



The miracles of science™

# STEWARD®

Reg.No. L6332 Act No. 36 of 1947

Reg. Nr. L6332 Wet Nr. 36 van 1947

**A water dispersible granule stomach and contact insecticide for the control of various insect pests on a variety of crops as listed.**

**'n Water dispergeerbare korrel maag en kontak insekdoder vir die beheer van verskeie plaeg op verskillende gewasse soos aangetoon.**

**INSECTICIDE GROUP CODE 22 INSEKDODER GROEP KODE**

**ACTIVE INGREDIENT**

Indoxacarb (Oxadiazine)

300 g/kg

**AKTIEWE BESTANDDEEL**

Indoksakarb (Oksadiazien)

**Net Mass**

**250 g**

**Netto Massa**

**REGISTERED BY /  
GEREGISTREER DEUR:**

DUPONT DE NEMOURS SOUTH AFRICA (PTY) LTD  
Co. Reg. No. 2009/014079/07  
P O BOX / POSBUS 3332  
HALFWAY HOUSE 1685  
Tel: (011) 218-8600

**24 Hour/Uur Emergency  
Number/Noodnommer:  
083 123 3911**

BATCH NUMBER  
DATE MANUFACTURED

\_\_\_\_\_  
\_\_\_\_\_

LOTNOMMER  
DATUM VERVAARDIG

**UN No. / VN Nr.: 3077**

**CAUTION  
VERSIGTIG**

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## **WARNINGS:**

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

Apples	28
Cruciferae (cabbage, brocolli, cauliflower, brussels sprouts)	3
Cucurbits (pumpkins, squash, watermelons, muskmelons, baby marrows, patty pans, cucumbers)	3
Grapes (table)	14
Grapes (wine)	28
Green beans	3
Pears	28
Peas	7
Tobacco	42
Tomatoes	1
Peaches (includes nectarines)	28
Potatoes (when used with abamectin)	14
- Do not graze or use treated crop as fodder.
- Handle with care.
- Harmful by inhalation, contact and if swallowed.
- This product is toxic to fish and other aquatic organisms.
- Keep out of the reach of children, uninformed persons and animals.
- Store in a cool place 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 unless wearing protective clothing.
- **AERIAL APPLICATION:** Notify all inhabitants in the immediate vicinity of the lands to be sprayed and issue the necessary warnings. Do not 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 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:**

- Do not inhale spray mist.
- All persons in contact with the insecticide must wear protective clothing, (overalls, face shields, rubber boots, gloves).
- Wash contaminated clothing after work.
- Do not get in eyes or on skin and clothing.
- Wash with plenty of soap and water immediately after accidental skin contact.
- Immediately remove clothing and shoes should they become contaminated.
- In case of eye contact wash immediately with plenty of water.
- In case of ingestion call a physician or poison centre. Drink 1 to 2 glasses of water. Do not induce vomiting without medical advice.
- 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 SPRAY DRIFT ONTO OTHER EDIBLE CROPS, 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.
- Rinse the empty container three times with a volume of water equal to a minimum of 10% of that of the container. Add the rinsings to the contents of the spray tank before destroying the container.
- Do not use empty container for any other purpose.

### **RESISTANCE WARNING**

**STEWARD**<sup>®</sup> is a group code 22 insecticide. Any insect population may contain individuals naturally resistant to **STEWARD**<sup>®</sup> and other group code 22 insecticides. The resistant individuals can eventually dominate the insect population if these insecticides are used repeatedly. These resistant insects may not be controlled by **STEWARD**<sup>®</sup> or any other group code 22 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.

Some insects (*Helicoverpa armigera*, *Chrysodeixis acuta*, *Plutella xylostella* and *Phthorimaea operculella*) have been able to develop resistance to commercially available products. When resistance occurs, recommended rates fail to suppress the pest population below economic thresholds. The onset of resistance cannot be predicted and local advisors should be consulted for resistance management recommendations. As a result of its unique mode of action, **STEWARD**<sup>®</sup> is ideally suited for applications where resistance management is important. Whilst there is no evidence of insect resistance to Indoxacarb, these guidelines will maximise the effective life of the product:

1. Where appropriate, alternate **STEWARD**<sup>®</sup> with compounds from different chemical classes (carbamate, pyrethroid, organophosphate or IGR). We recommend alternation with registered products from these classes and not to exceed the maximum number of applications per season with **STEWARD**<sup>®</sup> as per the instructions under **DIRECTIONS FOR USE** on this label.
2. Monitor insect populations and apply **STEWARD**<sup>®</sup> according to the label instructions when locally determined economic thresholds are reached. More than one application may be necessary for any one infestation. In certain crops **STEWARD**<sup>®</sup> must be applied preventively.
3. Follow the label recommendations precisely for rates and spray intervals and the optimum timing to apply **STEWARD**<sup>®</sup>.
4. **STEWARD**<sup>®</sup> respects beneficial insects and mites. Such beneficials that will remain after treatments can help control/reduce pest re-infestation. Surviving beneficials provide additional pressure on the pest population and can therefore aid in the reduction of resistance potential.

### **GENERAL INFORMATION:**

**STEWARD**<sup>®</sup> has a novel mode of action and acts by inhibiting sodium ion entry into nerve cells, resulting in paralysis and death of the pest species. Death of the pest occurs within 1 to 2 days, but inhibition of insect feeding occurs very rapidly (within 2 to 8 hours).

**STEWARD**<sup>®</sup> is active as a larvacide through ingestion (stomach action) and through cuticular absorption (contact action). **STEWARD**<sup>®</sup> is equally active on larvae of all development stages.

**STEWARD<sup>®</sup>** is virtually a lepidoptera specific insect control agent and is safe to most beneficial insects, including predatory mites. **STEWARD<sup>®</sup>** is also effective in hot climatic conditions.

**BEES:** Under normal field conditions, **STEWARD<sup>®</sup>** applied at recommended rates, has no significant effect on honeybees. It is recommended that **STEWARD<sup>®</sup>** not be sprayed directly onto foraging bees. Once the spray deposit has dried bees can be allowed to forage.

**RAINFAST PROPERTIES:** Once the spray mixture has dried on the target area, **STEWARD<sup>®</sup>** will not wash off through rainfall or irrigation and these conditions will therefore not influence the normal residual activity of the product.

#### **Aerial application:**

- Aerial application of **STEWARD<sup>®</sup>** 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 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 l 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 cm<sup>2</sup> 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

**DIRECTIONS FOR USE:****USE ONLY AS DIRECTED**

**COMPATIBILITY:** The compatibility of **STEWARD**<sup>®</sup> has not been fully investigated. **STEWARD**<sup>®</sup> is compatible with Agral 90 (Reg. No. L2987 Act No. 36 of 1947), H&R Crop Oil (Reg. No. L6802 Act No. 36 of 1947), Capitan<sup>®</sup> (Reg. No. L6062 Act No. 36 of 1947), Punch<sup>®</sup> C (Reg. No. L3626 Act No. 36 of 1947), Tanos<sup>®</sup> (Reg. No. L6564 Act No. 36 of 1947), Curzate<sup>®</sup> Pro (Reg. No. L5698 Act No. 36 of 1947), Dichlorvos (Reg. No. L4640 Act No. 36 of 1947), Nogos (Reg. No. L5408 Act No. 36 of 1947), Agrimec (Reg. No. L3209 Act No. 36 of 1947), Vilmectin 18 EC (Reg. No. L7979 Act No. 36 of 1947) and Unimectin (Reg. No. L7978 Act No. 36 of 1947). For more compatibility information, or in the event of uncertainty, contact your nearest DuPont representative.

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<b>APPLES AND PEARS:</b> American bollworm (larvae) <i>Helicoverpa armigera</i>	15g/100ℓ water	Apply as a full cover spray. Apply preventively or when eggs or larvae are present, but before larvae enter the fruit. A follow-up application may be necessary 10 to 14 days later depending on re-infestation of the pest. Thorough coverage is essential. Do not exceed the 4 applications per season, including applications made with this product against Codling moth (see below). <b>Bee safety:</b> <b>STEWARD</b> <sup>®</sup> is safe to bees, but do not apply directly onto foraging bees. <b>Allow 28 days between last application and harvest.</b> <u>Note:</u> The withholding period, i.e. the number of days between last application and harvest meets local maximum residue limits (MRL's), but may not necessarily meet all those for export.
Codling moth (larvae) <i>Cydia pomonella</i>	25g/100ℓ water	Apply as a full cover spray. Ensure thorough coverage. Apply against the first generation of the pest. Commence application at 75% petal fall at the onset of the first moth generation of the pest. Apply in a programme, not exceeding 14-day intervals. Do not exceed 4 applications per season, including applications made with this product against American bollworm (see above). <b>Bee safety:</b> <b>STEWARD</b> <sup>®</sup> is safe to bees, but do not apply directly onto foraging bees. <b>Allow 28 days between last application and harvest.</b> To avoid the development of resistance, apply products with a different mode of action against the other two Codling moth generations.
Banded Fruit Weevil (Snoutbeetle) Fruit damage <i>Phlyctinus callosus</i>	25g/100ℓ water	Apply as a full cover spray. Ensure thorough coverage of the whole tree. Commence application from 75% petal fall onwards, or when weevils are observed in cardboard traps, or when feeding damage is observed on lower shoots. A second application may be necessary 14 to 21 days later if infestation persists. Do not apply more than 2 <b>STEWARD</b> <sup>®</sup> applications per season against this pest. Should a third application be needed, make use of a different registered insecticide. <b>Bee safety:</b> <b>STEWARD</b> <sup>®</sup> is safe to bees, but do not apply directly onto foraging bees. <b>Allow 28 days between last application and harvest.</b> <u>Note:</u> The withholding period, i.e. the number of days between last application and harvest meets local maximum residue limits (MRL's), but may not necessarily meet all those for export.

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p><b>TABLE AND WINE GRAPES:</b>  Banded Fruit Weevil (Snoutbeetle)  Berry damage  <i>Phlyctinus callosus</i></p>	<p>FOLIAR APPLICATION:  20g/100ℓ water</p>	<p>Apply as a full cover spray and depending on vine size at 1000-1500ℓ spray mixture per ha. Thorough coverage is essential.  Commence application from 25cm shoot length onwards or when weevils are first observed in cardboard traps or when first feeding damage is observed on lower shoots. The first occurrence of weevils (snoutbeetles) varies from area to area but can normally be expected from mid October to mid November.  A second application may be necessary 14 days later if infestation persists. Do not apply more than 2 <b>STEWARD</b><sup>®</sup> applications per season against this pest. Should a third application be needed, make use of a different registered insecticide.  <b>Allow 14 and 28 days between last application and harvest of table and wine grapes respectively.</b>  <u>Note:</u> The withholding period, i.e. the number of days between last application and harvest meets local maximum residue limits (MRL's), but may not necessarily meet all those for export.</p>
<p><b>STONE FRUIT:</b>  (Peaches &amp; Nectarines)  American bollworm (larvae)  <i>Helicoverpa armigera</i></p> <p>Banded Fruit Weevil (Snoutbeetle)  Fruit damage  <i>Phlyctinus callosus</i></p>	<p>FOLIAR APPLICATION:  15g/100ℓ water</p> <p>FOLIAR APPLICATION:  20g/100ℓ water</p>	<p>Apply as a full cover spray at 500-2000ℓ spray mixture per ha. Apply preventively or when eggs or larvae are present, but before larvae enter the fruit. A follow-up application may be necessary 10 to 14 days later depending on re-infestation of the pest.  Thorough coverage is essential.  Do not exceed 2 applications in total per season on crop.  <b>Bee safety:</b> <b>STEWARD</b><sup>®</sup> is safe to bees, but do not apply directly onto foraging bees.  <b>Allow 28 days between last application and harvest.</b>  <u>Note:</u> The withholding period, i.e. the number of days between last application and harvest meets local maximum residue limits (MRL's), but may not necessarily meet all those for export.</p> <p>Apply as a full cover spray at 500-2000ℓ spray mixture per ha. Ensure thorough coverage of the whole tree.  Commence application from 75% petal fall onwards, or when weevils are observed in cardboard traps, or when feeding damage is observed on lower shoots. A second application may be necessary 14 to 21 days later if infestation persists. Do not apply more than 2 <b>STEWARD</b><sup>®</sup> applications in total per season on the crop. Should a third application be needed, make use of a different registered insecticide.  <b>Allow 28 days between last application and harvest.</b>  <u>Note:</u> The withholding period, i.e. the number of days between last application and harvest meets local maximum residue limits (MRL's), but may not necessarily meet all those for export.</p>

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p><b>CRUCIFERAE:</b> <b>(cabbage, broccoli, cauliflower and brussel sprouts)</b></p> <p>Diamond-back moth (larvae) <i>Plutella xylostella</i>,</p> <p>Cabbage web worm (larvae) <i>Hellula undalis</i>,</p> <p>American bollworm (larvae) <i>Helicoverpa armigera</i></p> <p>and</p> <p>Cabbage white butterfly (larvae) <i>Pieris brassicae</i></p>	<p>FOLIAR APPLICATION: 125-150g/ha</p>	<p><b>PREVENTIVE / CORRECTIVE APPLICATION:</b></p> <ul style="list-style-type: none"> <li>• Apply in 300-600ℓ of water per hectare and ensure thorough coverage of the head, where the larvae feed. Make use of hollow or full cone nozzles.</li> <li>• Use the higher application rate when applied correctively. Use the lower rate for subsequent applications when applied in a regular programme.</li> <li>• <b>DIAMOND-BACK MOTH AND CABBAGE WEB WORM:</b> It is important to commence application shortly after transplant before or when the first eggs or very first larvae appear. Diamond-back moth and Cabbage web worm are most damaging at the early crop stage. Under conditions of continuous re-infestation use in a programme, at 7 to 10 day intervals, but do not exceed 5 applications per season with <b>STEWARD®</b>. Use the shorter interval early in the growing season when plants are growing actively.</li> <li>• <b>AMERICAN BOLLWORM AND CABBAGE WHITE BUTTERFLY:</b> Apply correctively when needed.</li> <li>• The alternation of <b>STEWARD®</b> with products having a different mode of action is recommended. However, apply 2 to 3 <b>STEWARD®</b> applications consecutively (= block application) before going over to products with other modes of action. It is important not to apply more than 5 sprays of <b>STEWARD®</b> per season.</li> <li>• <b>STEWARD®</b> will on contact control larvae of all stages of development.</li> <li>• Most beneficial insects and predatory mites are unaffected by applications of <b>STEWARD®</b>.</li> <li>• <b>The addition of an adjuvant / wetter e.g. Agral 90 (Reg. No. L2987 Act No. 36 of 1947) at 100mℓ/100ℓ of spray mixture is essential to improve coverage.</b></li> <li>• <b>The cruciferae crop can be harvested 3 days after application.</b></li> </ul>

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p><b>CUCURBITS:</b> (pumpkins, squash, watermelons, muskmelons, baby marrows, patty pans and cucumbers)</p> <p>American bollworm (larvae) <i>Helicoverpa armigera</i></p>	<p>FOLIAR APPLICATION: 125g/ha</p>	<p><b>EARLY CORRECTIVE / PREVENTIVE APPLICATION:</b></p> <ul style="list-style-type: none"> <li>• Apply in 250-750ℓ water per ha depending on the specific cucurbit species and crop stage. Ensure thorough even coverage of the foliage.</li> <li>• Apply preventively at flowering or when the first bollworm eggs or small larvae are observed following regular scouting during flowering / fruitset stages. It is important to take into consideration that even slight bollworm feeding damage on the flowers of cucurbit crops may result in significant yield losses.</li> <li>• A follow-up application 7 to 10 days later will normally be necessary if the first application is made at the early flowering stage or under conditions of continuous re-infestation.</li> <li>• Although <b>STEWARD</b><sup>®</sup> will control larvae of all stages of development, including large 5<sup>th</sup> instar larvae, larvae that have penetrated the fruits or are obscured by dense foliage during application may not be adequately controlled. It is therefore essential to ensure thorough coverage of the foliage.</li> <li>• Do not exceed 2 applications of <b>STEWARD</b><sup>®</sup> per season. Should a third application be needed, use a product with a different mode of action.</li> <li>• Most beneficial insects and predatory mites are unaffected by applications of <b>STEWARD</b><sup>®</sup>.</li> <li>• <b>The addition of an adjuvant / wetter e.g. Agral 90 (Reg. No. L2987 Act No. 36 of 1947) at 50mℓ/100ℓ of spray mixture, or similar adjuvant, is recommended to improve coverage.</b></li> <li>• <b>Allow 3 days between last application and harvest.</b></li> <li>• <u>Note:</u> The withholding period, i.e. the number of days between last application and harvest meets local maximum residue limits (MRL's), but may not necessarily meet all those for export.</li> </ul>



CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p><b>TOMATOES:</b> American bollworm (larvae) <i>Helicoverpa armigera</i></p> <p>and</p> <p>Tomato semi-looper (larvae) <i>Chrysodeixis acuta</i></p>	<p>FOLIAR APPLICATION: 150g/ha <b>(when applying &gt;1000ℓ spray mixture per ha, use 15g/100ℓ water)</b></p>	<p><b>CORRECTIVE APPLICATION:</b></p> <ul style="list-style-type: none"> <li>• Apply in 500-1500ℓ of water per hectare. Good coverage of all foliage is essential.</li> <li>• Apply when the first larvae are observed - normally around the fruit set stage of the crop. <b>STEWARD®</b> will control larvae of all stages of development.</li> <li>• Regular scouting of tomato fields is essential to determine the timing of the first, and subsequent applications if necessary.</li> <li>• <b>STEWARD®</b> 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 growing actively.</li> <li>• Do not exceed 5 applications per season with <b>STEWARD®</b>. The alternation of <b>STEWARD®</b> with products having a different mode of action is recommended. Apply 2 to 3 <b>STEWARD®</b> applications consecutively (= block application) before going over to products with other modes of action.</li> <li>• Most beneficial insects are unaffected by applications of <b>STEWARD®</b>.</li> <li>• <b>The addition of an adjuvant / wetter e.g. Agral 90 (Reg. No. L2987 Act No. 36 of 1947) at 50mℓ/100ℓ of spray mixture is recommended to improve coverage.</b></li> <li>• <b>Tomatoes can be harvested 1 day after application.</b></li> </ul>
<p>Potato tuber moth (leaf miner larvae) <i>Phthorimaea operculella</i></p>	<p>FOLIAR APPLICATION: 150g/ha <b>(when applying &gt;1000ℓ spray mixture per ha, use 15g/100ℓ water)</b></p>	<p><b>PREVENTIVE / EARLY CORRECTIVE APPLICATION:</b></p> <ul style="list-style-type: none"> <li>• Apply in 500-1500ℓ of water per hectare. Good coverage of all foliage is essential. In the case of trellised tomatoes both sides of the tomato rows must be sprayed.</li> <li>• 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.</li> <li>• Timing of subsequent applications should be based on regular scouting of tomato fields.</li> <li>• <b>STEWARD®</b> 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.</li> <li>• Do not exceed 5 applications per season with <b>STEWARD®</b>. The alternation of <b>STEWARD®</b> with products having a different mode of action is recommended. Apply 2 to 3 <b>STEWARD®</b> applications consecutively (= block application) before going over to products with other modes of action.</li> <li>• Most beneficial insects and predatory mites are unaffected by applications of <b>STEWARD®</b>.</li> <li>• <b>The addition of an adjuvant / wetter e.g. Agral 90 (Reg. No. L2987 Act No. 36 of 1947) at 50mℓ/100ℓ of spray mixture is recommended to improve coverage.</b></li> <li>• <b>Tomatoes can be harvested 1 day after application.</b></li> </ul>

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p><b>POTATOES:</b>            Potato tuber moth (larvae)  <i>Phthorimaea operculella</i></p>	<p>FOLIAR APPLICATION:            125g/ha</p> <p>AERIAL APPLICATION:            150g/ha</p>	<p><b>PREVENTIVE / EARLY CORRECTIVE APPLICATION:</b></p> <ul style="list-style-type: none"> <li>• <b>Ground spray:</b> Apply in 500-1000ℓ of water per hectare. Good coverage of all foliage is essential.</li> <li>• <b>Aerial application:</b> Apply in minimum 30ℓ water per hectare.</li> <li>• 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.</li> <li>• Timing of subsequent applications should be based on regular scouting of potato fields.</li> <li>• <b>STEWARD®</b> 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.</li> <li>• Do not exceed 5 applications per season with <b>STEWARD®</b>. The alternation of <b>STEWARD®</b> with products having a different mode of action is recommended. Apply 2 to 3 <b>STEWARD®</b> applications consecutively (= block application) before going over to products with other modes of action.</li> <li>• <b>STEWARD®</b> will also control American bollworm (<i>Helicoverpa armigera</i>) larvae. For details on the corrective application of <b>STEWARD®</b> against this pest, refer to <b>TOMATOES</b> above.</li> <li>• Most beneficial insects and predatory mites are unaffected by applications of <b>STEWARD®</b>.</li> <li>• Ridge at least twice during growing season.</li> <li>• Late applications of <b>STEWARD®</b> once the potato plant's foliage is dying down will not lead to proper control of potato tuber moth larvae.</li> <li>• <b>The addition of a wetter e.g. Agral 90 (Reg. No. L2987) at 50 ml/100ℓ of spray mixture, or H&amp;R Crop Oil at 500ml/ha, is recommended to improve coverage.</b></li> <li>• <b>The potato crop can be harvested at any time following STEWARD® application.</b></li> </ul>

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p><b>POTATOES (continued):</b>            Potato leaf miner  <i>Liriomyza huidobrensis</i></p> <p>Potato tuber moth (larvae)  <i>Phthorimaea operculella</i></p>	<p>FOLIAR APPLICATION:            125g <b>STEWARD</b><sup>®</sup>            PLUS            500ml abamectin 18g/l EC            PLUS            500ml H&amp;R Crop Oil per ha</p>	<p><b>PREVENTIVE / EARLY CORRECTIVE APPLICATION:</b></p> <ul style="list-style-type: none"> <li>• Mix <b>STEWARD</b><sup>®</sup> in an appropriate amount of water and add to the half filled spray tank with water.</li> <li>• Mix the abamectin 18g/l EC and H&amp;R Crop Oil in at least 10l of water separately before it is added to the rest of the spray mixture in the spray tank. Refer to abamectin 18 g/l EC label for complete mixing instructions.</li> <li>• Apply in 400-600l water per ha and ensure good coverage of the foliage.</li> <li>• Apply in a program that commences as soon as the first symptoms of infestation appear on the leaves and repeat at 7 day spray intervals.</li> <li>• Do not exceed 5 applications per season with <b>STEWARD</b><sup>®</sup>. The alternation of <b>STEWARD</b><sup>®</sup> with products having a different mode of action is recommended. Apply 2 to 3 <b>STEWARD</b><sup>®</sup> applications consecutively (= block application) before going over to products with other modes of action.</li> <li>• <b>STEWARD</b><sup>®</sup> will also control Potato tuber moth (<i>Phthorimaea operculella</i>) larvae. For details on the preventive / early corrective application of <b>STEWARD</b><sup>®</sup> against this pest, refer above.</li> <li>• <b>Potatoes can be harvested 14 days after the application of STEWARD<sup>®</sup> PLUS abamectin 18g/l EC tank mixture.</b></li> </ul>

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p><b>TOBACCO:</b>            Potato tuber moth            (tobacco leaf miner)  <i>Phthorimaea operculella</i></p>	<p>FOLIAR APPLICATION:            35g/100ℓ water            (87,5-105g/ha)            +            50mℓ Agral 90            per 100ℓ water</p>	<p><b>FIELD TREATMENT:</b>            After transplanting into the field during the establishment phase of tobacco.</p> <ul style="list-style-type: none"> <li>• Apply 250-300ℓ spray mixture per ha.</li> <li>• Follow a preventive spray programme at all times.</li> <li>• Apply at 7 to 10 day intervals.</li> <li>• The first application must be done 2 to 3 days after transplanting. Use the shorter interval under conditions of heavy infestation pressure.</li> <li>• Apply the first and second applications, directed as band applications, over the top of the plants making sure that all the foliage is thoroughly covered - especially the lower third of the plants, as this is where tobacco leaf miner infestation is most severe.</li> <li>• From the third to fourth application onwards it is advised that the plants be treated from both sides. A boom fitted with drop arms with nozzles spraying towards each other is recommended in order to improve coverage. Increase the spray volume as the plants grow.</li> <li>• Do not exceed 4 applications per season with <b>STEWARD®</b>. The alternation of <b>STEWARD®</b> with products having a different mode of action is recommended. Apply 2 to 3 <b>STEWARD®</b> applications consecutively (= block application) before going over to products with other modes of action.</li> <li>• Most beneficial insects and predatory mites are unaffected by applications of <b>STEWARD®</b>.</li> <li>• <b>The addition of a wetter e.g. Agral 90 (Reg. No. L2987 Act No. 36 of 1947) at 50mℓ/100ℓ of spray mixture is recommended to improve coverage.</b></li> <li>• <b>Allow 42 days between last application and harvest of the crop.</b></li> </ul>

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p><b>PEAS:</b> (Green peas, Including Var. "Mange Tout")</p> <p>American bollworm (larvae) <i>Helicoverpa armigera</i></p>	<p>FOLIAR APPLICATION: 125g/ha</p> <p>AERIAL APPLICATION: 150g/ha</p>	<ul style="list-style-type: none"> <li>• <b>Ground application:</b> Apply 250-350ℓ spray mixture per ha and ensure thorough even coverage of the foliage.</li> <li>• <b>Aerial application:</b> Apply in minimum 30ℓ water per hectare.</li> <li>• Apply at flowering or when the first bollworm eggs or small larvae are observed following regular scouting during flowering / fruitset stages.</li> <li>• A follow-up application 7 to 10 days later will normally be necessary if the first application is made at the early flowering stage or under conditions of continuous re-infestation.</li> <li>• Although <b>STEWARD®</b> will control larvae of all stages of development, including large 5<sup>th</sup> instar larvae, 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.</li> <li>• Do not exceed 2 applications of <b>STEWARD®</b> per season. Should a third application be needed, use a product with a different mode of action.</li> <li>• Most beneficial insects and predatory mites are unaffected by applications of <b>STEWARD®</b>.</li> <li>• <b>The addition of a wetter e.g. Agral 90 (Reg. No. L2987 Act No. 36 of 1947) at 50mℓ/100ℓ of spray mixture is recommended to improve coverage.</b></li> <li>• <b>Peas can be harvested 7 days after application.</b></li> </ul>

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
<p><b>GREEN BEANS:</b> American bollworm (larvae) <i>Helicoverpa armigera</i></p>	<p>FOLIAR APPLICATION: 125g/ha</p>	<p><b>CORRECTIVE / PREVENTIVE APPLICATION:</b></p> <ul style="list-style-type: none"> <li>• Apply in 250-350ℓ water per ha and ensure thorough even coverage of the foliage.</li> <li>• Apply preventively at flowering or when the first bollworm eggs or small larvae are observed following regular scouting during flowering / fruitset stages.</li> <li>• A follow-up application 7 to 10 days later will normally be necessary if the first application is made at the early flowering stage or under conditions of continuous re-infestation.</li> <li>• Although <b>STEWARD®</b> will control larvae of all stages of development, including large 5<sup>th</sup> instar larvae, 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.</li> <li>• Do not exceed 2 applications of <b>STEWARD®</b> per season. Should a third application be needed, use a product with a different mode of action.</li> <li>• Most beneficial insects and predatory mites are unaffected by applications of <b>STEWARD®</b>.</li> <li>• <b>The addition of a wetter e.g. Agral 90 (Reg. No. L2987 Act No. 36 of 1947) at 50mℓ/100ℓ of spray mixture is recommended to improve coverage.</b></li> <li>• <b>Green beans can be harvested 3 days after application.</b></li> </ul>
<p><b>CITRUS:</b> <b>Non bearing trees only</b></p> <p>“Orange dog” (larvae) <i>Papillio demodocus</i></p>	<p>FOLIAR APPLICATION: 12,5g/100ℓ water</p>	<ul style="list-style-type: none"> <li>• Apply a light cover spray at the first signs of the larvae on the foliage or apply onto an established infestation.</li> <li>• A follow-up application may be required 10 to 14 days later if a re-infestation occurs.</li> <li>• <b>STEWARD®</b> will control larvae of all stages of development.</li> <li>• Most beneficial insects and predatory mites are unaffected by applications of <b>STEWARD®</b>.</li> <li>• <b>Use on non-bearing trees only.</b></li> </ul>

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