



syngenta

Reg. No. **L9023** Act No. 36 of 1947 **N-AR 1438** (Namibia) **W130705** (Botswana)

A capsule suspension contact and stomach insecticide for the control of various insects as indicated.



**Hazard statements:** Harmful if swallowed. May cause an allergic skin reaction. Harmful if inhaled. Very toxic to aquatic life with long-lasting effects.

**EMERGENCY TEL NO.:**  
**+27 82 446 8946 (Griffon)**

**Precautionary statements:** Keep out of reach of children. **Prevention:** Avoid breathing dust/fumes/gas/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink, or smoke when using this product.

**Response:** If on skin, wash with plenty of water. If skin irritation occurs, get medical advice/attention. If inhaled, call a POISON CENTRE or doctor if you feel unwell. Collect spillage. **Storage:** Store locked-up.

**Disposal:** Dispose of contents/container to an approved waste disposal plant.

UN 3082

Registration holder  
**Syngenta South Africa (Pty) Ltd**  
Co. Reg. No. 1998/013761/07  
Private Bag X 60  
HALFWAY HOUSE, 1685  
Tel.: +27 11 541 4000

GROUP 3A INSECTICIDE

**Active Ingredients:**  
lambda-cyhalothrin (pyrethroid)... 100 g/l



WARNING

Product names marked ® or ™, the ALLIANCE FRAME the SYNGENTA Logo and the PURPOSE ICON are Trademarks of a Syngenta Group Company

## 1. WARNINGS:

**Hazard statements:** Harmful if swallowed. May cause an allergic skin reaction. Harmful if inhaled. Very toxic to aquatic life with long-lasting effects.

**Withholding periods:** Minimum number of days between last application and harvest or feeding.

APPLES, APRICOTS, NECTARINES, PEARS, PLUMS, ALMONDS, PISTACHIOS, WALNUTS, PECAN NUTS AND TABLE PEACHES.....	14 days
COTTON (grazing), SORGHUM, WHEAT, BARLEY, SOYBEANS (grazing), SUNFLOWERS, WINE- AND TABLE GRAPES.....	28 days
DRY BEANS, MAIZE, CANOLA, SWEETCORN AND MACADAMIAS.....	7 days
FRUITING VEGETABLES.....	5 days
GREEN BEANS, CUCURBITS, LETTUCE AND LUCERNE.....	1 day
POTATOES, PEAS, ONIONS, CANNING PEACHES AND CRUCIFERAE.....	3 days
ROOIBOS TEA.....	50 days
TOMATOES AND LUPINS (grazing).....	2 days

**NOTE:** Compliance with these withholding periods will ensure that residues do not exceed local maximum residue limits (MRL), but the import tolerances of other countries might possibly be exceeded. If the crop to be treated is intended for export, consult the relevant importer or exporting body regarding the use of this product, MRL's and recommended withholding periods.

- In the case of **cutworm** control, apply only when plants are in seedling stage or before crop emergence. Do not apply when the soil is dry.
- Handle concentrate with care.
- Poisonous if swallowed, inhaled, or absorbed through the skin.
- Store in cool place away from food and feed.
- Toxic to fish and wildlife.
- At rates as high as 150 ml/ha applied according to label RECOMMENDATIONS, **KARATE ZEON 10 CS** is of very low risk to bees. If higher-use rates are necessary, apply during periods when bees are not active.

- Keep out of reach of children, animals and uninformed persons.
- **In case of poisoning:** Call a doctor and present this label.
- **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.
- **Re-entry:** Do not enter treated area within one (1) day after application unless wearing protective clothing.

Although this remedy has been extensively tested under a large variety of conditions, the registration holder does not warrant that it will be efficacious under all conditions because the action and effect thereof may be affected by factors such as abnormal soil, climatic and storage conditions, quality of dilution water, compatibility with other substances not indicated on the label and the occurrence of resistance of the disease against the remedy concerned, as well as by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation and the environment, or harm to people 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, that could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.

## 2. PRECAUTIONS:

**Precautionary statements:** Keep out of reach of children. **Prevention:** Avoid breathing dust/fumes/gas/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink, or smoke when using this product. **Response:** If on skin, wash with plenty of water. If inhaled, call a POISON CENTRE or doctor if you feel unwell. Collect spillage. If skin irritation occurs, get medical advice/attention. **Storage:** Store locked-up. **Disposal:** Dispose of contents/container to an approved waste disposal plant.

- Do not eat, drink, or smoke while handling this product.
- Prevent contamination of food, feed, drinking water and eating utensils.
- Wear rubber gloves and a face shield when handling the

concentrate. If you get it in your eyes, flush it out at once. If you get it on your skin, wash it off at once. If you spill it on your clothes, change and wash them.

- Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three (3) times with a volume of water equal to a minimum of 10% of that of the container. Add the rinsate to the contents of the spray tank before destroying the container in the prescribed manner.
- While spraying, avoid contact with the spray as much as you can. Avoid spray drift onto other crops, grazing, rivers, or dams.
- Clean applicator thoroughly after use and dispose of wash water where it will not contaminate crops, grazing, rivers, or dams. Destroy empty container in the prescribed manner and do not use for any other purpose.
- Change and wash your work clothes. Wash yourself.

### First Aid and Medical Treatment

**Symptoms of human poisoning:** Nausea, vomiting, diarrhoea and abdominal pain. Large doses: Ataxia, weakness of limbs, convulsions, coma and death from respiratory depression.

**Eye contact:** Hold eyelids apart and pour in a gentle stream of water for 10 - 15 minutes. Immediate medical attention is required.

**Ingestion:** If product is swallowed, do not induce vomiting.

Take patient and this product label to a doctor at once for medical treatment.

**Note to doctor:** If gastric lavage is performed, take care to prevent aspiration of gastric contents. Consider administration of activated charcoal and a laxative. Treat symptomatically.

### 3. RELEVANT SUBSTANCES:

Chemical name	
lambda-cyhalothrin (ISO)	
Classification	Concentration (% w/w)
Acute Tox. 3; H301 Acute Tox. 2; H330 Acute Tox. 3; H311 Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	≥ 2,5 - < 10
1,2-benzisothiazol-3(2H)-one	
Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 2; H411	≥ 0,05 - < 0,1

### RELEVANT SUBSTANCES cont.

M-Factor (Acute aquatic toxicity): 1	≥ 0,05 - < 0,1
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### 4. RESISTANCE MANAGEMENT:

**KARATE ZEON 10 CS** is a group code 3A insecticide. Any insect population may contain individuals naturally resistant to **KARATE ZEON 10 CS** and other group code 3A insecticides. The resistant individuals can eventually dominate the insect population if these insecticides are used repeatedly and exclusively in programs. These resistant insects may not be controlled by **KARATE ZEON 10 CS** or any other group code 3A insecticides.

#### 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 programs.
- Resistance of **African bollworm** (*Helicoverpa armigera*) to synthetic pyrethroids has been confirmed.
- Do not apply more than two (2) applications per growing season.
- If a pyrethroid gives poor performance do not respray with any synthetic pyrethroid, even at a corrective dosage rate. Use a product from a different chemical group.
- In the case of **cutworm** control, apply only when plants are in seedling stage or before crop emergence. Do not apply when the soil is dry.

Syngenta cannot accept responsibility for any losses that may result from failure to control pests resistant to **KARATE ZEON 10 CS**.

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

### 5. DIRECTIONS FOR USE: Use only as indicated.

#### 5.1 Mixing Instructions

- Half-fill the spray tank with clean water.
- Add the required amount of **KARATE ZEON 10 CS** and fill the tank while agitating.
- Ensure thorough agitation while spraying.

#### 5.2 Ground Application

- It is necessary to fit equipment with hollow cone nozzles that give medium to fine droplets when using a conventional high volume sprayer. Consult the mobile application Cropwise Spray Assist.
- Calibrate the equipment before use and ensure correct application.
- The spray mixture must be evenly distributed over the target area.
- Do not spray plants that are wet with dew or rain.

#### 5.3 Aerial Application

Aerial application of this product may only be done by a registered aerial application operator using a correctly calibrated, registered aircraft according to the instructions of



SANS 10118 (Aerial Application of Agricultural Remedies). It is important to 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 are met:

a) Application parameters:

- **Volume:** A volume of 30 ℓ/ha 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 the product is applied aerially at a lower volume rate than recommended above.
- **Droplet coverage:** A droplet coverage of 30 - 40 droplets per cm<sup>2</sup> must be recovered at the target.
- **Droplet size:** A droplet spectrum with a VMD of 250 - 280 microns is recommended. Ensure that the production of fine droplets (less than 150 microns - high drift and evaporation potential) is restricted to a minimum.
- **Flying height:** The height of the spray boom should be maintained at 3 - 4 metres above the target. Do not spray when aircraft is in a climb, at the top, during a dive, or when banking.

b) Equipment:

- Use suitable atomising equipment (hydraulic nozzles or rotary atomisers) that will produce the desired droplet size and coverage but which will ensure the minimum loss of product either through endodrift (within target field) or exodrift (outside target field).
- The operator must use a setup that will produce a droplet spectrum with the lowest possible relative span.
- All nozzles/atomisers should be positioned within the inner 60 - 75% of the wingspan to prevent droplets from entering the wingtip vortices.

c) Meteorological conditions:

- The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8°C. The addition of a suitable anti-evaporant is recommended if the VMD of the droplets is less than 200 - 250 microns.
- Stop spraying if the wind speed exceeds 15 km/h.
- Aerial application of this product must not be done under turbulent, unstable conditions during the heat of the day when rising thermals and downdraughts occur.
- Also note that the application of this product under temperature inversion conditions (spraying in or above the inversion layer) 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 the movement of the suspended spray cloud away from the target field.

Obtain assurance from the aerial spray operator that the above requirements will be met.

## 6. RECOMMENDATIONS:

### ALL CROPS

Pest	Dosage	Remarks
<b>Cutworm</b>	35 mℓ/ha	Apply <b>KARATE ZEON 10 CS</b> as a preventative (pre-emergence) or corrective (post-emergence) application as follows:

### ALL CROPS cont.

Pest	Dosage	Remarks
<b>Cutworm</b>	35 mℓ/ha	<ul style="list-style-type: none"> <li>• The soil to be treated must be well-prepared, free of clods and excessive plant debris.</li> <li>• In situations where reduced tillage is practised, <b>cutworm</b> populations are usually high. Therefore, the <b>cutworm</b> population must be monitored after the first application and if necessary a second application should be applied.</li> <li>• Apply as an overall, corrective spray at the recommended rate.</li> <li>• <b>Apply ONLY if the top 3 cm of the soil is moist.</b></li> </ul>
<b>Preventative application</b> (pre-emergence)  <b>Corrective application</b> (post-emergence)	0.12 mℓ/ 100 m row  35 mℓ/ha 35 mℓ/ha	<b>Ground application</b> <b>Row treatment</b> <ul style="list-style-type: none"> <li>• Apply in at least 2 - 4 ℓ water in a 30 cm wide band over the row.</li> </ul> <b>Overall application</b> <ul style="list-style-type: none"> <li>• Apply in 300 ℓ water/ha.</li> </ul> <b>Aerial application</b> <ul style="list-style-type: none"> <li>• Apply in 30 ℓ water/ha.</li> </ul>

### ALMONDS, PISTACHIOS, WALNUTS AND PECAN NUTS

Pest	Dosage	Remarks
<b>Stinkbug</b> ( <i>Nezara viridula</i> )	50 - 100 mℓ/ ha (5 - 10 mℓ/100 ℓ water)	<ul style="list-style-type: none"> <li>• Apply as required by scouting, usually at intervals of five (5) or more days.</li> <li>• Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold.</li> </ul> <b>Ground application</b> <ul style="list-style-type: none"> <li>• Ensure thorough wetting.</li> <li>• Apply in 250 - 500 ℓ water/ha.</li> </ul> <b>Aerial application</b> <ul style="list-style-type: none"> <li>• Apply in at least 30 ℓ water/ha.</li> </ul>

### APPLES AND PEARS

Pest	Dosage	Remarks
<b>Banded fruit weevil</b> ( <i>Phlyctinus callosus</i> )	10 mℓ/100 ℓ water (250 - 350 mℓ/ha)	<b>Foliar application</b> <ul style="list-style-type: none"> <li>• Apply two (2) high volume sprays.</li> <li>• The first at 75% petal drop and the second four (4) weeks later.</li> <li>• If necessary a third spray can be applied four (4) weeks after the second spray to prevent late season damage.</li> </ul>
<b>Codling moth</b> ( <i>Cydia pomonella</i> )	5 mℓ/100 ℓ water (125 - 175 mℓ/ha)	<ul style="list-style-type: none"> <li>• Apply as a high-volume spray.</li> <li>• Apply first spray at 75% petal drop and repeat at 14 - 18-day intervals.</li> </ul>

### APPLES, PEARS, PLUMS, NECTARINES, TABLE PEACHES, CANNING PEACHES AND APRICOTS

Pest	Dosage	Remarks
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> )	5 mℓ/100 ℓ water (125 - 175 mℓ/ha)	<ul style="list-style-type: none"> <li>• Apply at the first signs of an infestation and repeat if necessary.</li> <li>• Do not apply before 75% petal drop.</li> </ul>

## PLUMS, NECTARINES, TABLE PEACHES, CANNING PEACHES AND APRICOTS

Pest	Dosage	Remarks
<b>Banded fruit weevil</b> ( <i>Phlyctinus callosus</i> )	10 ml/100 ℓ water (250 - 350 ml/ha)	<b>Foliar application</b> <ul style="list-style-type: none"> <li>Apply at the first signs of feeding damage and repeat 3 - 4 weeks later if necessary.</li> </ul>

## GROUNDNUTS, DRYBEANS, GREEN BEANS, LUCERNE, MAIZE AND SWEETCORN

Pest	Dosage	Remarks
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> )	50 ml/ha	<b>Ground application</b> <ul style="list-style-type: none"> <li>Apply in 250 - 500 ℓ water/ha depending on plant size.</li> <li>Scout fields at 7-day intervals from time of flowering and commence spraying when infestation is noticed.</li> <li>For optimum control larvae should be sprayed when they are not bigger than 1 cm but definitely before they exceed 2 cm in length.</li> <li>Scout field every seven (7) days or three (3) days after rain and repeat application if necessary.</li> </ul>
	50 ml/ha	<b>Aerial application</b> (Groundnuts, dry beans and green beans only) <ul style="list-style-type: none"> <li>Apply in 30 ℓ water/ha.</li> </ul>

## BARLEY

Pest	Dosage	Remarks
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> )	60 ml/ha	<ul style="list-style-type: none"> <li>Only to be used under recommendations of SAB malting.</li> <li>Spray as soon as an infestation is noticed and repeat if necessary.</li> </ul> <b>Ground application</b> <ul style="list-style-type: none"> <li>Ensure thorough wetting.</li> <li>Apply in 250 - 500 ℓ water/ha.</li> </ul> <b>Aerial application</b> <ul style="list-style-type: none"> <li>Apply in at least 30 ℓ water/ha.</li> </ul>

## COTTON

- Synthetic pyrethroids must **ONLY** be applied to cotton during the period 1 January - 28 February for the control of **African bollworm**.
- No sprays should be necessary for **African bollworm** control during the first eight (8) weeks after plant emergence.
- Should **red bollworm** be present a compound which does not promote **red spider mite** should be sprayed. Thereafter, (10 - 12 weeks later) recommendations as below can be followed. **KARATE ZEON 10 CS** must be applied on the basis of regular weekly scouting and the correct interpretation of the results.
- When more than five (5) **African-** and two (2) **red-** or two (2) **spiny bollworm** larvae are found/24 plants/15 hectare during scouting, a spray has to be applied.
- The success of the treatment depends on coverage and penetration achieved by the spray application.
- Larvae already inside the bolls may not be controlled

successfully.

- Allow four (4) days to achieve the maximum effect of the spray, scout and repeat application if necessary.

Pest	Dosage	Remarks
<b>African bollworm</b> <b>Red bollworm</b> <b>Spiny bollworm</b> <b>Cotton stainer</b>	<b>Plants smaller than 60 cm:</b> 30 ml/ha <b>Plants taller than 60 cm:</b> 60 ml/ha	<b>Ground application</b> <ul style="list-style-type: none"> <li>With boom and nozzle.</li> <li>Cotton should be treated with sufficient spray mixture for good coverage.</li> <li>Use 100 ℓ spray mixture/ha for plants smaller than 60 cm and 200 ℓ spray mixture/ha for plants taller than 60 cm.</li> </ul>
	<b>Plants smaller than 60 cm:</b> 0.3 ml/100 m row <b>Plants taller than 60 cm:</b> 0.6 ml/100 m row	<b>Tramline treatment</b> <ul style="list-style-type: none"> <li>Use 50 ℓ spray mixture/ha on cotton less than 60 cm and 100 ℓ spray mixture/ha on plants taller than 60 cm.</li> <li>See TRAMLINES below.</li> </ul>
	33 - 66 ml/ha	<b>Aerial application</b> <ul style="list-style-type: none"> <li>Apply in 30 ℓ water/ha.</li> <li>Use lower dosage for plants smaller than 60 cm and the higher dosage for plants taller than 60 cm.</li> </ul>

### Tramlines (cotton)

Dosage recommendation is per single row.

(Therefore, 1 tramline = 2 rows)

- Mount at least five (5) suitable hollow cone nozzles over 'tramlines' so that one (1) nozzle sprays directly over the top of each row, one (1) in between and another on the outside of each of the two rows.
- For best coverage the two outside nozzles should be mounted on droparms pointing 45° upwards.
- 1 meter row spacing = 10 000 running m/ha.

<b>African bollworm</b> <b>Red bollworm</b>	<b>Plants smaller than 60 cm:</b> 44 ml/ha in sunflower oil <b>Plants taller than 60 cm:</b> 60 ml/ha in sunflower oil	<b>ULV - application</b> <ul style="list-style-type: none"> <li>Only acknowledged ULV applicators must be used.</li> <li>Apply a total spray mixture volume of 3 ℓ/ha.</li> <li>Make the indicated <b>KARATE ZEON 10 CS</b> dosage up with sunflower oil to a spray volume of 3 ℓ.</li> </ul>
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## SORGHUM

Pest	Dosage	Remarks
<b>Maize stalk borer</b> ( <i>Busseola fusca</i> )	0.5 ml/100 m row          50 ml/ha	<b>Ground application</b> <ul style="list-style-type: none"> <li>Apply in 3 ℓ water in the funnel stage when 5% of the plants show shothole damage and borers have not yet migrated into the stalks.</li> <li>Direct application into funnel.</li> <li><b>Will also control <i>Chilo partellus</i> if present at time of application.</b></li> </ul> <b>Aerial application</b> <ul style="list-style-type: none"> <li>Apply in 30 ℓ water/ha.</li> </ul>
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> )	50 ml/ha	<ul style="list-style-type: none"> <li>Spray as soon as an infestation is noticed and repeat if necessary.</li> </ul> <b>Ground application</b> <ul style="list-style-type: none"> <li>Ensure thorough wetting.</li> </ul>

## SORGHUM cont.

Pest	Dosage	Remarks
	50 ml/ha	<ul style="list-style-type: none"> <li>Apply in 250 - 500 ℓ water/ha.</li> </ul> <p><b>Aerial application</b></p> <ul style="list-style-type: none"> <li>Apply in at least 30 ℓ water/ha. repeat if necessary.</li> </ul> <p><b>Ground application</b></p> <ul style="list-style-type: none"> <li>Ensure thorough wetting.</li> <li>Apply in 250 - 500 ℓ water/ha.</li> </ul> <p><b>Aerial application</b></p> <ul style="list-style-type: none"> <li>Apply in at least 30 ℓ water/ha.</li> </ul>

## SOYBEANS

Pest	Dosage	Remarks
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> )	60 ml/ha	<p><b>Ground application</b></p> <ul style="list-style-type: none"> <li>Apply as soon as infestation is noticed and repeat when necessary.</li> <li>Apply in 200 - 300 ℓ water/ha and ensure good coverage of the plants.</li> </ul> <p><b>Aerial application</b></p> <ul style="list-style-type: none"> <li>Apply in 30 ℓ water/ha.</li> </ul>

## SUNFLOWERS

Pest	Dosage	Remarks
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> )	75 ml/ha	<ul style="list-style-type: none"> <li>Apply two (2) applications at 14-day intervals.</li> <li>Spray first application with first sign of infestation on the flowers (L1 – L2) and follow-up 14 days later.</li> <li>Apply in 150 – 400 ℓ water/ha.</li> </ul>

## WINE AND TABLE GRAPES

Pest	Dosage	Remarks
<b>Weevils</b> ( <i>Eremnus setulosus</i> , <i>Eremnus cerealis</i> , <i>Phlyctinus callosus</i> )	10 ml/100 ℓ water (100 ml/ha)	<p><b>Stem treatment</b></p> <ul style="list-style-type: none"> <li>Start to monitor for <b>weevils</b> from the beginning of October and continue monitoring throughout the growing season.</li> <li>Apply as a preventative stem treatment as soon as <b>weevil</b> activity is noticed on the stem.</li> <li>Apply in 1 000 ℓ spray mixture/ha (at least ± 0.5 ℓ/plant) up to a height of 1 metre. In the case of low growing vines (trees), spray up to the first lateral branches.</li> <li>Wet the stem thoroughly and allow excess spray mixture to run onto the soil surrounding the stem.</li> <li>Repeat application 3 - 4 weeks later if necessary.</li> <li>If a dense canopy has already formed which can serve as a hiding place for <b>weevils</b> which will prevent them from migrating back</li> </ul>

## WINE AND TABLE GRAPES cont.

Pest	Dosage	Remarks
<b>Weevils</b> ( <i>Eremnus setulosus</i> , <i>Eremnus cerealis</i> , <i>Phlyctinus callosus</i> )	10 ml/100 ℓ water (100 ml/ha)	<p>to the stem during the day, follow the foliar application below but first ensure that an infestation is present in the foliage prior to application.</p> <p><b>Foliar application</b></p> <p>Apply as a high-volume preventative spray at 1 000 ℓ spray mixture/ha. an infestation is present in the foliage prior to application.</p> <p><b>Foliar application</b></p> <ul style="list-style-type: none"> <li>Apply as a high-volume preventative spray at 1 000 ℓ spray mixture/ha.</li> </ul>

## WHEAT

Pest	Dosage	Remarks
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> )	60 ml/ha	<ul style="list-style-type: none"> <li>Spray as soon as an infestation is noticed and repeat if necessary.</li> </ul> <p><b>Ground application</b></p> <ul style="list-style-type: none"> <li>Ensure thorough wetting.</li> <li>Apply in 250 - 500 ℓ water/ha.</li> </ul> <p><b>Aerial application</b></p> <ul style="list-style-type: none"> <li>Apply in at least 30 ℓ water/ha.</li> </ul>

## CANOLA

Pest	Dosage	Remarks
<b>Diamondback moth</b> ( <i>Plutella</i> spp.) <b>Loopers</b> <b>Diamondback moth</b> ( <i>Plutella</i> spp.) <b>Loopers</b> ( <i>Chrysodeixis</i> spp.)	35 - 70 ml/ha	<ul style="list-style-type: none"> <li>Apply as required by scouting, usually at intervals of five (5) or more days.</li> <li>Apply as required by scouting, usually at intervals of five (5) or more days.</li> <li>Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold.</li> </ul>

## MACADAMIAS

Pest	Dosage	Remarks
<b>Stinkbug</b> ( <i>Nezara viridula</i> )	5 ml/100 ℓ water	<p><b>High volume</b></p> <ul style="list-style-type: none"> <li>Time of application is based on <b>stinkbug</b> numbers. This is determined by means of the tree shake method.</li> <li>Start monitoring stinkbug numbers two (2) weeks after flowering.</li> <li>Apply as soon as an average of 1.8 <b>stinkbugs</b> per tree are counted.</li> <li>2 - 3 applications per season might be needed.</li> </ul>

## MAIZE

Pest	Dosage	Remarks
<b>Stalkborer</b> ( <i>Chilo partellus</i> )	0.6 ml/100 m row	<p><b>Ground application</b></p> <ul style="list-style-type: none"> <li>Apply as soon as 10% of the plants show damage and direct spray into funnels.</li> </ul>



**MAIZE** cont.

Pest	Dosage	Remarks
[First and second generation]	0.6 mℓ/100 m row	<ul style="list-style-type: none"> <li>If necessary apply a follow-up spray shortly before tasseling.</li> <li>A minimum of 2 - 4 ℓ spray mixture must be applied per 100 m row.</li> </ul>
<b>Stalkborer</b> ( <i>Busseola fusca</i> ) [First and second generation]	0.6 mℓ/100 m row (60 mℓ/ha)  60 mℓ/ha	<ul style="list-style-type: none"> <li>Apply as soon as eggs are found on 5% of the plants or 10% of the plants show damage. A second application may be required 10 - 14 days later.</li> <li>Apply directly into plant funnel in at least 2 - 4 ℓ water/100 m row.</li> </ul> <p><b>Aerial application</b></p> <ul style="list-style-type: none"> <li>Apply as above in 30 ℓ water/ha.</li> </ul>

**SWEETCORN**

Pest	Dosage	Remarks
<b>Pink stalkborer</b> ( <i>Sesamia calamistis</i> )	0.5 mℓ/100 m row	<p><b>Ground application</b></p> <ul style="list-style-type: none"> <li>Apply directly into the funnel of the plants 14 days after emergence of the plants.</li> <li>A follow-up application 10 - 14 days later must be applied and if necessary up to flowering to control re-infestations.</li> <li>A minimum of 2 - 4 ℓ spray mixture/100 m row must be applied.</li> </ul>

**TOMATOES AND FRUITING VEGETABLES**

(Including eggplant and capsicum (peppers))

Pest	Dosage	Remarks
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> ) <b>Semi-looper</b>	<b>High-volume</b> 3.75 mℓ/100 ℓ water	<ul style="list-style-type: none"> <li>Commence spraying when plants start flowering or at first signs of an infestation.</li> <li>Apply as a full-cover spray at 500 - 1 000 ℓ spray mixture/ha depending on plant size for tomatoes up to 1 metre.</li> <li>For taller plants a higher spray volume should be used and the concentration should be maintained.</li> <li>Repeat application at 7 - 10-day intervals or as dictated by inspection of crop.</li> </ul>

**CUCURBITS**

(Including cucumber, gherkin, melon, pumpkin, squash, baby marrow and watermelon)

Pest	Dosage	Remarks
<b>Loopers</b> ( <i>Chrysodeixis</i> spp.) <b>Aphids</b> <b>Armyworm</b> ( <i>Spodoptera</i> spp.)	50 - 70 mℓ/ha	<ul style="list-style-type: none"> <li>Apply as required by scouting, usually at intervals of five (5) or more days.</li> <li>Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold.</li> </ul> <p><b>Ground application</b></p>

**CUCURBITS** cont.

Pest	Dosage	Remarks
<b>Leafminers</b> <b>Thrips</b> ( <i>Frankliniella occidentalis</i> ) [excluding Western flower thrips] [suppression only] <b>Whiteflies</b> [suppression only]	70 mℓ/ha	<ul style="list-style-type: none"> <li>Ensure thorough wetting.</li> <li>Apply in 250 - 500 ℓ water/ha.</li> </ul> <p><b>Aerial application</b></p> <ul style="list-style-type: none"> <li>Apply in at least 30 ℓ water/ha.</li> </ul>

**LETTUCE**

(Leaf and head)

Pest	Dosage	Remarks
<b>Loopers</b> ( <i>Chrysodeixis</i> spp.)  <b>Armyworm</b> ( <i>Spodoptera</i> spp.)  <b>Diamondback moth</b> ( <i>Plutella</i> spp.)  <b>Leafhoppers</b>  <b>Whiteflies</b> [suppression only]	35 - 60 mℓ/ha  50 - 70 mℓ/ha	<ul style="list-style-type: none"> <li>Apply as required by scouting, usually at intervals of five (5) or more days.</li> <li>Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold.</li> </ul> <p><b>Ground application</b></p> <ul style="list-style-type: none"> <li>Ensure thorough wetting.</li> <li>Apply in 250 - 500 ℓ water/ha.</li> </ul> <p><b>Aerial application</b></p> <ul style="list-style-type: none"> <li>Apply in at least 30 ℓ water/ha.</li> </ul>

**LUCERNE**

Pest	Dosage	Remarks
<b>Lucerne caterpillar</b> ( <i>Colias electo</i> )  <b>Loopers</b> ( <i>Chrysodeixis</i> spp.)  <b>Armyworm</b> ( <i>Spodoptera</i> spp.)  <b>Thrips</b> ( <i>Frankliniella occidentalis</i> ) [excluding Western flower thrips]	40 - 50 mℓ/ha  35 - 60 mℓ/ha  50 - 70 mℓ/ha	<p><b>Ground application</b></p> <ul style="list-style-type: none"> <li>Apply in 250 - 500 ℓ water/ha depending on plant size.</li> <li>Ensure thorough wetting of lucerne.</li> <li>Use lower dosage rate on not-dense standing lucerne.</li> <li>For optimum control larvae should be sprayed when they are not bigger than 1 cm but definitely before they exceed 2 cm in length.</li> <li>Follow-up applications may be necessary based on scouting to determine re-infestations.</li> </ul>

**CRUCIFERAE**

(Including broccoli, brussel sprouts, cabbage and cauliflower)

Pest	Dosage	Remarks
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> )  <b>Loopers</b> ( <i>Chrysodeixis</i> spp.)  <b>Aphids</b> [suppression only] <b>Armyworm</b>	<b>High-volume</b> 4 mℓ/100 ℓ water  35 - 60 mℓ/ha  50 - 70 mℓ/ha	<ul style="list-style-type: none"> <li>Apply in 500 - 1 000 ℓ spray mixture/ha.</li> <li>Start spraying at the first signs of an infestation and repeat every 10 - 14 days.</li> <li>Add AGRAL 90 (L2987) at 18 mℓ/100 ℓ water and ensure good spray coverage.</li> </ul>

## CRUCIFERAE cont.

Pest	Dosage	Remarks
( <i>Spodoptera</i> spp.) <b>Diamondback moth</b> ( <i>Plutella</i> spp.) <b>Thrips</b> [suppression only] <b>Whiteflies</b> [suppression only]		

## ONIONS

Pest	Dosage	Remarks
<b>Thrips</b>	40 - 60 ml/ha	<ul style="list-style-type: none"> <li>Apply in a spray program of 10 - 14 days at the first signs of damage on onion leaves.</li> <li>Use the lower dosage rate when the <b>thrips</b> count reaches 0.6 <b>thrips</b> per plant and follow-up with the higher dosage rate 10 - 14 days later.</li> <li>Not to be used on spring onions.</li> </ul>

## PEAS AND MANGE TOUS

Pest	Dosage	Remarks
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> )	50 ml/ha	<b>Ground application</b> <ul style="list-style-type: none"> <li>Apply in not less than 200 ℓ water/ha at flowering of the peas at an infestation level of two (2) <b>bollworms</b>/20 plants.</li> <li>Follow-up application might be necessary if a re-infestation occurs.</li> </ul> <b>Centre pivot application</b> <ul style="list-style-type: none"> <li>Use a correctly calibrated injector on the pivot line, pivot speed to be at 100%.</li> <li>Apply as soon as the count of <b>African bollworm</b> eggs increase to a level of 6 eggs/24 plants or at a larval count of 2 larvae/24 plants.</li> </ul>

## POTATOES

Pest	Dosage	Remarks
<b>Potato tuber moth larvae</b> ( <i>Phthorimaea operculella</i> ) <b>African bollworm</b> ( <i>Helicoverpa armigera</i> )	60 ml/ha	<b>Ground application</b> <ul style="list-style-type: none"> <li>Apply in 250 - 500 ℓ water/ha depending on plant size.</li> <li>Commence spraying when plants are one (1) month old or earlier if an infestation should occur.</li> <li>Repeat every 10 - 14 days and ridge at least twice during the growth season.</li> <li>For the control of <b>aphids</b> add APHOX (L3428) at the registered rate.</li> </ul>
	66 ml/ha	<b>Aerial application</b> <ul style="list-style-type: none"> <li>Apply in at least 30 ℓ water/ha.</li> <li>Commence spraying as soon</li> </ul>

## POTATOES cont.

	66 ml/ha	as plants are one (1) month old or earlier if an infestation should occur. <ul style="list-style-type: none"> <li>Repeat application every 10 - 14 days and ridge at least twice during the growing season.</li> </ul>
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## ROOIBOS TEA

Pest	Dosage	Remarks
<b>Loopers</b> <b>Leafhoppers</b> ( <i>Molophilus thea</i> )	50 - 75 ml/ha	<ul style="list-style-type: none"> <li>Apply when pest is noticed.</li> <li>Repeat application 3 - 4 weeks later if necessary, with a maximum of three (3) applications.</li> </ul>

## LUPINS

Pest	Dosage	Remarks
<b>African bollworm</b> ( <i>Helicoverpa armigera</i> )	55 - 60 ml/ha  60 ml/ha	<b>Ground application</b> <ul style="list-style-type: none"> <li>Apply in no less than 300 ℓ water/ha.</li> </ul> <b>Ground application</b> <ul style="list-style-type: none"> <li>Apply in no less than 300 ℓ water/ha.</li> <li>Application should be done at a count of 1 - 2 larvae/m<sup>2</sup> before pods are penetrated by the larvae.</li> <li>Apply lower dosage rate to young plants and higher rate to strongly growing plants.</li> </ul> <b>Aerial application</b> <ul style="list-style-type: none"> <li>Apply in 30 ℓ water/ha.</li> </ul>

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