STEWARD® 150 EC

Reg. No. L8435 Act No. 36 of 1947

An emulsifiable concentrate stomach and contact insecticide for the control of various insect pests in apples, peaches (including nectarines), potatoes, tomatoes, cruciferous crops, cucurbit crops, green and dry beans, soybeans, peas, tobacco, cotton, maize and hops.

Reg. Nr. L8435 Wet Nr. 36 van 1947

'n Emulgeerbare konsentraat maag en kontak insekdoder vir die beheer van verskeie plae in appels, perskes (insluitend nektarines), aartappels, tamaties, koolgewasse, pampoengewasse, groen- en droë bone, sojabone, erte, tabak, katoen, mielies en hops.

INSECTICIDE GROUP CODE	22	INSEKDODER GROEP KODE

ACTIVE INGREDIENT
Indoxacarb (Oxadiazine) 150 g/litre

AKTIEWE BESTANDDEEL
Indoksakarb (Oksadiasien)

Net Volume **250 mℓ, 1ℓ** **Netto Volume**

REGISTERED BY / GEREGISTREER DEUR:

DUPONT DE NEMOURS SOUTH AFRICA
(Pty) Ltd
Co. Reg. No. 2009/014079/70
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. 3082

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(Reg. No. L8435 Act No. 36 of 1947)

An emulsifiable concentrate stomach and contact insecticide for the control of various insect pests in apples, peaches (including nectarines), potatoes, tomatoes, cruciferous crops, cucurbit crops, green and dry beans, soybeans, peas, tobacco, cotton, maize and hops.

Active ingredient: **Indoxacarb 150 g/ℓ**

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HARMFUL / SKADELIK

WARNINGS

- WITHHOLDING PERIOD:
  THE FOLLOWING MINIMUM NUMBER OF DAYS BETWEEN LAST APPLICATION AND HARVEST MUST BE ADHERED TO:

Apples ……	28 days
Cruciferous (cabbage, broccoli, cauliflower, Brussel sprouts)……	3 days
Cucurbits (pumpkins, squash, watermelons, muskmelons, Baby marrows, patty pans and cucumbers)……	3 days
Green beans……..….	3 days
Dry beans (grazing) ……..	42 days
Hops…….	7 days
Maize and sweetcorn (grazing)……	42 days
Maize and sweetcorn…….	3 days
Peaches (including Nectarines) ……..	28 days
Peas…….…….	7 days
Soybeans (grazing)……	42 days
Tobacco…….. ……	28 days
Tomatoes.....……..……	1 day
Potatoes……	0 days
Potatoes (in a tank mixture with abamectin)……..	14 days

- Do not graze treated cotton.
- Handle with care.
- A skin and eye irritant.
- May cause sensitisation by skin contact.
- Harmful by inhalation, contact and if swallowed.
- This product is toxic to animals, bees, fish and other aquatic organisms (refer General Information – BEES on this label).
- 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 within 1 day after treatment unless wearing protective clothing.
- In case of poisoning a person, **CALL A DOCTOR and in the case of an animal a VETERINARIAN IMMEDIATELY AND MAKE THIS LABEL AVAILABLE TO HIM.**
- AERIAL APPLICATION: Notify all inhabitants in the immediate vicinity of the lands to be sprayed and issue the necessary warnings. Do not apply over water surfaces and 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 shield, rubber boots and gloves).**
- Wash contaminated clothing daily.
- Do not get in eyes or on skin and clothing.
- Wash with plenty of soap and water immediately after accidental skin contact.
- In case of eye contact wash immediately with plenty of water.
- Remove clothing and shoes immediately should they become contaminated.
- Do not eat, drink or smoke whilst applying or mixing, or before washing hands and face.
- Prevent contamination of feed, food, eating utensils and drinking water.
- DO NOT APPLY DIRECTLY TO AND PREVENT DRIFT OF SPRAY MIST ONTO OTHER EDIBLE CROPS, GRAZING, RIVERS, DAMS AND AREAS NOT UNDER TREATMENT.
- Clean application equipment after use. Dispose of wash water where it will not contaminate crops, grazing, rivers and dams.
- Triple rinse the empty container in the following manner: Invert the empty container over the spray or mixing tank and allow to drain for 30 seconds after the flow has slowed down to a drip. Thereafter rinse the empty container three times with a volume of water equal to minimum of 10 % of the container. Add the rinsings to the contents of the spray tank before destroying the container in the prescribed manner.
- Destroy empty container by perforation and flattening and never re-use for any other purpose.

RESISTANCE WARNING

STEWARD® 150 EC is a group code 22 insecticide. Any insect population may contain individuals naturally resistant to **STEWARD® 150 EC** 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® 150 EC** 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 the control methods (chemical, cultural, biological) into insect control programmes.

As a result of its unique mode of action, **STEWARD® 150 EC** is ideally suited for applications where resistance management is important. Whilst there is no evidence of insect resistance to **STEWARD® 150 EC**, these guidelines will maximise the effective life of the product:

1. Apply 2–3 **STEWARD® 150 EC** applications consecutively (= block application) and thereafter alternate with products with different modes of action (for example carbamates, pyrethroids, organophosphates or insect growth regulants).
2. Do not exceed the maximum number of applications per season with **STEWARD® 150 EC** (refer to recommendations under **DIRECTIONS FOR USE** on this label).
3. Monitor insect populations and apply **STEWARD® 150 EC** according to the label instructions when locally determined economic thresholds are reached. More than one application may be necessary for any one infestation.
4. Follow the label recommendations precisely for application rates, spray intervals and the optimum timing to apply **STEWARD® 150 EC.**
5. **STEWARD® 150 EC** has a minimum effect on beneficial insects and mites, which provides a natural form of pest regulation and thus further decreases the risk of resistance development.

Contact the registration holder of this product for more specific information on resistance management.

SYMPTOMS OF POISONING

Can cause eye damage.
Can cause skin irritation.

FIRST AID TREATMENT

In case of eye contact wash with plenty of water and seek medical advice
In case of skin contact wash with soap and water for 15 minutes

In case of ingestion do not induce vomiting. Administer 1 – 2 glasses of water, and if possible 30 – 50g activated charcoal.

NOTE TO PHYSICIAN

Antidotal treatment is not applicable. Consider gastric lavage avoiding aspiration. Do not give ephedrine or related drugs.

GENERAL INFORMATION

STEWARD® 150 EC has a novel mode of action. The product 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 - 2 days, but inhibition of insect feeding occurs very rapidly (within 2 - 8 hours).

STEWARD® 150 EC is active as a larvicide through ingestion (stomach action) and through cuticular absorption (contact action). **STEWARD® 150 EC** is equally active on larvae of all development stages.

STEWARD® 150 EC is virtually a lepidoptera specific insect control agent and is safe to most beneficial insects, including predatory mites.

STEWARD® 150 EC is also effective in hot climatic conditions.

BEES – STEWARD® 150 EC is moderately toxic to honeybees. It is recommended that STEWARD® 150 EC 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® 150 EC** 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® 150 EC** may only be done by a registered Aerial Application Operator using a correctly calibrated, registered aircraft according to the instructions of SANS 10118:2009 (Aerial Application of Pesticides). Ensure that the spray mixture is distributed evenly over the target area and that the loss of spray material during application is restricted to a minimum. It is therefore essential that the following criteria be met:

- Volume: A spray mixture volume of at least 30 litre 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^2 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® 150 EC** has not been fully investigated. **STEWARD® 150 EC** is compatible with Capitan® (Reg. No. L6062 Act No. 36 of 1947) in dry beans, maize and potatoes only, Punch® C (Reg. No. L3626 Act No. 36 of 1947) in dry beans, maize, peas and potatoes only, Tanos® (Reg. No. L6564 Act No. 36 of 1947) in potatoes and tomatoes only, Curzate® Pro (Reg. No. L5698 Act No. 36 of 1947) in potatoes and tomatoes only, Dichlorvos (Reg. No. L4640 Act No. 36 of 1947) in beans, cruciferae and tomatoes only, Nogos (Reg. No. L5408 Act No. 36 of 1947) in beans, cruciferae and tomatoes only,
Cypermethrin (Reg. No. L4069 Act No. 36 of 1947) maize only, Polythrin (Reg. No. L5409 Act No. 36 of 1947) in maize only, Agrimec (Reg. No. L3209 Act No. 36 of 1947) in potatoes only, Vilmectin 18 EC (Reg. No. L7979 Act No. 36 of 1947) in potatoes only, Unimectin (Reg. No. L7978 Act No. 36 of 1947) in potatoes only and the adjuvants/wetters H&R Crop Oil (Reg. No. L6802 Act No. 36 of 1947), Agripon Super (Reg. No. L6126 Act No. 36 of 1947), Break-Thru (Reg. No. L6764 Act No. 36 of 1947), Villa 51 (Reg. No. L7850 Act No. 36 of 1947) and Trend® 90 (Reg. No. L8207 Act No. 36 of 1947) as indicated on this label only. For more information on compatibility or in the event of uncertainty, contact your nearest DuPont representative.

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
APPLES: Africa (American) bollworm (larvae) *Helicoverpa armigera*	30mℓ/100ℓ water	**Foliar application** • 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 2 **STEWARD®** 150 EC applications per season, including applications made with this product against Codling Moth and Banded Fruit Weevil (see below). • **Allow 28 days between last application and harvest.** • Note: 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) *Cydia pomonella*	50mℓ/100ℓ water	**Foliar application** • 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 2 **STEWARD®** 150 EC applications per season, including applications made with this product against Africa (American) bollworm (see above) and Banded Fruit Weevil (see below). • **Allow 28 days between last application and harvest.** To avoid the development of resistance, apply products with a different mode of action against the other two Codling moth generations.

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
APPLES (continued): Banded Fruit Weevil (Snoutbeetle) Fruit damage *Phlyctinus callosus*	50mℓ/100ℓ water	**Foliar application** • 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 neccassary 14 to 21 days later if infestation persists. • Do not apply more than 2 **STEWARD®** 150 EC applications per season including applications made against Africa (American Boll worm) and codling moth. Should a third application be needed against banded fruit weevil, make use of a different registered insecticide. • The addition of an adjuvant / wetter e.g. Trend 90 at 10mℓ/100 ℓ of spray mixture can be added in apples to improve coverage. • **Allow 28 days between last application and harvest.** • Note: 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.
COTTON: American (Africa) bollworm (larvae) (*Helicoverpa armigera*) Red bollworm (larva) *(Diparopsis custanea)* Spiny bollworm (larvae) *(Earias* spp.) Leafhopper (Jassid) (*Jacobiella fascialis*)	**GROUND APPLICATION:** 200–250 mℓ/ha	**Spray volumes are based on plants taller than 0.6 m.** Apply as a foliar application in 200–400 ℓ water per hectare and ensure thorough coverage of the foliage. **PREVENTIVE TREATMENT:** Use the lower rate in a weekly preventive programme or when economic threshold values are **reached**. Refer to 'NOTES' below for economic threshold levels. **CORRECTIVE TREATMENT:** Use the higher application rate for corrective application when the economic threshold value is **exceeded.** Refer to 'NOTES' below for economic threshold levels. **The addition of an adjuvant / wetter e.g. Trend 90 at 100 mℓ/100 ℓ of spray mixture is recommended to improve coverage.**

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
COTTON (continued):	**AERIAL APPLICATION:** 250 mℓ/ha + 1 ℓ/100 ℓ water (minimum 350 mℓ/ha) H&R Crop Oil or Agripon Super	AERIAL APPLICATION: Apply in minimum 35 ℓ water per hectare. Apply **STEWARD® 150 EC** in a preventive program or when economical thresholds are reached. **GENERAL**: Under conditions of continuous re-infestation use **STEWARD® 150 EC** in a spray programme, at 7–14 day intervals. Use the shorter interval when plants are growing actively or when leafhoppers are present. **Do not exceed 5 applications per season with STEWARD® 150 EC**. The alternation of **STEWARD® 150 EC** with insecticides having a different mode of action is recommended. **STEWARD® 150 EC will control bollworm larvae at all stages of development.** **Most beneficial insects and predatory mites are unaffected by applications STEWARD® 150 EC. This benefit is maximised when STEWARD® 150 EC applications are commenced early in the growth season of the crop.**

NOTES:

ECONOMIC THRESHOLD LEVELS

BOLLWORM SPECIES IN COTTON:

All sprays to be based on scouting, with weekly (8–20 weeks after emergence) inspection of 24 plants per 15 hectare.

American (Africa) bollworm (*H. armigera*):
Egg threshold: 12 per 24 plants
Larval threshold: 5 per 24 plants

Red bollworm (*D. custanea*):
Egg threshold: 6 per 24 plants
Larval threshold: 2 per 24 plants

Spiny bollworm (*Earias* spp.):
Larval threshold: 2 per 24 plants

LEAFHOPPERS (JASSIDS) IN COTTON:
Commence applications when two leafhoppers (adults and/or juveniles) occur per leaf.

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
CRUCIFERAE: (Cabbage, Broccoli, Cauliflower and Brussels Sprouts) Diamondback moth (larvae) *(Plutella xylostella),* Cabbage webworm (larvae) *(Hellula undalis),* American (Africa) bollworm (larvae) *(Helicoverpa armigera)* and Cabbage white butterfly (larvae) *(Pieris brassicae)*	**GROUND APPLICATION:** 250-300 mℓ/ha	**Preventive / Early Corrective Foliar Application:** • Apply in 300-600 ℓ of water per hectare and ensure thorough coverage of the heads, where the larvae feed. Make use of hollow or full cone nozzles. • Use the higher application rate when applied correctively. Use the lower rate for subsequent applications when applied in a regular spray programme. • DIAMONDBACK MOTH AND WEBWORM: It is important to commence application shortly after transplant before or when the first eggs or very first larvae appear. Diamondback moth and cabbage webworm are most damaging at the early crop stage. Under conditions of continuous re-infestation, use in a spray programme at 7–10 day intervals, but do not exceed 5 applications per season with **STEWARD® 150 EC**. Use the shorter interval early in the growing season when plants are growing actively. • BOLLWORM AND WHITE BUTTERFLY: Apply correctively when needed. • The alternation of **STEWARD® 150 EC** with products having a different mode of action is recommended. However, apply 2–3 **STEWARD® 150 EC** applications consecutively (= block application) before switching to insecticides with other modes of action. It is important not to apply more then 5 sprays of **STEWARD® 150 EC** per season. • **STEWARD® 150 EC** will on contact control larvae of all stages of development. • Most beneficial insects and predatory mites are unaffected by applications of **STEWARD® 150 EC.** • **The addition of an adjuvant / wetter e.g. Trend 90 at 100 mℓ/100 ℓ of spray mixture is essential to improve coverage.** • ***The Cruciferae crop may be harvested 3 days after application.***

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
CUCURBITS: (Pumpkins, Squash, Watermelons, Muskmelons, Baby Marrows, Patty Pans and Cucumbers) American (Africa) bollworm (larvae) *(H. armigera)*	**GROUND APPLICATION:** 250 mℓ/ha	**Preventive / Early Corrective Foliar Application:** • Apply in 250–750 ℓ water per hectare depending on the specific cucurbit specie and crop stage. Ensure thorough even coverage of the foliage. • Apply preventively at flowering or when the first bollworm eggs or small larvae are observed following regular scouting during flowering and fruit-set 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. • A follow-up application 7–10 days later will normally be necessary if the first application is made at the early flowering stage or under conditions of continuous re-infestation. • Although **STEWARD® 150 EC** will control larvae of all stages of development, including large 5th 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. • Do not exceed 2 applications of **STEWARD® 150 EC** per season. Should a third application be needed, use a insecticide with a different mode of action. • Most beneficial insects and predatory mites are unaffected by applications of **STEWARD® 150 EC.** • **The addition of an adjuvant / wetter e.g. Trend 90 at 75 mℓ/100 ℓ of spray mixture, or similar adjuvant, is recommended to improve coverage.** • ***Cucurbits may be harvested 3 days after application.***

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
DRY BEANS: American (Africa) bollworm (larvae) *(H. armigera)*	**GROUND APPLICATION:** 250 mℓ/ha	**Preventive / Corrective Foliar Application:** • Apply in 330–500 ℓ water per hectare and ensure thorough even coverage of the foliage. • Apply preventively at flowering or when the first bollworm eggs or small larvae are observed following regular scouting during flowering and pod-set stages. • A second application with a insecticide with a different mode of action could be necessary if the **STEWARD® 150 EC** application is made at the early flowering stage or under conditions of continuous re-infestation. • **STEWARD® 150 EC** will control larvae of all stages of development, including large 5th 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. • Do not exceed 1 application of **STEWARD® 150 EC** per season in dry beans. • Most beneficial insects and predatory mites are unaffected by applications of **STEWARD® 150 EC**. • **The addition of an adjuvant / wetter e.g. Trend 90 at 75 mℓ/100 ℓ of spray mixture is recommended to improve coverage.** • ***Dry beans may be harvested as soon as they are ready for harvest.***

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
GREEN AND SOYBEANS: American (Africa) bollworm (larvae) *(H. armigera)*	**GROUND APPLICATION:** 250 mℓ/ha	**Preventive / Corrective Foliar Application:** • Apply in 250–350 ℓ water per hectare in green beans and in 300–700 ℓ water per hectare in soybeans. Ensure thorough even coverage of the foliage. • Apply preventively at flowering or when the first bollworm eggs or small larvae are observed following regular scouting during flowering and pod-set stages. • A follow-up application 7–10 days later will normally be necessary if the first application is made at the early flowering stage or under conditions of continuous re-infestation. • **STEWARD® 150 EC** will control larvae of all stages of development, including large 5th 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. • The *Spodoptera* leaf worm (*Spodoptera littoralis*) and the semi- (Plusia) looper (*Chrysodeixis acuta*) will also be controlled in soybeans if present during an application. • Do not exceed 2 applications of **STEWARD® 150 EC** per season. Should a third application be needed, use a insecticide with a different mode of action. • Most beneficial insects and predatory mites are unaffected by applications of **STEWARD® 150 EC**. • **The addition of an adjuvant / wetter e.g. Trend 90 at 75 mℓ/100 ℓ of spray mixture is recommended to improve coverage in green and soybeans and H&R Crop Oil at 500 mℓ/ha in soybeans.** • ***Green beans may be harvested 3 days after application.*** • ***Soybeans may be harvested as soon as they are ready for harvest.***

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
HOPS: American (Africa) bollworm (larvae) *(H. armigera)*	**GROUND APPLICATION:** 30 mℓ/100 ℓ water	**Only for use by authorized members of the SA Hop Growers Association and for production of hops for use in South Africa only.** **Early Corrective Foliar Application:** • Apply in 500–1000 ℓ of water per hectare depending on plant height and density. Good coverage of all foliage is essential. • Apply when the first larvae are observed usually early in the season on young shoots, during flowering and after flowering when cones are formed. **STEWARD® 150 EC** will control larvae of all stages of development. • Regular scouting of hop fields is essential to determine the timing of the first and subsequent applications if necessary. • Apply **STEWARD® 150 EC** at a spray interval of 10–14 days. Use the shorter interval early in the growth season when plants are growing actively or under high pest pressure. • Do not exceed 2 applications per season with **STEWARD® 150 EC**. The alternation of **STEWARD® 150 EC** with insecticides having a different mode of action is recommended. Apply the 2 **STEWARD® 150 EC** applications consecutively (= block application) before going over to insecticides with other modes of action. • Most beneficial insects are unaffected by applications **STEWARD® 150 EC.** • **The addition of an adjuvant / wetter e.g. Trend 90 at 50 mℓ/100 ℓ of spray mixture is recommended to improve coverage.** • ***Hops may be harvested 7 day after application.***

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
MAIZE (including sweetcorn): Stalk borer (larvae) (*Busseola fusca*) Sorghum stem borer (larvae) (*Chilo partellus*) American (Africa) bollworm (larvae) (*H. armigera*)	**GENERAL GROUND APPLICATION:** 300 mℓ/ha **STEWARD® 150 EC** + 0,5 ℓ/ha H&R Crop Oil or Agripon Super or 225 mℓ/ha Trend 90 or **OR** 250 mℓ/ha **STEWARD® 150 EC** + 250 mℓ/ha cypermethrin + 0,5 ℓ/ha H&R Crop Oil or Agripon Super or 225 mℓ/ha Trend 90 or **GROUND APPLICATION OVER THE PLANT ROW:** 3,0 mℓ/100 m plant row **STEWARD® 150 EC** + 3,3 mℓ/100 m plant row H&R Crop Oil or Agripon Super or 1,5 mℓ/100 m plant row Trend 90 **OR** 2,5 mℓ/100 m plant row **STEWARD® 150 EC** + 2,5 mℓ/100 m plant row cypermethrin + 3,3 mℓ/100 m plant row H&R Crop Oil or Agripon Super or 1,5 mℓ/100 m plant row Trend 90	**APPLY STEWARD® 150 EC OR STEWARD® 150 EC PLUS CYPERMETHRIN TANK MIXTURES AS A PREVENTIVE OR AS AN EARLY CORRECTIVE FOLIAR TREATMENT** Apply in a minimum of 450 ℓ water per hectare. Apply over the funnel of the plants and ensure thorough coverage of the foliage. To ensure optimum results, application must take place early in the morning when dew is present. The absence of rain within 3 days of application or irrigation after application can lead to a decrease in control with **STEWARD® 150 EC** spray mixtures. Water after application is essential to wash the spray mixture into the funnel. Use the **STEWARD® 150 EC** plus cypermethrin mixture when hot, dry environmental conditions are prevalent. Apply in 3 ℓ water per 100 m plant row over the funnel of the plants and ensure thorough coverage of the foliage. To ensure optimum results, application must take place early in the morning when dew is present. The absence of rain within 3 days of application or irrigation after application can lead to a decrease in control with the **STEWARD® 150 EC** spray mixtures. Water after application is essential to wash the spray mixture into the funnel. Use the **STEWARD® 150 EC** plus cypermethrin mixture when hot, dry environmental conditions are prevalent. **NB: For instructions for the control of stalk borer, stem borer and American (Africa) bollworm with STEWARD® 150 EC plus cypermethrin spray mixtures on maize, see 'IMPORTANT NOTES' below.** Under conditions of repeated infestation, apply **STEWARD® 150 EC** in a 10–14 day spray programme. Use the shorter spray interval when the pest infestation pressure is high or when maize is growing fast. Do not exceed the maximum of 3 **STEWARD® 150 EC** applications per season. **NB: Do not apply STEWARD® 150 EC on maize that is under drought stress. Larvae that have already tunnelled into the funnels will not be controlled with STEWARD® 150 EC spray mixtures.**

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
MAIZE (including sweetcorn) **(continued):** Stalk borer (larvae) (*B. fusca*) Sorghum stem borer (larvae) (*C. partellus*) American (Africa) bollworm (larvae) (*H. armigera*)	**APPLICATION WITH PIVOT IRRIGATION SYSTEM:** 300 mℓ/ha **STEWARD® 150 EC** or 250 mℓ/ha **STEWARD® 150 EC** + 250 mℓ/ha cypermethrin	**APPLY STEWARD® 150 EC OR STEWARD® 150 EC PLUS CYPERMETHRIN TANK MIXTURES AS A PREVENTIVE OR AS AN EARLY CORRECTIVE TREATMENT.** **Ensure that the pivot irrigation system complies with the following specifications before application starts:** The distribution coefficient of the pivot irrigation system must be >90 %, and the pivot should not apply more than 5 mm (50 000 ℓ) per hectare at maximum speed. Clean all the sieves of the pivot irrigation system before starting application. Calibrate the injection pump of the pivot irrigation system according to the time it takes for the pivot irrigation system to complete one full circle. Set the pivot irrigation system to maximum speed so that as little water as possible (not more that 5 mm) is applied per hectare. Mix the **STEWARD® 150 EC** (and cypermethrin if applicable) with water in the application tank. Stir the spray mixture continuously before and during application. Inject the **STEWARD® 150 EC** spray mixture into the main application line of the pivot irrigation system as soon as the irrigation system reaches maximum speed. Mark the position on the land when the spray mixture reaches the furthest end of the pivot irrigation system. Allow the pivot irrigation system to complete one full circle from the aforementioned point. Do not irrigate within 6 hours after a **STEWARD® 150 EC** application. **NB: For instructions on the control of stalk borer, stem borer and American (Africa) bollworm with STEWARD® 150 EC plus cypermethrin spray mixtures on maize, see 'IMPORTANT NOTES' below.** Under conditions of repeated infestation, apply **STEWARD® 150 EC** in a 10–14 day spray programme. Use the shorter spray interval when the pest infestation pressure is high or when maize is growing fast. Do not exceed the maximum of 3 **STEWARD® 150 EC** applications per season. **NB: Do not apply STEWARD® 150 EC on maize that are under drought stress. Larvae that have already tunnelled into the funnels will not be controlled with STEWARD® 150 EC spray mixtures.** **When STEWARD® 150 EC** is applied through a centre pivot irrigation system the addition of an adjuvant is **not necessary. If however, an adjuvant is to be added, a mineral oil type adjuvant e.g. H&R Crop Oil at 5 ℓ per hectare is recommended.**

IMPORTANT NOTES APPLICABLE TO STALK BORER, STEM BORER AND AMERICAN (AFRICA) BOLLWORM CONTROL WITH STEWARD® 150 EC OR STEWARD® 150 EC PLUS CYPERMETHRIN TANK MIXTURES IN MAIZE:

Stalk borer (*B. fusca*) larvae:
Commercial maize:
Apply preventively or when eggs are found on 5 % of the plants, or when 10 % of the plants are showing shot hole damage symptoms on the maize funnels, which are caused by small feeding larvae.
Sweetcorn:
Apply preventively, or when egg laying starts, or with the first signs of shot hole damage symptoms on the maize funnels.
NB: Application must be done before larvae migrate to the stems of the maize plants and when larvae are smaller that the 2nd larval instar. Do not apply STEWARD® 150 EC on maize against stalk borer whilst the tassel is encircled by the flag leaf.

Sorghum stem borer (*C. partellus*) larvae:
Commercial maize:
Apply preventively, or when eggs are found on 2,5 % of the plants, or when 5 % of the plants are showing shot hole damage symptoms on the maize funnels, which are caused by small feeding larvae.
Sweetcorn:
Apply preventively, or when egg laying starts or with the first signs of shot hole damage symptoms on the maize funnels.
NB: Application must be done before larvae migrate to the stems of the maize plants and when larvae are smaller that the 2nd larval instar. Do not apply STEWARD® 150 EC on maize against stalk borer whilst the tassel is encircled by the flag leaf.

American (Africa) bollworm (*H. armigera*) larvae:
Funnel infestation:
Apply as for stalk borer (see notes above).
Cob infestation:
Apply when first larvae are observed on the beard (silk) during cob formation. Larvae that are already deep within in the beard or have migrated into the cobs will not be controlled.

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
PEAS: (Green peas, including var. "Mange Tout") American bollworm (larvae) *(Helicoverpa armigera)*	**FOLIAR APPLICATION:** 250 mℓ/ha **AERIAL APPLICATION:** 300 mℓ/ha	**Preventive / Early Corrective Foliar Application:** • **Ground application**: Apply in 250–350 ℓ water per hectare and ensure thorough even coverage of the foliage. • **Aerial application**: Apply in minimum 30 ℓ water per hectare. • Apply at flowering or when the first bollworm eggs or small larvae are observed following regular scouting during flowering / fruit set stages. • A follow up application 7–10 days later will normally be necessary if the first application is made at the early flowering stage or under conditions of continuous re-infestation. • Although **STEWARD® 150 EC** will control larvae of all stages of development, including large 5th 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. • Do not exceed 2 applications of **STEWARD® 150 EC** per season. Should a third application be needed, use a product with a different mode of action. • Most beneficial insects and predatory mites are unaffected by applications of **STEWARD® 150 EC** • **The addition of an adjuvant / wetter e.g. Trend 90 at 75 mℓ/100 ℓ, Villa 51 at 50 mℓ/100 ℓ or Agral 90 at 50 mℓ/100 ℓ of spray mixture is recommended to improve coverage.** • ***Peas can be harvested 7 days after application.***

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
POTATOES: Potato tuber moth (larvae) *(Phthorimaea operculella)*	**GROUND APPLICATION:** 250 mℓ/ha **AERIAL APPLICATION:** 300 mℓ/ha	**Preventive / Early Corrective Foliar Application:** • **Ground application:** Apply in 500–1 000 ℓ of water per hectare. Good coverage of all foliage is essential. • **Aerial application:** Apply in minimum 30 ℓ water per hectare. • 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. • Timing of subsequent applications should be based on regular scouting of potato fields. • **STEWARD® 150 EC** may be applied in an 8–14 day interval spray programme under conditions of continuous re-infestation. Use the shorter interval early in the growth season when plants are actively growing. • Do not exceed 5 applications per season with **STEWARD® 150 EC**. The alternation of **STEWARD® 150 EC** with products having a different mode of action is recommended. Apply 2–3 **STEWARD® 150 EC** applications consecutively (= block application) before going over to insecticides with other modes of action. • **STEWARD® 150 EC** will also control American bollworm (*Helicoverpa armigera*) larvae if present. For details on the corrective application of **STEWARD® 150 EC** against this pest, refer to 'TOMATOES' below. • Most beneficial insects and predatory mites are unaffected by applications of **STEWARD® 150 EC.** • Ridge plant rows at least twice during growing season. • Late applications of **STEWARD® 150 EC**, once the potato plant's foliage is dying down, will not lead to proper control of potato tuber moth larvae. • **The addition of an adjuvant / wetter e.g. Trend 90 at 75 mℓ/100 ℓ of spray mixture, H&R Crop Oil at 500 mℓ/ha during ground and aerial application or Break- Thru at 250 mℓ/ha for ground but not for aerial application is recommended to improve coverage.** • ***The potato crop may be harvested at any time following STEWARD® 150 EC application.***

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
POTATOES (continued): Potato leaf miner *(Liriomyza huidobrensis)*	**GROUND APPLICATION:** 250 mℓ **STEWARD® 150 EC** + 500 mℓ abamectin 18 g/ℓ EC + 500 mℓ H&R Crop Oil/ha	**Preventive / Early Corrective Foliar Application:** • Premix **STEWARD® 150 EC** in an appropriate amount of water and add to the spray tank half filled with water. • Premix the abamectin 18 g/ℓ EC and H&R Crop Oil in at least 10 ℓ 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). • Apply in 400–600 ℓ water per hectare and ensure good coverage of the foliage. • Apply in a spray programme that commences as soon as the first symptoms of infestation appear on the leaves and repeat at 7 day spray intervals. Use the shorter interval under conditions of repeated high infestations. • Do not exceed 5 applications per season with **STEWARD® 150 EC**. The alternation of **STEWARD® 150 EC** with insecticides having a different mode of action is recommended. Apply 2 – 3 **STEWARD® 150 EC** applications consecutively (= block application) before going over to products with other modes of action. • **STEWARD® 150 EC** will also control potato tuber moth (*P. operculella)* and American (Africa) bollworm (*H. armigera*) larvae if present. For details on the corrective application of **STEWARD® 150 EC** against this pest, refer to 'TOMATOES' below. • ***Potatoes may be harvested 14 days after the application of STEWARD® 150 EC PLUS abamectin 18 g/ℓ EC tank mixture***.

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
STONE FRUIT: **(Peaches & Nectarines)** Africa (American) bollworm (larvae) *Helicoverpa armigera*	30mℓ/100ℓ water	**Foliar application** • 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 including applications made against banded fruit weevil and oriental fruit moth (see below). • **Allow 28 days between last application and harvest of peaches and nectarines** • Note: 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.
Banded Fruit Weevil (Snoutbeetle) Fruit damage *Phlyctinus callosus*	40mℓ/100ℓ water	**Foliar application** • 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 neccassary 14 to 21 days later if infestation persists. • Do not apply more than 2 **STEWARD® 150 EC** applications in total per season on the crop including applications made Africa (American) bollworm (see above) and oriental fruit moth (see below). • Should a third application be needed, make use of a different registered insecticide. • The addition of an adjuvant / wetter e.g. Trend 90 at 10mℓ/100 ℓ of spray mixture can be added in nectarines to improve coverage. • **Allow 28 days between last application and harvest.** • Note: 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
STONE FRUIT CONTINUED: **(Peaches & Nectarines)** Oriental Fruit Moth (larvae) *Grapholita (Cydia) molesta*	40mℓ/100ℓ water	**Foliar application** • Apply as a full cover spray at 500-2000ℓ spray mixture per ha. Monitor pheromone trap catches and apply according to the day-degree model. Establish the first biofix date and apply first application when about 500^{o} day degrees have accumulated. Apply second application when 420-510^{o} day degrees have accumulated after the second biofix date. Applications must be carefully timed and applied before newly hatched larvae tunnel into shoots or fruit. • Thorough coverage is essential. • Do not exceed 2 **STEWARD®** 150 EC applications in total per season on crop including applications made against Africa (American bollworm) and banded fruit weevil and (see above). • . Should any further control of the pest be required apply a pesticide from a chemical group unrelated to indoxacarb. • **Allow 28 days between last application and harvest.** • Note: 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
TOBACCO Potato tuber moth (tobacco leaf miner) *(P. operculella)*	**GROUND APPLICATION:** 70 mℓ/100 ℓ water (175–210 mℓ/ha)	**FIELD TREATMENT:** After transplanting into the field during the establishment phase of tobacco. • Apply **STEWARD® 150 EC** as a foliar application at 250–300 ℓ spray mixture per hectare. • Follow a preventive spray programme at all times. • Apply **STEWARD® 150 EC** at 7–10 day intervals. • The first **STEWARD® 150 EC** application must be done 2–3 days after transplanting. Use the shorter interval under conditions of heavy infestation pressure. • 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. • For the third and fourth application 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. • Do not exceed 4 **STEWARD® 150 EC** applications against tobacco leaf miner, or 2 applications per season with **STEWARD® 150 EC** against bollworm (for details refer to the bollworm recommendations on this label), or a maximum of 840 mℓ/ha of **STEWARD® 150 EC** in total per growing season of the tobacco crop. The alternation of **STEWARD® 150 EC** with insecticides having a different mode of action is recommended. Apply 2 – 3 **STEWARD® 150 EC** applications consecutively (= block application) before going over to insecticides with other modes of action. • Most beneficial insects and predatory mites are unaffected by applications of **STEWARD® 150 EC**. • **The addition of an adjuvant wetter e.g. Trend 90 at 75 mℓ/100 ℓ of spray mixture is recommended to improve coverage.** • ***Allow 28 days between last application and harvest of the crop.***

CROP/PEST	APPLICATION RATE	RECOMMENDATIONS/REMARKS
TOBACCO: (continued): American (Africa) bollworm (larvae) (*H. armigera*)	**GROUND APPLICATION**: 250 mℓ/ha + 75 mℓ Trend 90/ 100 ℓ water	**FIELD TREATMENT:** After transplanting into the field during the establishment of growing phases of tobacco. • Apply **STEWARD® 150 EC** as a foliar application in 300–400 ℓ water per hectare. Increase the spray volume as plant size and density increases. • Apply **STEWARD® 150 EC** preventively or early correctively when bollworm eggs or small larvae are observed during regular scouting. • Follow-up with a second **STEWARD® 150 EC** application at a spray interval of 10–14 days if necessary under conditions of continuous re-infestation. • Use the shorter interval under conditions of heavy infestation pressure. • Do not exceed 2 applications per season with **STEWARD® 150 EC** against bollworm, or 4 **STEWARD® 150 EC** applications against tobacco leaf miner (for details refer to the tobacco leaf miner recommendations on this label) or a maximum of 840 mℓ/ha of **STEWARD® 150 EC** in total per growing season of the tobacco crop. The alternation of **STEWARD® 150 EC** with insecticides having a different mode of action is recommended. Apply the 2 **STEWARD® 150 EC** applications consecutively (= block application) before going over to insecticides with other modes of action. • Most beneficial insects and predatory mites are unaffected by applications of **STEWARD® 150 EC**. • **The addition of an adjuvant wetter e.g. Trend 90 at 75 mℓ/100 ℓ of spray mixture is recommended to improve coverage.** • **Allow 28 days between last application and harvest of the crop.**

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
TOMATOES: American (Africa) bollworm (larvae) *(H. armigera)* *and* Tomato semi-looper (larvae) *(Chrysodeixis acuta)*	**GROUND APPLICATION:** 300 mℓ/ha **(when applying >1 000 ℓ spray mixture per ha, use 30 mℓ/100 ℓ water)**	**Corrective Foliar Application:** • Apply at 500–1500 ℓ of spray mixture per hectare. Good coverage of all foliage is essential. • Apply when the first larvae are observed – normally around the fruit-set stage of the crop. **STEWARD® 150 EC** will control larvae of all stages of development. • Regular scouting of tomato fields is essential to determine the timing of the first and subsequent applications if necessary. • **STEWARD® 150 EC** can be applied in an 8–14 day interval spray programme under conditions of continuous re-infestation. Use the shorter interval early in the growth season when plants are growing actively. • Do not exceed 5 applications per season with **STEWARD® 150 EC**. The alternation of **STEWARD® 150 EC** with insecticides having a different mode of action is recommended. Apply 2–3 **STEWARD® 150 EC** applications consecutively (= block application) before going over to products with other modes of action. • Most beneficial insects are unaffected by applications **STEWARD® 150 EC.** • **The addition of an adjuvant / wetter e.g. Trend 90 at 75 mℓ/100 ℓ, Villa 51 at 50 mℓ/100 ℓ of spray mixture is recommended to improve coverage.** • ***Tomatoes may be harvested 1 day after application.***

CROP / PEST	APPLICATION RATE	RECOMMENDATIONS / REMARKS
TOMATOES (continued): Potato tuber moth (leaf miner larvae) *(P. operculella)*	**GROUND APPLICATION:** 300 mℓ/ha **(when applying >1 000 ℓ spray mixture per ha, use 30 mℓ/100 ℓ water)**	**Preventive / Early corrective foliar application:** • Apply at 500–1 500 ℓ of spray mixture per hectare. Good coverage of all foliage is essential. In the case of trellised tomatoes both sides of the tomato row must be sprayed. • 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. • Timing of subsequent applications should be based on regular scouting of tomato fields. • **STEWARD® 150 EC** can be applied in an 8–14 day interval spray programme under conditions of continuous re-infestation. Use the shorter interval early in the growth season when plants are actively growing. • Do not exceed 5 applications per season with **STEWARD® 150 EC**. The alternation of **STEWARD® 150 EC** with insecticides having a different mode of action is recommended. Apply 2–3 **STEWARD® 150 EC** applications consecutively (= block application) before going over to products with other modes of action. • Most beneficial insects and predatory mites are unaffected by applications of **STEWARD® 150 EC.** • **The addition of an adjuvant / wetter e.g. Trend 90 at 75 mℓ/100 ℓ, Villa 51 at 50 mℓ/100 ℓ of spray mixture is recommended to improve coverage.** • ***Tomatoes may be harvested 1 day after application.***