applying **CORAGEN®**. Fill spray tank ¼ to ½ full with clean water. Add the required amount of **CORAGEN®** directly into the tank and fill with water whilst stirring constantly.

TANK MIXING SEQUENCE:

Add different formulation types in the sequence indicated below*. Allow time for complete mixing and dispersion after addition of each product.

1. Water soluble bag.
2. Water dispersible granules for example Tanos®
3. Wettable powders.
4. **CORAGEN®** and other water based suspension concentrates.
5. Water-soluble concentrates.
6. Oil based suspension concentrates.
7. Emulsifiable concentrates.
8. Adjuvants, surfactants, oils.
9. Soluble fertilizers.
10. Drift retardants.

* Unless otherwise specified by manufacturer directions for use or by local experience.

GROUND APPLICATION:

Apply **CORAGEN®** as a high volume full cover application with conventional spray equipment which is correctly calibrated to provide thorough coverage of the target crop and correct dosage rate per hectare. In tomatoes **CORAGEN®** can be applied either as high volume full cover application or reduced volume mistblower application in a minimum 500 litres spray mixture per hectare.

AERIAL APPLICATION:

Aerial application of **CORAGEN®** may only be done by a registered Aerial Application Operator using a correctly calibrated, registered aircraft according to the instructions of SANS 10118:2009 (Aerial Application of Pesticides). Ensure that the spray mixture is distributed evenly over the target area and that the loss of spray material during application is restricted to a minimum. It is therefore essential that the following criteria be met:

- Volume: A spray mixture volume of at least 30 litres per hectare is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy, or be held responsible for any adverse effects if this product is applied aerially at a lower volume rate than recommended above.
 - Droplet coverage: 30 to 40 droplets per cm² must be recovered at the target area.
 - Droplet size: A droplet spectrum with a VMD of 250 to 280 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 to 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.

MAXIMUM RESIDUE LEVELS

Maximum Residue Levels (MRL) and Import tolerances for crops treated with **CORAGEN®** may be pending in some countries. Consult with your exporter or local distributor before applying **CORAGEN®** to export crops.

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p>CITRUS:</p> <p>False Codling Moth (larvae) <i>Thaumatotibia leucotreta</i> = <i>Cryptoplebia leucotreta</i></p>	<p>17.5 ml/hl spray mixture</p>	<p>Apply CORAGEN® as a full cover application at spray volumes varying between 2000 and a maximum of 8500 litres spray mixture per hectare, depending on the size of the trees and the growth stage of the crop. Proper coverage of fruit is essential for optimal control.</p> <p>Always apply CORAGEN® as part of an integrated pest management program (IPM) in citrus. CORAGEN® can not provide season long control of false codling moth on its own. For optimum results CORAGEN® applications should therefore be combined with, or preceded by, other methods of false codling moth control (as per Important Note No 1 & 2 below).</p> <p>The efficacy of CORAGEN® applications can be adversely influenced by high infestation level of the pest, big and dense trees, wrong application equipment, climatic conditions and application timing.</p> <p>For optimum timing of CORAGEN® applications it is recommended to monitor male moth activities from the beginning of October throughout the growing season in the orchard (or a close by orchard in the case of a mating disrupted orchard).</p> <p>Apply CORAGEN® as a preventive application, as soon as the false codling male catches starts increasing during the latter part of the growing season (from about 16 weeks before the intended harvest date). A second CORAGEN® application is recommended at a spray interval of 6 to maximum 8 weeks later.</p>
<p>CITRUS: (continue)</p> <p>False Codling Moth (larvae) <i>Thaumatotibia leucotreta</i> = <i>Cryptoplebia leucotreta</i></p>	<p>17.5 ml/hl spray mixture</p>	<p>When CORAGEN® is used in orchards where the false codling moth activity is not monitored, the first CORAGEN® application should be made 14 to 12 weeks prior to the intended harvest date, followed by a second CORAGEN® application 6 to maximum 8 weeks later.</p> <p>If only one CORAGEN® application is to be made for protection in the period close to harvest, apply CORAGEN® 12 to 8 weeks prior to the intended harvest date of the crop.</p> <p>Do not exceed 2 CORAGEN® applications per season in total and do not apply more than 3 litres of CORAGEN® per hectare per season.</p> <p><u>IMPORTANT NOTE RELATING TO PHI & MRL'S:</u> The withholding period or pre-harvest interval (PHI), i.e. number of days between last application and harvest, meets local maximum residue limits (MRL's), but may not necessarily meet all those for export crops. Before applying CORAGEN® consult your local FMC representative, as well as the latest "Recommended usage restrictions for plant protection Products on Southern African Export Citrus" compiled by Citrus Research International and the Citrus Growers Association of South African, which contains updated MRL and recommended PHI information on citrus intended for export.</p>

IMPORTANT NOTES FOR THE CONTROL OF FALSE CODLING MOTH IN CITRUS:

1. A false codling moth mating disruption, biological control program (e.g. Cryptogran™) or a sterile insect release (SIT) program are recommended in combination with CORAGEN® applications for optimum control of the pest.
2. Always maintain good orchard sanitation throughout the growing season, which forms a critical part of effective control of false codling moth, regardless of the control method or combination of control methods that are used to control the false codling moth.

EGGPLANT:

Tomato leafminer moth (larvae)

Tuta absoluta

NOTE:

Tomato leaf miner moth (*Tuta absoluta*) is a very destructive pest with the main host being tomatoes and can potentially occur through all the production areas of South African.

FOLIAR APPLICATION:

20 ml/hl

OR

(200 ml/ha for concentrated mist blower applications)

EARLY CORRECTIVE APPLICATION:

Apply **CORAGEN®** in 500-1500 l of water per hectare. Good coverage of all foliage is essential.

For reduced spray volume concentrated applications with mistblower apply **CORAGEN®** at a dosage rate of 200 ml/ha in a minimum spray volume of 500 l spray mixture per hectare.

For best leaf and fruit protection, apply during egg-laying or when first erosions are visible on younger leaves.

Do not exceed 2 applications per season in total of **CORAGEN®**. The alternation of **CORAGEN®** with products having a different mode of action (e.g. **STEWARD® 150 EC**) is recommended.

Please see important notes below.

IMPORTANT NOTES ON THE CONTROL OF TOMATO LEAF MINER MOTH (*Tuta absoluta*) LARVAE ON EGGPLANT:

- Regular scouting of eggplant fields is essential to determine the timing of the first and subsequent applications if necessary.
- **CORAGEN®** can be applied in a 7 day interval spray programme under conditions of continuous re-infestation.
- Do not exceed 2 applications per season in total of **CORAGEN®**. The alternation of **CORAGEN®** with products having a different mode of action (e.g. **STEWARD® 150 EC**) is recommended. Apply 2 **CORAGEN®** applications consecutively (= block application) before going over to products with other modes of action e.g. **STEWARD® 150 EC**).
- Most beneficial insects are unaffected by applications of **CORAGEN®**.
- **The addition of an adjuvant / wetter e.g. Villa 51 or Entree at rates recommended on the particular products' label is recommended to improve coverage.**
- **Eggplant can be harvested 1 day after application.**
- **Do not exceed a maximum of 400 ml/ha CORAGEN® in total per season in eggplant.**

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p>HOPS:</p> <p>African bollworm (larvae) <i>Helicoverpa armigera</i></p>	<p>GROUND APPLICATION:</p> <p>20 ml/100 ℓ</p>	<p><i>Only for use by authorized members of the SA Hop Growers Association and for production of hops for use in South Africa only.</i></p> <p>Early Corrective Foliar Application: Apply in 1000ℓ of water per hectare depending on plant height and density. Good coverage of all foliage is essential. Apply when the first larvae are observed usually early in the season on young shoots, during flowering and after flowering when cones are formed. CORAGEN® will control larvae of all stages of development.</p> <p>Regular scouting of hop fields is essential to determine the timing of the first and subsequent applications if necessary. Apply CORAGEN® at a spray interval of 10–14 days. Use the shorter interval early in the growth season when plants are growing actively or under high pest pressure. Do not exceed 2 applications per season with CORAGEN®. The alternation of CORAGEN® with insecticides that have a different mode of action is recommended. Apply the 2 CORAGEN® applications consecutively (= block application) before switching to insecticides with other modes of action.</p> <p>The addition of an adjuvant / wetter at rates recommended on the label is recommended to improve coverage.</p> <p>Hops may be harvested 1 day after application.</p> <p>IMPORTANT NOTE RELATING TO PHI & MRL'S: The withholding period or pre-harvest interval (PHI), i.e. number of days between last application and harvest, meets local maximum residue limits (MRL's), but may not necessarily meet all those for export crops. Before applying CORAGEN® consult your local FMC representative.</p>

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p>MAIZE & SWEETCORN:</p> <p>African bollworm (larvae) <i>Helicoverpa armigera</i></p> <p>Maize stalk borers (larvae) <i>Busseola fusca</i>, <i>Chilo partellus</i></p> <p>Fall Armyworm (larvae) <i>Spodoptera frugiperda</i></p>	<p>FOLIAR APPLICATION (GROUND):</p> <p>150 ml/ha</p>	<p>Apply CORAGEN® in a volume of 450 L water per hectare.</p> <p>FOR FALL ARMYWORM: Apply at the beginning of infestation, at the first signs of damage, when no more than 5% of the plants have symptoms of scraped leaves.</p> <p>Application is NOT recommended for control of worms (larvae) larger than 1 cm.</p> <p>FOR AFRICAN BOLLWORM & MAIZE STALK BORERS: For best plant protection, apply during the egg-laying until the very first eggs are hatching, but no later than when 5% of the plants show shot hole damage. Apply over the funnel of the plants and ensure thorough coverage of the foliage.</p> <p>Apply at a 14 day interval.</p> <p>Do not exceed 2 applications per season in total of CORAGEN®. The alternation of CORAGEN® with products having a different mode of action (e.g. STEWARD® 150 EC) is recommended.</p> <p>The addition of a suitable adjuvant, such as H&R Crop oil at the registered rates, may enhance efficacy.</p> <p>Allow 7 days between last CORAGEN® application and harvest.</p>
<p>MAIZE & SWEETCORN: (continue)</p> <p>African bollworm (larvae) <i>Helicoverpa armigera</i></p> <p>Maize stalk borers (larvae) <i>Busseola fusca</i>, <i>Chilo partellus</i></p> <p>Fall Armyworm (larvae) <i>Spodoptera frugiperda</i></p>	<p>GROUND APPLICATION OVER THE PLANT ROW:</p> <p>1.5 ml/100 m plant row</p>	<p>Apply CORAGEN® in 3 l water per 100 m plant row.</p> <p>FOR FALL ARMYWORM: Apply at the beginning of infestation, at the first signs of damage, when no more than 5% of the plants have symptoms of scraped leaves.</p> <p>Application is NOT recommended for control of worms (larvae) larger than 1 cm.</p> <p>FOR AFRICAN BOLLWORM & MAIZE STALK BORERS: For best plant protection, apply during the egg-laying until the very first eggs are hatching, but no later than when 5% of the plants show shot hole damage. Apply over the funnel of the plants and ensure thorough coverage of the foliage.</p> <p>Repeat after 14 days if re-infestation occurs.</p> <p>Do not exceed 2 applications per season in total of CORAGEN®. The alternation of CORAGEN® with products having a different mode of action (e.g. STEWARD® 150 EC) is recommended.</p> <p>The addition of a suitable adjuvant, such as H&R Crop oil at the registered rates, may enhance efficacy.</p> <p>Allow 7 days between last CORAGEN® application and harvest.</p>

<p>MAIZE & SWEETCORN: (continue)</p> <p>African bollworm (larvae) <i>Helicoverpa armigera</i></p> <p>Maize stalk borers (larvae) <i>Busseola fusca</i>, <i>Chilo partellus</i></p> <p>Fall Armyworm (larvae) <i>Spodoptera frugiperda</i></p>	<p>FOLIAR APPLICATION (AERIAL):</p> <p>150 ml/ha</p>	<p>Apply CORAGEN® in a minimum volume of 30 L water per hectare.</p> <p>FOR FALL ARMYWORM: Apply at the beginning of infestation, at the first signs of damage, when no more than 5% of the plants have symptoms of scraped leaves. Application is NOT recommended for control of worms (larvae) larger than 1 cm.</p> <p>FOR AFRICAN BOLLWORM & MAIZE STALK BORERS: For best plant protection, apply during the egg-laying until the very first eggs are hatching, but no later than when 5% of the plants show shot hole damage. Apply over the funnel of the plants and ensure thorough coverage of the foliage. Apply at a 14 day interval. Do not exceed 2 applications per season in total of CORAGEN®. The alternation of CORAGEN® with products having a different mode of action (e.g. STEWARD® 150 EC) is recommended. The addition of a suitable adjuvant, such as H&R Crop oil at the registered rates, may enhance efficacy. Allow 7 days between last CORAGEN® application and harvest.</p>
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<p>MAIZE & SWEETCORN: (continue)</p> <p>African bollworm (larvae) <i>Helicoverpa armigera</i></p> <p>Maize stalk borers (larvae) <i>Busseola fusca</i>, <i>Chilo partellus</i></p> <p>Fall Armyworm (larvae) <i>Spodoptera frugiperda</i></p>	<p>CENTER PIVOT: 150 ml/ha</p>	<p>FOR FALL ARMYWORM: Apply at the beginning of infestation, at the first signs of damage, when no more than 5% of the plants have symptoms of scraped leaves. Application is NOT recommended for control of worms (larvae) larger than 1 cm.</p> <p>FOR AFRICAN BOLLWORM & MAIZE STALK BORERS: For best plant protection, apply during the egg-laying until the very first eggs are hatching, but no later than when 5% of the plants show shot hole damage. Apply over the funnel of the plants and ensure thorough coverage of the foliage.</p> <p>Ensure that the pivot irrigation system complies with the following specifications before application starts: The distribution coefficient of the pivot irrigation system must be >90%, and the pivot should not apply more than 5mm (50 000 l) per hectare at maximum speed. Clean all the sieves of the pivot irrigation system before starting application. Calibrate the injection pump of the pivot irrigation system according to the time it takes for the pivot irrigation system to complete one full circle. Set the pivot irrigation system to maximum speed so that as little water as possible (not more than 5 mm) is applied per hectare. Mix the CORAGEN® with water in the application tank. Stir the spray mixture continuously before and during application. Inject the CORAGEN® spray mixture into the main application line of the pivot irrigation system as soon as the irrigation system reaches maximum speed. Mark the position on the land when the spray mixture reaches the furthest end of the pivot irrigation system. Allow the pivot irrigation system to complete one full circle from the aforementioned point. Apply at a 14 day interval. Do not exceed 2 applications per season in total of CORAGEN®. The alternation of CORAGEN® with products having a different mode of action (e.g. STEWARD® 150 EC) is recommended. When CORAGEN® is applied through a center pivot irrigation system the addition of an adjuvant is not necessary. However, if an adjuvant is added, use a mineral oil type like H&R Crop Oil at registered application rates and follow the recommended tank mix sequence. Allow 7 days between last CORAGEN® application and harvest.</p>
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IMPORTANT NOTES APPLICABLE TO STALK BORER, STEM BORER, AFRICAN BOLLWORM AND FALL ARMYWORM CONTROL WITH CORAGEN® IN MAIZE:

NB: Do not apply CORAGEN® on maize that are under drought stress.

To ensure optimum results, application must take place early in the morning when dew is present.

Larvae that have already tunnelled into the funnels will not be controlled by CORAGEN®.

Do not exceed 2 applications per season with **CORAGEN®**. Two applications can be made consecutively after which other mode of action insecticide must be used.

Stalk borer (*Busseola fusca*) larvae:

Commercial maize:

Apply during the egg-laying until the very first eggs are hatching, but no later than when 5% of the plants show shot hole damage symptoms in the maize funnels, which are caused by small feeding larvae.

Sweetcorn:

Apply when egg laying starts, or with the first signs of shot hole damage symptoms on the maize funnels.

NB: Application must be done before larvae migrate to the stems of the maize plants and when larvae are smaller than the 2nd larval instar. Do not apply CORAGEN® on maize against stalk borer while the tassel is encircled by the flag leaf.

Sorghum stem borer (*Chilo partellus*) larvae:

Commercial maize:

Apply when eggs are found on 2,5% of the plants, or when 5% of the plants are showing shot hole damage symptoms on the maize funnels, which are caused by small feeding larvae.

Sweetcorn:

Apply when egg laying starts or with the first signs of shot hole damage symptoms on the maize funnels.

NB: Application must be done before larvae migrate to the stems of the maize plants and when larvae are smaller than the 2nd larval instar. Do not apply CORAGEN® on maize against stalk borer whilst the tassel is encircled by the flag leaf.

African bollworm (*Helicoverpa armigera*) larvae:

Funnel infestation:

Apply as for stalk borer (see notes above).

Cob infestation:

Apply when first larvae are observed on the beard (silk) during cob formation. Larvae that are already deep within the beard or have migrated into the cobs will not be controlled.

Fall armyworm (*Spodoptera frugiperda*) larvae:

Apply at the beginning of infestation and at the first signs of damage, when no more than 5% of the plants have symptoms of scraped leaves.

Application is NOT recommended for control of worms (larvae) larger than 1 cm.

NB: Application must be done before larvae migrate into the cobs of the maize plants. Larvae that are already deep within the beard or have migrated into the cobs will not be controlled.

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p>POMEGRANATES:</p> <p>False Codling Moth (larvae) <i>Thaumatotibia leucotreta</i></p>	<p>FOLIAR APPLICATION:</p> <p>200 ml/ha</p>	<p>Apply CORAGEN® as a full cover foliar application at spray volumes from 750 up to 1000 litres spray mixture per hectare depending on the stage of the crop. The addition of a registered non-ionic wetter may enhance the insect control potential of CORAGEN®. Ensure thorough coverage of the foliage and developing fruit.</p> <p>Apply CORAGEN® when moth catches in pheromone traps indicate an infestation of False Codling moth which is typically at the onset of ripening. A further application should be made at a 14 day interval if necessary.</p> <p>Do not exceed 2 CORAGEN® applications in total per season on the crop. Should any further control of the pest be required apply an insecticide that is not from chemical group code 28.</p> <p>Allow 7 days between last CORAGEN® application and harvest.</p> <p>IMPORTANT NOTE: The withholding period or pre-harvest interval (PHI), i.e. number of days between last application and harvest, meets local maximum residue limits (MRL's), but may not necessarily meet all those for export crops. Also refer to MAXIMUM RESIDUE LEVELS - IMPORTANT NOTE under "WARNINGS"</p>

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p>POTATOES:</p> <p>Potato tuber moth (larvae) <i>Phthorimaea operculella</i></p>	<p>FOLIAR APPLICATION:</p> <p>100 ml/ha</p>	<p>EARLY CORRECTIVE APPLICATION:</p> <p>Apply CORAGEN® in 500-1000 l of water per hectare. Good coverage of all foliage is essential.</p> <p>Apply as soon as the first symptoms of infestation (mines) appear on the leaves or when the presence of moths is observed. The presence of these moths in and around the foliage is normally a good indication that an infestation will take place.</p> <p>Timing of subsequent applications should be based on regular scouting of potato fields.</p> <p>CORAGEN® can be applied in an 8 to 14 day interval programme under conditions of continuous re-infestation. Use the shorter interval early in the growth season when plants are actively growing.</p> <p>Do not exceed 3 applications in total per season with CORAGEN® including application for the control of potato leaf miner (see below). The alternation of CORAGEN® with products having a different mode of action is recommended. Apply 2 CORAGEN® applications consecutively (= block application) before going over to products with other modes of action e.g. STEWARD® 150 EC.</p> <p>Most beneficial insects and predatory mites are unaffected by applications of CORAGEN®.</p> <p>Ridge at least twice during growing season.</p> <p>Late applications of CORAGEN® once the potato plant's foliage is dying down will not lead to proper control of potato tuber moth larvae.</p> <p>The addition of an adjuvant e.g. Villa 51 H&R Crop Oil or Break-Thru at rates recommended on the particular products' label is recommended to improve coverage.</p> <p>The potato crop can be harvested at any time following CORAGEN® application.</p> <p>For maximum CORAGEN® applied per season in potatoes refer to potato leaf miner recommendations on this label.</p>

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
POTATOES: (continue) Potato leaf miner larvae <i>Liriomyza huidobrensis</i> Tomato leaf miner moth larvae <i>Tuta absoluta</i>	FOLIAR APPLICATION: 150-200 ml/ha	EARLY CORRECTIVE APPLICATION: Apply CORAGEN® in 500-1000 l of water per hectare. Good coverage of all foliage is essential. Apply the higher dosage of CORAGEN® when applied early correctively under high pest pressure. Apply the lower dosage rate of CORAGEN® for subsequent applications when applied in a regular 7 day spray program. LEAFMINERS: Commence CORAGEN® applications as soon as the puncture marks (the first signs of infestation) appear on the leaves (normally on the bottom leaves). CORAGEN® must be applied in a 7 day interval spray program under conditions of continuous re-infestation. Do not exceed 3 applications per season in total with CORAGEN® . The alternation of CORAGEN® with products having a different mode of action is recommended. Apply 2 CORAGEN® applications consecutively (= block application) before going over to products with are registered. Most beneficial insects and predatory mites are unaffected by applications of CORAGEN® . The addition of an adjuvant e.g. Villa 51, H&R Crop Oil or Break-Thru at rates recommended on the particular products' label is recommended to improve coverage. The potato crop can be harvested at any time following CORAGEN® application. Do not exceed a maximum of 600 ml/ha CORAGEN® in total per season in potatoes.
SORGHUM: Maize stalk borers (larvae) <i>Busseola fusca,</i> <i>Chilo partellus</i> Fall Armyworm (larvae) <i>Spodoptera frugiperda</i>	FOLIAR APPLICATION (GROUND): 150 ml/ha	Apply CORAGEN® in a volume of 250 – 400 L water per hectare. FOR FALL ARMYWORM: Apply at the beginning of infestation, at the first signs of damage, when no more than 5% of the plants have symptoms of scraped leaves. Application is NOT recommended for control of worms (larvae) larger than 1 cm. MAIZE STALK BORERS: For best plant protection, apply during the egg-laying until the very first eggs are hatching, but no later than when 5% of the plants show shot hole damage. Ensure thorough coverage of the foliage. Apply at a 7 day interval. Do not exceed 2 applications per season in total of CORAGEN® . The alternation of CORAGEN® with products having a different mode of action (e.g. STEWARD® 150 EC) is recommended. The addition of a suitable registered adjuvant at the registered rate, may enhance efficacy. Allow 21 days between last CORAGEN® application and harvest.
SORGHUM: (continue) Maize stalk borers (larvae) <i>Busseola fusca,</i> <i>Chilo partellus</i> Fall Armyworm (larvae)	FOLIAR APPLICATION (AERIAL): 150 ml/ha	Apply CORAGEN® in a minimum volume of 30 L water per hectare. FOR FALL ARMYWORM: Apply at the beginning of infestation, at the first signs of damage, when no more than 5% of the plants have symptoms of scraped leaves. Application is NOT recommended for control of worms (larvae) larger than 1 cm. MAIZE STALK BORERS: For best plant protection, apply during the egg-laying until the very first eggs are hatching,

<i>Spodoptera frugiperda</i>		<p>but no later than when 5% of the plants show shot hole damage. Ensure thorough coverage of the foliage.</p> <p>Apply at a 7 day interval.</p> <p>Do not exceed 2 applications per season in total of CORAGEN®. The alternation of CORAGEN® with products having a different mode of action (e.g. STEWARD® 150 EC) is recommended.</p> <p>The addition of a suitable registered adjuvant at the registered rate, may enhance efficacy.</p> <p>Allow 21 days between last CORAGEN® application and harvest.</p>
<p>SORGHUM: (continue)</p> <p>Maize stalk borers (larvae) <i>Busseola fusca</i>, <i>Chilo partellus</i></p> <p>Fall Armyworm (larvae) <i>Spodoptera frugiperda</i></p>	<p>CENTER PIVOT:</p> <p>150 ml/ha</p>	<p>FOR FALL ARMYWORM: Apply at the beginning of infestation, at the first signs of damage, when no more than 5 % of the plants have symptoms of scraped leaves.</p> <p>Application is NOT recommended for control of worms (larvae) larger than 1 cm.</p> <p>MAIZE STALK BORERS: For best plant protection, apply during the egg-laying until the very first eggs are hatching, but no later than when 5% of the plants show shot hole damage. Ensure thorough coverage of the foliage.</p> <p>Ensure that the pivot irrigation system complies with the following specifications before application starts:</p> <p>The distribution coefficient of the pivot irrigation system must be >90%, and the pivot should not apply more than 5mm (50 000 l) per hectare at maximum speed.</p> <p>Clean all the sieves of the pivot irrigation system before starting application. Calibrate the injection pump of the pivot irrigation system according to the time it takes for the pivot irrigation system to complete one full circle.</p> <p>Set the pivot irrigation system to maximum speed so that as little water as possible (not more than 5 mm) is applied per hectare.</p> <p>Mix the CORAGEN® with water in the application tank. Stir the spray mixture continuously before and during application. Inject the CORAGEN® spray mixture into the main application line of the pivot irrigation system as soon as the irrigation system reaches maximum speed. Mark the position on the land when the spray mixture reaches the furthest end of the pivot irrigation system.</p> <p>Allow the pivot irrigation system to complete one full circle from the aforementioned point.</p> <p>Apply at a 7 day interval.</p> <p>Do not exceed 2 applications per season in total of CORAGEN®. The alternation of CORAGEN® with products having a different mode of action (e.g. STEWARD® 150 EC) is recommended.</p> <p>When CORAGEN® is applied through a center pivot irrigation system the addition of an adjuvant is not necessary. However, if an adjuvant is added, use a mineral oil type like H&R Crop Oil at registered application rates and follow the recommended tank mix sequence.</p> <p>Allow 21 days between last CORAGEN® application and harvest.</p>
<p>SOYBEANS:</p> <p>African bollworm (larvae) <i>Helicoverpa armigera</i></p> <p>Semi-(Plusia) looper <i>Chrysodeixis acuta</i></p>	<p>FOLIAR APPLICATION (GROUND):</p> <p>150 ml/ha</p>	<p>Apply in 300–700 l water per hectare in soybeans. Ensure thorough, even coverage of the foliage.</p> <p>Apply CORAGEN® at flowering or when the first bollworm eggs or small larvae are observed following regular scouting during flowering and pod-set stages.</p> <p>A follow-up application 7 days later will normally be necessary if the first application is made at the early flowering stage or under conditions of continuous re-infestation.</p>

		<p>Larvae that have penetrated the pods or are obscured by dense foliage during application may not be adequately controlled. It is therefore essential to ensure thorough coverage of the foliage.</p> <p>The <i>Spodoptera</i> leaf worm (<i>Spodoptera littoralis</i>) should also be controlled in soybeans if present during application. Do not exceed 2 applications per season in total of CORAGEN®. The alternation of CORAGEN® with products having a different mode of action (e.g. STEWARD® 150 EC) is recommended.</p> <p>The addition of a suitable registered adjuvant at the registered rate, may enhance efficacy.</p> <p>Allow 21 days between last CORAGEN® application and harvest.</p>
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CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p>SUGARCANE:</p> <p>Sugarcane Borer (larvae) <i>Eldana saccharina</i></p>	<p>GROUND APPLICATION:</p> <p>200 ml/ha</p>	<p>EARLY CORRECTIVE APPLICATION: Scouting operations in the field are critical to Sugarcane Borer intervention.</p> <p>The use of CORAGEN® is only recommended when plants are growing actively.</p> <p>Optimal systemic activity of CORAGEN® depends on translocation of the active ingredient inside the treated plant. Therefore reduced efficacy may occur when stress factors such as drought impairs translocation.</p> <p>Apply CORAGEN® as a full cover spray with a mist blower at 350 – 500 l of water per hectare. Good coverage of all foliage is essential.</p> <p>Start applications in August.</p> <p>Two applications can be made at a 2 monthly interval period.</p> <p>The alternation of CORAGEN® with products having a different mode of action is recommended.</p> <p>Leave a window of 60 days between applications with a different mode of action.</p> <p>Longer residual effect of treatments will thus be possible into the February/March period where borer can continue to develop rapidly.</p> <p>The addition of an adjuvant / wetter e.g. Villa 51 or Entree at rates recommended on the particular products' label is recommended to improve coverage. Please see important notes below.</p>
<p>SUGARCANE: (continue)</p> <p>Sugarcane Borer (larvae) <i>Eldana saccharina</i></p>	<p>AERIAL APPLICATION:</p> <p>200 ml/ha</p>	<p>AERIAL APPLICATION: Apply in minimum of 30 l water per hectare.</p> <p>CORAGEN® will control larvae of all stages in the life cycle. Do not exceed 2 applications of CORAGEN® per season. Should a third application be needed, use an insecticide with a different mode of action.</p> <p>Most beneficial insects and predatory mites are unaffected by applications of CORAGEN®</p> <p>The addition of an adjuvant / wetter e.g. Entree or Villa 51 at rates recommended on the particular products' label is recommended to improve coverage. Please see important notes below.</p>

IMPORTANT NOTES ON THE CONTROL OF SUGARCANE BORER (*Eldana saccharina*) LARVAE ON SUGARCANE:

Cultural Control practices :

- Plant non-infested seed cane to improve crop stands.
- Early harvesting can reduce the impact of sugarcane borer numbers as borer numbers and damage accumulate as the crop ages, especially after about 12 months.
- Stressed crops are more susceptible to attack, and under extreme conditions such as drought, damage can increase significantly.
- The practice of burning heavily infested crops and good subsequent field hygiene can reduce initial infestation.
- When harvesting, it is important to ensure that stalks are cut at ground level, as above ground stalk material can harbour larvae.
- The “push-pull” sugarcane habitat management is an option for biological control.
- Differences between cultivars resistance to sugarcane borer exists, choose your cultivars according to the sugarcane borer risk in your area.
- Regular scouting of sugarcane fields is essential to determine the timing of the first and subsequent applications if necessary.
- Do not exceed 4 applications per season in total of **CORAGEN®**. The alternation of **CORAGEN®** with products having a different mode of action (e.g. **STEWARD® 150 EC**) is recommended. Apply 2 **CORAGEN®** applications consecutively (= block application) before going over to products with other modes of action e.g. **STEWARD® 150 EC**).
- Most beneficial insects are unaffected by applications of **CORAGEN®**.
- **The addition of an adjuvant / wetter e.g. Villa 51 or Entree at rates recommended on the particular products' label is recommended to improve coverage.**

<p>TOMATOES:</p> <p>Tomato semi-looper (larvae) <i>Chrysodeixis acuta</i></p> <p>African bollworm (larvae) <i>Helicoverpa armigera</i></p>	<p>FOLIAR APPLICATION:</p> <p>20 ml/hl</p> <p>OR</p> <p>(200 ml/ha for concentrated mist blower applications)</p>	<p>EARLY CORRECTIVE APPLICATION:</p> <p>Apply CORAGEN® in 500-1500 l of water per hectare. Good coverage of all foliage is essential.</p> <p>For reduced spray volume concentrated applications with mistblower apply CORAGEN® at a dosage rate of 200 ml/ha in a minimum spray volume of 500 l spray mixture per hectare. Apply CORAGEN® when the first larvae are observed - normally around the fruit set stage of the crop.</p> <p>Do not exceed 3 applications per season in total of CORAGEN®. The alternation of CORAGEN® with products having a different mode of action (e.g. STEWARD® 150 EC) is recommended.</p> <p>Please see important notes below.</p>
<p>TOMATOES: (continue)</p> <p>Tomato leafminer moth (larvae) <i>Tuta absoluta</i></p> <p>NOTE: Tomato Leaf Miner Moth (<i>Tuta absoluta</i>) is a very destructive pest with the main host being tomatoes and can potentially occur through all the production areas of South Africa.</p>	<p>FOLIAR APPLICATION:</p> <p>20 ml/hl</p> <p>OR</p> <p>(200 ml/ha for concentrated mist blower applications)</p>	<p>EARLY CORRECTIVE APPLICATION:</p> <p>Apply CORAGEN® in 500-1500 l of water per hectare. Good coverage of all foliage is essential.</p> <p>For reduced spray volume concentrated applications with mistblower apply CORAGEN® at a dosage rate of 200 ml/ha in a minimum spray volume of 500 l spray mixture per hectare. For best leaf and fruit protection, apply during egg-laying or when first erosions are visible on younger leaves.</p> <p>Do not exceed 3 applications per season in total of CORAGEN®. The alternation of CORAGEN® with products having a different mode of action (e.g. STEWARD® 150 EC) is recommended.</p> <p>Please see important notes below.</p>

IMPORTANT NOTES ON THE CONTROL OF TOMATO SEMI-LOOPER, AFRICAN BOLLWORM AND TOMATO LEAF MINER MOTH (*Tuta absoluta*) LARVAE ON TOMATOES:

- Regular scouting of tomato fields is essential to determine the timing of the first and subsequent applications if necessary.
- **CORAGEN®** can be applied in an 8 to 14 day interval programme under conditions of continuous re-infestation of semi-looper and bollworm. Use the shorter interval early in the growth season when plants are growing actively. Use a 7 day spray interval for *Tuta absoluta*.
- **CORAGEN® applied in a 7 day spray interval program will result in a 50-80% reduction of American Leaf Miner (*Liriomyza trifolii*) under low to medium pest pressure. Under high American Leaf Miner pressure alternate CORAGEN® with a product specifically registered and effective against the pest.**
- Do not exceed 3 applications per season in total of **CORAGEN®**. The alternation of **CORAGEN®** with products having a different mode of action (e.g. **STEWARD® 150 EC**) is recommended. Apply 2 of **CORAGEN®** applications consecutively (= block application) before going over to products with other modes of action e.g. **STEWARD® 150 EC**).
- Most beneficial insects are unaffected by applications of **CORAGEN®**.
- **The addition of an adjuvant / wetter e.g. Villa 51, or Entree at rates recommended on the particular products' label is recommended to improve coverage.**
- **Tomatoes can be harvested 1 day after application.**
- **Do not exceed a maximum of 600 ml/ha CORAGEN® in total per season in tomatoes.**

ACKNOWLEDGEMENT OF REGISTERED PRODUCTS:

- H & R Crop Oil (**SOUTH AFRICA** Reg. No. L6802, Act 36 of 1947) is the registered product of H & R South African Sales (Pty) Ltd
- Break-Thru (**SOUTH AFRICA** Reg. No. L6764, Act 36 of 1947) is the registered product of Evonik Degussa African (Pty) Ltd
- Entrée (**SOUTH AFRICA** Reg. No. L8055, Act 36 of 1947) is the registered product of Miller Chemicals SA (Pty) Ltd
- Villa 51 (**SOUTH AFRICA** Reg. No. L8050, Act 36 of 1947) is the registered product of Villa Crop Protection (Pty) Ltd
- Dithane™ M-45 800 WP NT (**SOUTH AFRICA** Reg. No. L7484, Act No. 36 of 1947; **NAMIBIA** Reg. No. N-AR 1043, Act No. 36 of 1947) is the registered product of Dow Agrosciences.
- Tanos® (**SOUTH AFRICA** Reg. No. L6564 Act No. 36 of 1947) is the registered product of DuPont de Nemours South Africa (Pty) Ltd.