



An Agricultural
Sciences Company

Steward® 150 EC

Insect control

PRODUCT DESCRIPTION

An emulsifiable concentrate stomach and contact insecticide used to control Maize stalk borer larvae (*Busseola fusca*), Sorghum stem borer larvae (*Chilo partellus*), African bollworm larvae (*Helicoverpa armigera*) and Fall armyworm larvae (*Spodoptera frugiperda*) in maize and sweetcorn.

PROPERTIES

- Registered for pivot- and tractor application.
- Is active as a larvicide through ingestion (stomach action) and through cuticular absorption (contact action) - very quick feeding cessation and immobilisation.
- Is equally active on larvae of all development stages of the stalk borer, stem borer and bollworm species.
- Low dose rate – even on strains resistant to existing insecticides.
- Consistent performance even at high temperatures.
- Is highly lipophilic and absorbs into the waxy cuticle of leaves.
- Rainfast properties once the spray mixture has dried on the target area, will not wash off through rainfall or irrigation and these conditions will therefore not influence the normal residual activity of the product.
- Low toxicity to operators, consumers and mammals in general when applied according to the label recommendations.
- Non toxic to birds.
- Long persistence.
- Integrated Pest Management compatible (selective to main beneficial arthropods and doesn't encourage red spider mite repurcussions).
- Short pre-harvest interval.

COMPOSITION

Steward® 150 EC contains 150 g/l indoxacarb in an emulsifiable concentrate formulation for better distribution and adherence to plant surfaces.

MODE OF ACTION

Indoxacarb (chemical class: oxadiazines) belongs to IRAC MoA group 22A and has a unique mode of action. Target pests change the molecular structure and properties of indoxacarb through metabolic activation, by breaking off a piece of the molecule to create an altered, more active form. This transformation changes the indoxacarb molecule into a highly potent insecticide. Indoxacarb works either through ingestion or absorption. It acts as a sodium channel blocker and inhibits the entry of sodium ions into the nerve cells of target pests, resulting in the paralysis and death of the insects within 24 to 60 hours.

RESISTANCE MANAGEMENT

Lack of cross-resistance to existing insecticides makes indoxacarb an excellent active ingredient for Insect Resistance Management programmes. Indoxacarb belongs to IRAC group 22A. Refer to product labels for specific resistance management guidelines.

USE RECOMMENDATION

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 three applications per season with **Steward® 150 EC**.
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. Not applicable to tank mixtures.

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**USE PLANT PROTECTION PRODUCTS SAFELY AND WITH RESPONSIBLE CARE.
PLEASE ALWAYS FOLLOW THE LABEL WHEN APPLYING PLANT PROTECTION PRODUCTS.**



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USE RECOMMENDATION *continued*

- 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** + cypermethrin mixture when hot, dry environmental conditions are prevalent.
- 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. For Fall armyworm, use a 7 day interval spray programme.
- 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.

Application rates for STEWARD® 150 EC or STEWARD® 150 EC + cypermethrin tank mixtures in Maize and Sweetcorn:

Application Rates	General Ground Application:	Ground Application over the Plant Row:	Application with Pivot Irrigation System:	Aerial Application:
Steward® 150 EC	300 mL/ha + 0,5 L/ha H&R Crop Oil	3,0 mL/100 m plant row + 3,3 mL/100 m plant row H&R Crop Oil	300 mL/ha	300 mL/ha + 0,5 L/ha H&R Crop Oil
Steward® 150 EC + cypermethrin	250 mL/ha + 250 mL/ha cypermethrin + 0,5 L/ha H&R Crop Oil	2,5 mL/100 m plant row + 2,5 mL/100 m plant row cypermethrin + 3,3 mL/100 m plant row H&R Crop Oil	250 mL/ha + 250 mL/ha cypermethrin	

Notes applicable to Stalk Borer, Stem Borer, African bollworm and Fall armyworm in Maize and Sweetcorn:

Pest	Commercial Maize:	Sweetcorn:
Stalk borer (<i>Busseola fusca</i>) larvae:		
NB: Application must be done before larvae migrate to the stems of the maize plants and when larvae are smaller than the 2nd larval instar. Do not apply Steward® 150 EC on maize against stalk borer whilst the tassel is encircled by the flag leaf.	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.	Apply preventively, or when egg laying starts, or with the first signs of shot hole damage symptoms on the maize.
Sorghum stem borer (<i>Chilo partellus</i>) larvae:		
NB: Application must be done before larvae migrate to the stems of the maize plants and when larvae are smaller than the 2nd larval instar. Do not apply Steward® 150 EC on maize against stem borer whilst the tassel is encircled by the flag leaf.	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.	Apply preventively, or when egg laying starts or with the first signs of shot hole damage symptoms on the maize funnels.
African bollworm (<i>Helicoverpa armigera</i>) 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 already deep inside the beard, or migrated into the heads, will not be controlled.	
Fall armyworm (<i>Spodoptera frugiperda</i>) larvae:		
NB: Application must be done before larvae migrate into the cobs of the maize plants. Larvae that are already deep within the beard or have migrated into the cobs will not be controlled.	Apply at the beginning of infestation and at the first signs of damage, no more than when 5 % of the plants are found scraped. Application is not recommended for control of worms (larvae) larger than 1 cm.	

FOR MORE INFORMATION

Put this powerful tool to work for you. Contact your local crop protection retailer, or FMC representative to learn how you can get more consistent control of key pests in maize with **Steward® 150 EC** insect control.

FMC Chemicals (Pty) Ltd
PO Box 44, Postnet Menlyn
Waterkloof Glen, 0181
Republic of South Afrika.
Tel: +27 12 003 2938.

Always read and follow the label directions and precautions for use.

Steward® 150 EC contains Indoxacarb (Oxadiazine) Reg. No. L8435 Act No. 36 of 1947, harmful. H&R CROP OIL Reg. No. L6802 Act No. 36 of 1947 contains mineral oil, caution. Steward® is a trademark of FMC Corporation or an affiliate. H&R CROP OIL are registered trademarks of H&R Global Special Product Sales (Pty) Ltd, PO Box 21575, Bluff 4036.