

DIRECTIONS FOR USE ENCLOSED

Batch number: **REFER TO DETAILS PRINTED ON CONTAINER/BAG**
Lotnummer:

GEBRUIKSAANWYSINGS INGESLUIT

Date formulated: **VERWYS NA BESONDERHEDE**
Formuleeringsdatum: **GEDRUK OP HOUER/SAK**

SHAKE THE BOTTLE WELL BEFORE USE.

BEFORE USING THIS PRODUCT READ THE LABEL CAREFULLY!

Insecticide



ALPHA-THRIN 100 SC

Reg. No. L 7425 Act/Wet No. 36 of/van 1947

2/24/4/2012-Jan2017

A suspension concentrate contact and stomach insecticide for the control of insects on crops as listed.

'n Suspensie konsentraat kontak- en maaginsedoder vir die beheer van insekte op gewasse soos vermeld.

ACTIVE INGREDIENT / AKTIEWE BESTANDDEEL

alpha-cypermethrin (pyrethroid) **100 g/l** alfa-sipermetrien (piretroïed)

IRAC INSECTICIDE GROUP CODE **3** IRAC INSEKDODER GROEPKODE



villa

Registration holder / Registrasiehouer:

Villa Crop Protection (Pty) Ltd.

Co. Reg. No. / Mpy. Reg. Nr. 1992/002474/07

PO Box / Posbus 10413, Aston Manor, 1630

Tel: 011 396 2233

Website / Webblad: www.villacrop.co.za

UN Number: 3352

Willow Set & Print 011 394-4486



**CAUTION
VERSIGTIG**



ALPHA-THRIN 100 SC

Reg. No. L 7425 Act/Wet No. 36 of/van 1947

IRAC INSECTICIDE GROUP CODE / IRAC INSEKODER GROEPKODE: 3

ACTIVE INGREDIENT / AKTIEWE BESTANDEEL:

alpha-cypermethrin (pyrethroid) / alfa-sipermetrien (piretroïed) 100 g/l

Registration holder / Registrasiehouer:

VILLA CROP PROTECTION (PTY) LTD.

Co. Reg. No. 1992/002474/07 Mpy. Reg. Nr.

PO Box / Posbus 10413, ASTON MANOR, 1630,

Tel. (011) 396 2233

CAUTION / VERSIGTIG**WARNINGS**

Allow the following number of days between last application and harvest or grazing of the crops listed below:	
Macadamias	30 days
Cotton, Sorghum and Grapes (table & wine)	28 days
Apples, Pears, Maize, Lucerne, Sweet corn, Grazing and Peaches (fresh)	14 days
Peas, Beans and Groundnuts	7 days
Tomatoes and Cruciferae	4 days
Peaches (canning)	3 days
Potatoes	21 days

IN THE CASE OF CROPS INTENDED FOR EXPORT, CONFIRM WITHHOLDING PERIODS WITH THE RELEVANT EXPORT ORGANISATION. IF THIS PRODUCT IS USED ACCORDING TO THE RECOMMENDATIONS ON THIS LABEL, LOCAL MRL VALUES WILL NOT BE EXCEEDED. HOWEVER, VILLA CROP PROTECTION (PTY) LTD. CANNOT ACCEPT RESPONSIBILITY FOR EXPORTED CROPS EXCEEDING THE IMPORT TOLERANCES OF OTHER COUNTRIES.

- Handle with care.
- Harmful if swallowed and when absorbed through the skin.
- Irritating to the eyes, skin and mucous membrane.
- Toxic to fish and wildlife.
- Use the product as prescribed in order to limit the risk towards bees, beneficial pest parasites, beneficial predators and fishes, to a minimum.
- Do not apply during peak bee activity. Do not direct spray or allow spray to drift towards beehives.
- Do not spray over or allow spray to drift to water bodies such as dams, ponds, rivers, streams or fish hatcheries.
- Store in original container, in a cool, dry well-ventilated place away from food, seed, feeds, fertilizers and other agricultural remedies.
- Keep out of reach of 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 inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warnings. Do not spray over or allow 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. The action and effect thereof may be affected by factors such as abnormal soil, climatic and storage conditions, quality of dilution water, compatibility with other substances not indicated on the label, the occurrence of resistance of the pests against the remedy concerned, as well as by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal or for lack of performance of the remedy concerned, due to failure of the user to follow the label instructions or to the occurrence of conditions, which could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.

PRECAUTIONS

- Wear a face shield and rubber gloves when handling, preparing and applying the spray mixture.

- Wash contaminated clothing after use.
- Avoid eye and skin contact and inhalation of spray mist.
- Wash with soap and water after use or after accidental skin contact.
- Do not eat, drink or smoke while mixing, applying or before washing hands and face or change of clothing.
- Prevent drift onto other crops, grazing, rivers, dams or areas not under treatment.
- Clean application equipment after use. Do not dispose of wash water where it can contaminate other crops, grazing, rivers or dams.
- **TRIPLE RINSE** empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow draining for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of a third of that of the container. Add the rinsing to the contents of the spray tank before destroying the container in the prescribed manner.
- Destroy the container by perforation and flattening and dispose of it in a safe way.
- **Do not** re-use the empty container for any other purpose.
- Prevent contamination of food, feedstuffs, drinking water and eating utensils.

RESISTANCE WARNING

ALPHA-THRIN 100 SC is a group code 3 insecticide. Any insect population may contain individuals naturally resistant to **ALPHA-THRIN 100 SC** and other group code 3 insecticides. The resistant individuals can eventually dominate the insect population if these insecticides are used repeatedly. These resistant insects may not be controlled by **ALPHA-THRIN 100 SC** or any other group code 3 insecticide.

To delay insecticide resistance:

- avoid exclusive repeated use of insecticides from the same insecticide group code. Alternate or tank mix with products from different insecticide group codes,
- integrate other control methods (chemical, cultural, biological) into insect control programmes.

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

RESISTANCE MANAGEMENT

- Resistance of African bollworm (*Helicoverpa armigera*) to synthetic pyrethroids has been confirmed. As part of a strategy to prevent development of widespread resistance, the following guidelines must be adhered to for the control of *H. armigera*:
Cotton: Synthetic pyrethroids must only be applied to cotton during the period 1st January to 1st March.
All Other Crops: Do not apply more than two applications per growing season.
- **For optimal control of susceptible bollworm populations, the larvae should not exceed 10 mm (1 cm) in length, at time of application.**
- If a pyrethroid spray gave ineffective control, do not re-spray with any synthetic pyrethroid, even at a corrective dosage rate. Use a product from a different chemical group.

DIRECTIONS FOR USE: Use only as directed.

Compatibility:

- **ALPHA-THRIN 100 SC** is compatible with a **Villa approved buffer + surfactant adjuvant** and Commodobuff.
- Do not add wetting- or sticking agents or oils to **ALPHA-THRIN 100 SC** when spraying deciduous fruit.
- Do not mix with seaweed extracts, amitraz, chinomethionat, dodine, and prothiophos.
- The compatibility of **ALPHA-THRIN 100 SC** with other products may be influenced by various factors. As changing factors may vary, a physical compatibility test must always be performed before such tank mixture is sprayed.
- When **ALPHA-THRIN 100 SC** is used in conjunction with any other agricultural remedy, adhere to all **WARNINGS, PRECAUTIONS** and **DIRECTIONS FOR USE** mentioned on that label.

Mixing Instructions:

- Half fill the spray tank with clean water.
- Shake the **ALPHA-THRIN 100 SC** container well before use.
- Effectiveness of **ALPHA-THRIN 100 SC** can be affected by very hard water (> 1000 p.p.m. solutes), and/or water with a high pH value.
- Use **COMMODOBUFF** (L 5390) buffer at the registered rate to adjust the pH of the water.
- **Commodobuff** buffer must be mixed with the water prior to the addition of **ALPHA-THRIN 100 SC**.

- For use in Cruciferae, a **Villa approved buffer + surfactant adjuvant** can be used instead of **Commodobuff** as it buffers and supplies wetting and spreading properties.
- Take approximately 10 litres of this pH corrected water from the mixing tank and thoroughly mix the required volume **ALPHA-THRIN 100 SC** therewith.
- If any other product is to be mixed with **ALPHA-THRIN 100 SC**, the required volume of this product must be pre-mixed in a similar way.
- The addition of molasses has a pH reducing effect and also reduces evaporation of the spray mist. For ground application add 10 % molasses per volume and 20 % for aerial application.
- Agitate the water in the spray tank and then add the product(s) to the tank in the following sequence (as applicable): **Commodobuff**, suspension concentrate, water-soluble concentrate, emulsifiable concentrate.
- Fill the spray tank with water to the required level while maintaining agitation to ensure thorough mixing.
- Maintain agitation while spraying.
- Prepared spray mixture must not be left in the spray tank for any length of time, e.g. overnight.

Instructions for Application:

- When **ALPHA-THRIN 100 SC** is applied to dense growing crops, the efficacy of the spray mixture may be adversely affected.
- Therefore, ensure thorough penetration and wetting is obtained.
- Monitor efficacy within 3 days after application. A further application may be necessary if unacceptable levels of control have been obtained.
- Bollworm moths are to a certain degree repelled by **ALPHA-THRIN 100 SC** and therefore fewer eggs will be laid on sprayed plants.
- **ALPHA-THRIN 100 SC** resists wash-off by rain if the spray mixture is allowed to completely dry on the plants.
- It is important that all applications must be performed with suitable equipment that is in good working order and correctly calibrated to give the desired coverage for that particular method of application.

Aerial application:

Aerial application of **ALPHA-THRIN 100 SC** 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 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 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 aurally 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 micron is recommended. Limit the production of fine droplets less than 150 micron (high drift and evaporation potential) to a minimum.
- Flying height: Maintain the height of the spray boom at 3 to 4 meters 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 per hour.
- 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:
 - a) reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage),
 - b) 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.

USE RESTRICTIONS

- **Warning against resistance:** Refer to “**RESISTANCE WARNING**” and “**RESISTANCE MANAGEMENT**” as described above.
- Cutworms tend to feed sub-surface when the soil surface is dry. Damage to seedlings is usually not visible until the plants start to wither. When planting in dry soil, or when the soil shortly after plant rapidly desiccate, poor control of cutworms can be expected, since the pest does not come into contact with the product applied to the soil surface. Follow-up application will not necessarily ensure control, unless the soil surface is moist.

APPLICATION RATES

Crop / Pest	Dosage Rate	Remarks
Apples & Pears African bollworm (<i>Helicoverpa armigera</i>)	5 ml / 100 l water	Warning against resistance: Refer to “RESISTANCE MANAGEMENT” above. Corrective treatment: Apply when necessary, but after 75 % petal drop. Also control codling moth and suppress weevil (snout beetle). High volume application: Apply 125 to 175 ml ALPHA-THRIN 100 SC per hectare.
Leafroller (<i>Tortrix capensana</i>) & Codling moth (<i>Cydia pomonella</i>)	5 ml / 100 l water	Apply two applications. Apply the first at 75 % petal drop. With high infestation levels, repeat every 2 weeks, or when pheromone traps indicate applications. With low infestation levels, repeat every 3 weeks. Also control African bollworm and suppress weevil (Snout beetle). High volume application: Apply 125 to 175 ml ALPHA-THRIN 100 SC per hectare.
Banded fruit weevil (snout beetle) (<i>Phlyctinus callosus</i>)	10 ml / 100 l water	Apply two sprays. The first at 75 % petal drop and repeat 4 weeks later. If necessary, a third application can be applied in middle of January to prevent late season damage. African bollworm and codling moth will initially be controlled. High volume application: Apply 250 to 350 ml ALPHA-THRIN 100 SC per hectare.

Crop / Pest	Dosage Rate	Remarks												
<p>All Row Crops Cutworms (<i>Agrotis</i> spp.)</p>		<p>For both preventive (pre-emergence) or corrective treatment (post-emergence) treatments. Apply to a well-prepared seedbed free of clods and excessive trash (see below directions for “Reduced tillage practices”). It is important that the soil to the surface is moist with application, to ensure satisfactory control. In the case of re-infestation, apply a second application.</p> <p>A. PREVENTIVE (pre-emergence): For fields with history of Cutworm problems or where the pest is expected.</p> <table border="1" data-bbox="454 539 1441 819"> <tr> <td data-bbox="454 539 683 689">0.2 ml / 100 meter row</td> <td data-bbox="683 539 1441 689"> <p>Ground application: i) Row treatment: Apply in 3 litres water per 100 meter row length and in a 30 cm wide band over the width of the row. If applying in a wider band, increase the dosage rate accordingly.</p> </td> </tr> <tr> <td data-bbox="454 689 683 757">65 ml / ha</td> <td data-bbox="683 689 1441 757"> <p>ii) Overall ground treatment: Apply in a minimum of 300 litres water per hectare.</p> </td> </tr> <tr> <td data-bbox="454 757 683 819">65 ml / ha</td> <td data-bbox="683 757 1441 819"> <p>Aerial application: Apply in 30 litres water per hectare.</p> </td> </tr> </table> <p>B. CORRECTIVE (post-emergence): Apply when damage is noticed on 5 % or more seedlings.</p> <table border="1" data-bbox="454 887 1441 1099"> <tr> <td data-bbox="454 887 683 976">0.15 ml / 100 meter row</td> <td data-bbox="683 887 1441 976"> <p>Ground application: i) Row treatment: Refer to instructions as for pre-emergence row treatment.</p> </td> </tr> <tr> <td data-bbox="454 976 683 1043">50 ml / ha</td> <td data-bbox="683 976 1441 1043"> <p>ii) Overall ground treatment: Refer to instructions for pre-emergence overall treatment.</p> </td> </tr> <tr> <td data-bbox="454 1043 683 1099">65 ml / ha</td> <td data-bbox="683 1043 1441 1099"> <p>Aerial application: Apply in 30 litres water per hectare.</p> </td> </tr> </table>	0.2 ml / 100 meter row	<p>Ground application: i) Row treatment: Apply in 3 litres water per 100 meter row length and in a 30 cm wide band over the width of the row. If applying in a wider band, increase the dosage rate accordingly.</p>	65 ml / ha	<p>ii) Overall ground treatment: Apply in a minimum of 300 litres water per hectare.</p>	65 ml / ha	<p>Aerial application: Apply in 30 litres water per hectare.</p>	0.15 ml / 100 meter row	<p>Ground application: i) Row treatment: Refer to instructions as for pre-emergence row treatment.</p>	50 ml / ha	<p>ii) Overall ground treatment: Refer to instructions for pre-emergence overall treatment.</p>	65 ml / ha	<p>Aerial application: Apply in 30 litres water per hectare.</p>
0.2 ml / 100 meter row	<p>Ground application: i) Row treatment: Apply in 3 litres water per 100 meter row length and in a 30 cm wide band over the width of the row. If applying in a wider band, increase the dosage rate accordingly.</p>													
65 ml / ha	<p>ii) Overall ground treatment: Apply in a minimum of 300 litres water per hectare.</p>													
65 ml / ha	<p>Aerial application: Apply in 30 litres water per hectare.</p>													
0.15 ml / 100 meter row	<p>Ground application: i) Row treatment: Refer to instructions as for pre-emergence row treatment.</p>													
50 ml / ha	<p>ii) Overall ground treatment: Refer to instructions for pre-emergence overall treatment.</p>													
65 ml / ha	<p>Aerial application: Apply in 30 litres water per hectare.</p>													
<p>Reduced tillage practices: In the case of such tillage practices, the cutworm populations must, after the initial application, be carefully monitored. As fields under these conditions usually have high Cutworm populations, a follow-up application may be necessary. Apply the corrective follow-up application as an overall ground treatment at the recommended corrective dosage rate.</p> <p>Refer also to “USE RESTRICTIONS” for conditions during which poor control of cutworms can be expected.</p>														
<p>Afforestation Eucalyptus, Pine Forestry & Proteas Pine emperor moth (<i>Imbrasia cytherea</i>)</p>	35 ml / ha	<p>Apply when most of the eggs have hatched. Aerial application: Apply in 30 litres water per hectare.</p>												
<p>Acacia, Oaks, Poplars, Wattle plantations & Willows Wattle bagworm (<i>Kotochalia junodi</i>) & Willow emperor moth (<i>Gonimbrasia tyrreha</i>)</p>	70 ml / ha	<p>Apply when the bagworms are most active, usually in November/December. Aerial application: Apply in 30 litres water per hectare.</p>												

Crop / Pest	Dosage Rate	Remarks
Beans, Peas & Groundnuts African bollworm (<i>Helicoverpa armigera</i>) on crops mentioned & Lesser army worm on Peas	100 ml / ha	Warning against resistance: Refer to “RESISTANCE MANAGEMENT” above. Apply as soon as eggs or larvae are noticed. Repeat application every 2 weeks or as determined by scouting of the crop. Ensure thorough penetration and wetting. (Refer to “ Instructions for Application ” above). Ground application: Apply in at least 300 litres water per hectare. Aerial application: Apply in 30 litres water per hectare.
Cutworms (<i>Agrotis</i> spp.)	Refer to instructions for All Row Crops .	
Citrus Ants (<i>Anoplolepis custodiens</i> & <i>Pheidole</i> spp.)	250 ml / 1 ℓ water	Only use in conjunction with Sper Ant Barrier. Attach the Sper to the tree trunk as prescribed. Use an amended knapsack sprayer to apply the ALPHA-THRIN 100 SC to the fibrous part of the Sper. Apply the first application as soon as ant activity starts (from August to September). Apply thoroughly to the point before run-off. Repeat the treatment when necessary. Suitable for use in orchards under biological control.
Cruciferae African bollworm (<i>Helicoverpa armigera</i>); Thrips & Diamond back moth larvae (<i>Plutella xylostella</i>)	7 ml / 100 ℓ water	Warning against resistance: Refer to “RESISTANCE MANAGEMENT” above. Apply the first application when the first signs of the pest are noticed. Apply follow-up applications with 10 to 14 days intervals. Thorough wetting and penetration of the plants are important. (Refer to “ Instructions for Application ” above). Aphids will be suppressed in a spray programme.
Cutworms (<i>Agrotis</i> spp.)	Refer to instructions for All Row Crops .	
Lucerne Lucerne caterpillar (<i>Colias electo</i>)	50 ml / ha	Apply as soon as the pest is noticed. Ground application: Apply in 300 litres water per hectare. Thorough wetting and penetration of the plants are important. (Refer to “ Instructions for Application ” above).
Macadamia Stink bug (<i>Nezara viridula</i>)	10 ml / 100 ℓ water	Apply as a high volume full cover spray. Apply the first application when the nuts are marble size (October/November). Apply a follow-up application and a possible third application with 4-week intervals.

Crop / Pest	Dosage Rate	Remarks								
Cotton		<p>Warning against resistance: Refer to “RESISTANCE MANAGEMENT” above.</p> <p>ALPHA-THRIN 100 SC is primarily a preventative control measure against all bollworm larvae. Applications are recommended for during the period from fruiting, from 1 January to 1 March; i.e. from peak flowering until boll split (approximately 10 to 22 weeks after plant emergence), due to the importance of integrated control and pest management.</p> <p>Applications are based on regular weekly scouting, or a regular 7 days spray programme.</p> <p>A bollworm control programme will usually commence as soon as the plants start to flower, approximately 6 weeks after plant emergence.</p> <p>Do not use ALPHA-THRIN 100 SC from start of flowering until peak flowering. During this period endosulfan can be used for the control of African bollworm, and non-pyrethroid containing insecticides for the control of red- and spiny bollworm. Apply the sprays as determined by scouting.</p> <p>Cotton older than 12 weeks after plant emergence is considered mature.</p> <p>Thorough wetting and penetration of the plants are important. (Refer to “Instructions for Application” above).</p>								
All bollworms, i.e. African, Red- and Spiny bollworm larvae & Stainers		<p>A. PREVENTIVE: Apply treatments, based on the scouting as follows:</p> <p>a) Scout 24 randomly chosen plants in field up to 15 hectares. b) Scout the fields weekly from flowering stage until boll-split. c) Apply treatments when the following threshold is exceeded:</p> <p><u>African bollworm:</u> average 0.5 eggs per plant; <u>Red bollworm:</u> 0.25 eggs per plant; <u>Spiny bollworm:</u> 2 or more larvae per plant. <u>Stainers:</u> Will be controlled by the regular treatments for bollworm.</p> <table border="1" data-bbox="400 1093 1437 1848"> <tr> <td data-bbox="400 1093 644 1308">50 ml / 100 l water</td> <td data-bbox="644 1093 1437 1308"> <p>Ground application: With boom and hydraulic nozzles. Thorough coverage of the plants is important. Apply 100 litres spray mixture per hectare to plants smaller than 60 cm. Increase the volume of spray mixture gradually as plants grow, to 200 litres per hectare for mature cotton. A minimum of 100 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p> </td> </tr> <tr> <td data-bbox="400 1308 644 1523">50 ml / 100 l water (0.5 to 1 ml / 100 meter row)</td> <td data-bbox="644 1308 1437 1523"> <p>“Tramline” treatment: Apply 50 to 100 litres spray mixture per hectare depending on plant size. Use a minimum of 5 suitable hollow-cone nozzles over the “tramlines” so that one nozzle sprays directly onto each row, one in the middle of the two rows and one on each of the outsides of the rows. Mount the two outside nozzles on drop arms at a 45° upwards angle to ensure thorough wetting.</p> </td> </tr> <tr> <td data-bbox="400 1523 644 1686">50 ml to 100 ml / ha</td> <td data-bbox="644 1523 1437 1686"> <p>Mistblower: Apply 50 ml per hectare to cotton less than 60 cm high and 100 ml per hectare to cotton taller than 60 cm. Minimum of 100 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p> </td> </tr> <tr> <td data-bbox="400 1686 644 1848">62.5 ml to 125 ml / ha</td> <td data-bbox="644 1686 1437 1848"> <p>Aerial application: Apply in 30 litres water per hectare. Apply 62.5 ml per hectare to cotton less than 60 cm high and 125 ml per hectare to cotton taller than 60 cm. A minimum of 125 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p> </td> </tr> </table>	50 ml / 100 l water	<p>Ground application: With boom and hydraulic nozzles. Thorough coverage of the plants is important. Apply 100 litres spray mixture per hectare to plants smaller than 60 cm. Increase the volume of spray mixture gradually as plants grow, to 200 litres per hectare for mature cotton. A minimum of 100 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>	50 ml / 100 l water (0.5 to 1 ml / 100 meter row)	<p>“Tramline” treatment: Apply 50 to 100 litres spray mixture per hectare depending on plant size. Use a minimum of 5 suitable hollow-cone nozzles over the “tramlines” so that one nozzle sprays directly onto each row, one in the middle of the two rows and one on each of the outsides of the rows. Mount the two outside nozzles on drop arms at a 45° upwards angle to ensure thorough wetting.</p>	50 ml to 100 ml / ha	<p>Mistblower: Apply 50 ml per hectare to cotton less than 60 cm high and 100 ml per hectare to cotton taller than 60 cm. Minimum of 100 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>	62.5 ml to 125 ml / ha	<p>Aerial application: Apply in 30 litres water per hectare. Apply 62.5 ml per hectare to cotton less than 60 cm high and 125 ml per hectare to cotton taller than 60 cm. A minimum of 125 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>
50 ml / 100 l water	<p>Ground application: With boom and hydraulic nozzles. Thorough coverage of the plants is important. Apply 100 litres spray mixture per hectare to plants smaller than 60 cm. Increase the volume of spray mixture gradually as plants grow, to 200 litres per hectare for mature cotton. A minimum of 100 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>									
50 ml / 100 l water (0.5 to 1 ml / 100 meter row)	<p>“Tramline” treatment: Apply 50 to 100 litres spray mixture per hectare depending on plant size. Use a minimum of 5 suitable hollow-cone nozzles over the “tramlines” so that one nozzle sprays directly onto each row, one in the middle of the two rows and one on each of the outsides of the rows. Mount the two outside nozzles on drop arms at a 45° upwards angle to ensure thorough wetting.</p>									
50 ml to 100 ml / ha	<p>Mistblower: Apply 50 ml per hectare to cotton less than 60 cm high and 100 ml per hectare to cotton taller than 60 cm. Minimum of 100 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>									
62.5 ml to 125 ml / ha	<p>Aerial application: Apply in 30 litres water per hectare. Apply 62.5 ml per hectare to cotton less than 60 cm high and 125 ml per hectare to cotton taller than 60 cm. A minimum of 125 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>									

Crop / Pest	Dosage Rate	Remarks						
<p>Cotton (continue) All bollworms & Leaf eaters i.e. Semi-looper (<i>Plusia</i>) & <i>Spodoptera</i></p>		<p>B. CORRECTIVE EMERGENCY CONTROL MEASURE: ALPHA-THRIN 100 SC can be applied as a corrective treatment in case of an emergency situation, e.g. when weather conditions prevent applications and/or when excessive high populations of bollworm or leaf eaters are present in the crop. This is only an emergency measure recommendation and after the application, the integrated control spray programme must be continued with. Take notice of the Warning against resistance. In case of poor control achieved with a pyrethroid application, do not correctively re-spray with another pyrethroid. Refer to “RESISTANCE MANAGEMENT” above. The success of this application depends on: foliage density and plant population, quality of application and the developmental stage of larvae. Red bollworm larvae in late stage of development and established inside bolls may be controlled erratically. The full effect of ALPHA-THRIN 100 SC application may be noticed only 4 days later.</p> <table border="1" data-bbox="395 719 1437 1290"> <tr> <td data-bbox="395 719 644 936">150 ml / 100 l water</td> <td data-bbox="644 719 1437 936"> <p>Ground application: With boom and hydraulic nozzles. Thorough coverage of the plants is important. Apply 100 litres spray mixture per hectare to plants smaller than 60 cm. Increase the volume of spray mixture gradually as the plants grow, to 200 litres per hectare for mature cotton. A minimum of 300 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p> </td> </tr> <tr> <td data-bbox="395 936 644 1099">150 ml to 300 ml / ha</td> <td data-bbox="644 936 1437 1099"> <p>Mistblower: Apply 150 ml per hectare to cotton less than 60 cm high and 300 ml per hectare to cotton taller than 60 cm. Minimum of 300 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p> </td> </tr> <tr> <td data-bbox="395 1099 644 1290">175 ml to 350 ml / ha</td> <td data-bbox="644 1099 1437 1290"> <p>Aerial application: Apply in 30 litres water per hectare. Apply 175 ml per hectare to cotton less than 60 cm high and 350 ml per hectare to cotton taller than 60 cm. Minimum of 350 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p> </td> </tr> </table>	150 ml / 100 l water	<p>Ground application: With boom and hydraulic nozzles. Thorough coverage of the plants is important. Apply 100 litres spray mixture per hectare to plants smaller than 60 cm. Increase the volume of spray mixture gradually as the plants grow, to 200 litres per hectare for mature cotton. A minimum of 300 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>	150 ml to 300 ml / ha	<p>Mistblower: Apply 150 ml per hectare to cotton less than 60 cm high and 300 ml per hectare to cotton taller than 60 cm. Minimum of 300 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>	175 ml to 350 ml / ha	<p>Aerial application: Apply in 30 litres water per hectare. Apply 175 ml per hectare to cotton less than 60 cm high and 350 ml per hectare to cotton taller than 60 cm. Minimum of 350 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>
150 ml / 100 l water	<p>Ground application: With boom and hydraulic nozzles. Thorough coverage of the plants is important. Apply 100 litres spray mixture per hectare to plants smaller than 60 cm. Increase the volume of spray mixture gradually as the plants grow, to 200 litres per hectare for mature cotton. A minimum of 300 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>							
150 ml to 300 ml / ha	<p>Mistblower: Apply 150 ml per hectare to cotton less than 60 cm high and 300 ml per hectare to cotton taller than 60 cm. Minimum of 300 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>							
175 ml to 350 ml / ha	<p>Aerial application: Apply in 30 litres water per hectare. Apply 175 ml per hectare to cotton less than 60 cm high and 350 ml per hectare to cotton taller than 60 cm. Minimum of 350 ml ALPHA-THRIN 100 SC per hectare on mature cotton is recommended.</p>							
Cutworms (<i>Agrotis</i> spp.)		Refer to instruction for All Row Crops .						
<p>Cotton (irrigated only) African bollworm (<i>Helicoverpa armigera</i>)</p>		<p>Warning against resistance: Refer to “RESISTANCE MANAGEMENT” above. LARVAL INSPECTION TECHNIQUE: a) Scout 24 randomly chosen plants in a field up to 15 hectares. b) Scout the fields weekly from flowering stage until boll-split. c) Take special notice of the terminal buds and young fruits for the presence of young larvae. d) Apply treatment when the threshold of 5 larvae per 24 plants is exceeded, regardless of the growth stage of the crop. Thorough wetting and penetration of the plants are important. (Refer to “Instructions for Application” above).</p> <table border="1" data-bbox="395 1664 1437 1821"> <tr> <td data-bbox="395 1664 644 1756">100 ml / ha</td> <td data-bbox="644 1664 1437 1756"> <p>Ground application: Apply as indicated for Cotton: PREVENTIVE; Ground application.</p> </td> </tr> <tr> <td data-bbox="395 1756 644 1821">125 ml / ha</td> <td data-bbox="644 1756 1437 1821"> <p>Aerial application: Apply in 30 litres water per hectare.</p> </td> </tr> </table>	100 ml / ha	<p>Ground application: Apply as indicated for Cotton: PREVENTIVE; Ground application.</p>	125 ml / ha	<p>Aerial application: Apply in 30 litres water per hectare.</p>		
100 ml / ha	<p>Ground application: Apply as indicated for Cotton: PREVENTIVE; Ground application.</p>							
125 ml / ha	<p>Aerial application: Apply in 30 litres water per hectare.</p>							
<p>Grazing Army worm (<i>Spodoptera exempta</i>)</p>	100 ml / ha	<p>Apply as soon as the pest is noticed. Ground application: Apply in minimum 300 litres water per hectare. Ensure thorough coverage. Aerial application: Apply in 30 litres water per hectare.</p>						

Crop / Pest	Dosage Rate	Remarks
Grape Vines Weevils (snout beetles) (<i>Phlyctinus callosus</i> & <i>Eremnus setulosus</i>)	10 ml / 100 l water	Apply as a full cover application and ensure thorough wetting of the total plant. Apply the first treatment when movement or feeding of weevils is noticed (usually from middle October to middle November). If necessary, apply a follow-up treatment after 21 days.
Argentine ants (<i>Linepithema humile</i>)	100 ml / 10 l water	Only in trellised vineyards. Apply at the beginning of the season when ants forage in the vineyard canopy. Apply to point of run-off as a coarse spray directly to the bottom 30 cm of vine stems. The trellis poles and any other structures that ants may climb, must also be treated. Use a ring-spray attachment fitted to the lance of a knapsack sprayer. One application per season should be sufficient, but where severe ant infestations occur, another application may be necessary. Weed control is also important. Monitor vineyards regularly for the presence of ants.
Pugnacious ants (<i>Anoplolepis custodiens</i> & <i>Anoplolepis steingroeveri</i>)	200 ml / 10 l water	
Grain Sorghum African bollworm (<i>Helicoverpa armigera</i>)	Warning Against Resistance: Refer to “RESISTANCE MANAGEMENT” above.	
	1 ml / 100 meter row	Apply as soon as the pest is noticed. Unsatisfied control is obtained, when the larvae are concealed in the ears. Ensure thorough penetration and wetting. (Refer to “ Instructions for Application ” above). Ground application: Apply in minimum 2 litres water per 100 meter row. Direct application onto ears.
	100 ml / ha	Aerial application: Apply in 30 litres water per hectare.
Cutworms (<i>Agrotis</i> spp.)		Refer to instructions for All Row Crops .
Stalk borer (<i>Busseola fusca</i>)	1.25 ml / 100 meter row	Ground application: Refer to instructions for Maize .
	125 ml / ha	Aerial application: Refer to instructions for Maize .
Sweet corn African bollworm (<i>Helicoverpa armigera</i>) & Stalk borers (<i>Busseola fusca</i> & <i>Sesamia calamistis</i>)	Warning against resistance. Refer to “RESISTANCE MANAGEMENT” above.	
	1 ml / 100 meter row	Spray programme recommended as follows: Apply the first application 3 weeks after planting. Follow up with 2 applications, each 10 to 14 days later. Apply a fourth application, about 10 weeks after planting, when beard emerges. This spray programme will suppress maize streak virus transmission by leafhoppers. Thorough wetting and penetration of the plants are important. (Refer to “ Instructions for Application ” above). Ground application: Apply in minimum 3 litres water per 100 meter row length.
	100 ml / ha	Aerial application: Apply in 30 litres water per hectare.
Cutworms (<i>Agrotis</i> spp.)		Refer to instructions for All Row Crops .

Crop / Pest	Dosage Rate	Remarks
Peaches African bollworm (<i>Helicoverpa armigera</i>)	5 ml / 100 l water	Warning against resistance. Refer to “RESISTANCE MANAGEMENT” above. CORRECTIVE after 75 % petal drop: When necessary, apply as a full cover spray. Do not apply before 75 % petal drop. Also control Codling moth. High volume application: Apply 125 to 175 ml per hectare.
Banded fruit weevil (snout beetle) (<i>Phlyctinus callosus</i>)	10 ml / 100 l water	Apply as soon as feeding damage is noticed. If necessary, apply a second application, 3 to 4 weeks later. High volume application: Apply 250 to 350 ml per hectare.
Codling moth (<i>Cydia pomonella</i>)	5 ml / 100 l water	Apply as a full cover spray. Apply the first application at 75 % petal drop. Apply follow-up applications with 14-day intervals in orchards where high infestations justify intensive control or as determined by pheromone traps. In orchards with low infestations, apply follow-up applications with 21-day intervals. Also control African bollworm and suppress Weevil (Snout beetle). High volume application: Apply 125 to 175 ml per hectare.
False codling moth (<i>Cryptophlebia leucotreta</i>)	5 ml / 100 l water	Early cultivars: Apply as a full cover spray. Apply the first application 6 weeks before the picking date. Repeat the application every 14 days. Late cultivars: Apply as a full cover spray. Apply the first application 8 weeks before the picking date. Repeat the application every 14 days. In the summer rainfall regions the first application must not be made later than the third week of December. Canning peaches: As above. Follow-up applications may be applied, up to 3 days before picking. High volume application: Apply 125 to 175 ml per hectare.
Fruit flies (<i>Ceratitis capitata</i> & <i>Pterandrus rosa</i>)	10 ml / 100 l water	All cultivars: Apply as a full cover spray. Apply the first application 8 weeks before picking or as indicated by pheromone traps. Repeat application every 2 weeks. In the summer rainfall region the first application must not be made later than the third week of December. Also control false codling moth larvae. Canning peaches: As above. Follow-up applications may be applied, up to 3 days before picking. High volume application: Apply 250 to 350 ml per hectare.

Crop / Pest	Dosage Rate	Remarks
Potatoes Potato tuber moth <i>(Phthorimaea operculella)</i> & Lesser army worm <i>(Spodoptera exigua)</i>	100 ml / ha	Preventative treatment: Apply a full cover spray from when the plants are 1 month old. Apply follow-up applications every 8 to 14 days. The crop must be ridged at least twice during the growing season to ensure that tubers are covered by soil. If the crop is to be left in the ground for a period of time before being harvested, precaution must be taken that no cracks in the soil covering the rows, appear. The cracks offer direct access for the moths to the tubers. Ground application: Apply in 300 to 500 litres water per hectare, depending on plant size. Ensure thorough penetration and wetting. (Refer to “ Instructions for Application ” above).

The following products mentioned in this label may be replaced with equivalent products:

- **COMMODOBUFF** (L 5390 / N-AR 1107) = **PAZBUFF** (L 5385) = **AQUBUFF** (L 5451 / W 130060),

POLYTRIN® is a registered trademark of / is 'n geregistreerde handelsmerk van
VILLA CROP PROTECTION (PTY) LTD.

COMMODOBUFF and/en **AQUABUFF** are registered products of / is geregistreerde produkte van
VILLA CROP PROTECTION (PTY) LTD.

PAZBUFF is a registered product of / is 'n geregistreerde produk van
UNIVERSAL CROP PROTECTION (PTY) LTD.